

AUTUMN 2020



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THE MAGAZINE OF THE NATIONAL ASSOCIATION FOR SUSTAINABLE AGRICULTURE AUSTRALIA

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AN ORGANIC
RESPONSE
TO CLIMATE
CHANGE



Mark Gower
/ General Manager

HARSH AND UNFORGIVING SUMS UP SUMMER

AUTUMN BRINGS WITH IT RECOVERY
AND, HOPEFULLY, RENEWAL

Like the rest of the country, we are devastated by the enormity of the bushfires and the impact on people, livestock, habitat, wildlife and infrastructure.

The sheer scale of these bushfires is, and continues to be, extremely difficult to comprehend. And, just as we started the process to regroup, recent heavy rainfall in parts of Australia have brought hope to many, but also fears with flash flooding threatening already degraded landscapes.

Our thoughts are with all our certified operators who have been affected during this time.

Community funding and support has been available for rebuilding efforts in the short term, but as the months go by, focus will turn from post fire management to recovery.

If there should be such a thing as a silver lining, it would lie in the opportunity to take stock and redesign a better farm management system from scratch.

Many may not yet be prepared to see any emerging positives, but this is a key message from 2019 bushfire survivor and regenerative agriculture coach, Kim Deans, and one that was echoed in our recent Regenerate and Recover event held in SA, with speakers, Paul Clark, Tim Marshall and Ron Watkins.

Hosted by NASAA, the recovery event was designed to assist people with properties

that were either directly impacted by the recent bushfires, or those who are taking the opportunity of considering more sustainable solutions on how to design their property to be more resilient to future drought and bushfire events.

Recovery on farm is entirely possible, but the macro policy settings need to be in place, and this is where Australia lags. We would welcome the Federal Government to support agricultural practices that contribute to improving soil carbon, water systems and biodiversity, which increase the resilience and health of our food and fibre production in Australia. Political support is critical to scaling up sustainable farming practices that in effect mean constant regeneration of the land and environment.

Adam Willson, Director of Soil Systems Australia, defines a detailed action plan to 're-hydrate' Australia. Farming methods promoted under this plan represent a forward step along the pathway towards organic production and sustainable agriculture.

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Natural resources, human and financial capital are three elements that inextricably link the path to regeneration and to imagining new futures. This concept of 'sustainable prosperity' is gaining traction globally, and Adelaide was fortunate to recently host visiting Professor Stephanie Kelton, former economic advisor to Bernie Sanders and leading advocate for Modern Monetary Theory (MMT) to explore elements of a Green New Deal for Australia.

Looking forward, market research company IBISWorld, reporting on key growth industries have forecast organic farming to grow at roughly 15% per annum over the next five years. They say Organic farming is set to become one of Australia's fastest-growing industries over the next five years.

Growth in the sector is expected to outstrip the overall economy as increasingly health-conscious consumers reshape the economic landscape. IBISWorld say their study reflected a shift towards healthier lifestyles and that "Organic produce is one of the most lucrative opportunities to become available to the agriculture sector in recent memory".

In spite of significant potential economic benefits forecast for the organic industry, the South Australian government remains determined to remove the moratorium on GM crops in the state, which represents 40% of the Australian organic industry. With more GMO's in the market and the very real threat of contamination they bring, it places more risk, increases uncertainty and creates increased barriers for farmers wanting to become and remain Certified Organic.

On what seems an almost lighter note, in this edition, we continue to bring to you features from our keynote presenters at the recent IntoOrganics Conference, this month featuring Chris Colbert and Andre Leu.

Please take some time to enjoy, and continue to share your stories with us.

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Positive pathways to recovery

NASAA REGENERATE & RECOVER EVENT FEBRUARY 2020

We were honored to do our bit for the local Adelaide Hills community in hosting a free event in February on post-bushfire recovery and organic land management, featuring two legends of the certified organic sector, Tim Marshall and Ron Watkins.

In opening the event, NASAA General Manager Mark Gower acknowledged that many in the audience had been directly impacted by recent bushfires in the Adelaide Hills region and that the focus of the event was not to dwell on the negative, but to encourage people to look at emergent positives for the future, and to take something of value from the night.

Close to 100 people attended the event at the Haus Conference Centre in Hahndorf, predominantly from areas immediately affected by the Cudlee Creek Fires, including residents of neighbouring towns Lenswood, Harrogate, Brukunga, Lobethal, Mount Torrens and Charleston.

The event quickly sold out; a pleasing reflection of people's genuine interest in approaching recovery with a positive mindset, with a view to implementing future organic, sustainable, regenerative and organic land management practices.



I feel privileged now to have an opportunity to nurture my property back to a healthy and productive habitat one step at a time. I also appreciated the insights about self-care and taking things slowly when there are seemingly endless decisions to make.

Heather, Charleston

PAUL CLARK

Paul, owner of **Kersbrook Hill Wines and Cider**, set the tone for the evening with a personal account of his experiences of bushfire recovery.

Paul's family-owned vineyard was heavily impacted in the catastrophic 2015 Samson Flat fires in South Australia, which destroyed a total of 38 houses and 140 outbuildings, and injured some 134 people; fortunately, with no lives lost.



As Paul recounted, the World as he knew it changed from that moment.

"The memories are still fresh and there is no way to sugar coat it," he said.

"We lost sheds, offices, equipment, fencing, personal treasures and the vineyards, with a damage bill of around \$1M."

Paul spoke of his experiences in dealing with the immediate aftermath of the fire, the things they did well (and those they didn't), and the work involved to rebuild the property.

"It was a lot of work to get it back to 'normal', let alone into a better state," he said, before reflecting on the positives.

"It's a clean slate, so make the most of it," he said.

"There is a natural tendency to want to rebuild what was there."

"But, we got to question ourselves and think, was there a better way to do it?"

One of his biggest pieces of advice for people is to take some time for decision-making.

"Do the things you need to survive, make short term wins a focus, but take time for everything else."

Paul believes that there are things that they could "definitely have handled better."

Dealing with insurance companies and the media attention was something they were quite unprepared for, heightened by the fact that Kersbrook Hill became somewhat of a community focal point as one of the main businesses in the area.

The emotional toll can creep up on you also, according to Paul, and it is important to recognise that stress, uncertainty and emotional damage are all part of the rollercoaster. Paul admits that he probably recognised this too late in himself, and stressed the importance of seeking help.

"Be a strong leader but understand that the stress will get to you too," he said.

"It's important to talk to someone away from

your business and family."

"And don't feel guilty about it."

In wrapping up his presentation, Paul emphasized that it was not all bad news.

"The fire made us rethink the way we were doing things," he said.

"We built a new vineyard to replace the old chestnut grove, reshaped our wholesale operation and rebuilt offices and workshop to our specifications."

"People should be prepared to move to a new normal," he said.

"And, understand that the new normal could be a better normal."

TIM MARSHALL

Tim is well known within the certified organic sector, as the original co-founder of NASAA and contributing Board and Standards Committee member, and as an organic consultant and author of 5 related books. Tim is continuing his own learning journey having just commenced a doctorate at the University



I enjoyed the focus on reconstruction using the elements you have naturally at hand rather than a focus on loss.

Simon, Cudlee Creek

of New England in which he will be examining the governance of organic standards and certification in Australia.

At the start of his presentation, Tim acknowledged that there is very little formal research on fire effects and regeneration for farmland.

His presentation, therefore, was an entirely practical look at what elements people needed to be aware of, and what to focus on, in the short-term to restore soil 'health' and fertility post-fire. This included looking at all elements of soil health; the physical, chemical and biological.

During and post a fire event, the rate of nutrient loss depends upon temperatures reached and duration of burning. Higher temperatures increase loss of biomass, with Carbon, Nitrogen, Phosphorus and Sulphur lost to the atmosphere. For most other nutrients, there may be some 'transformation' that temporarily affects availability - although they should 'recover by themselves'.

At greater than 280 degrees, there may be a significant loss of minerals, and destruction of the seed bank. Nitrogen and Sulphur are the first to disappear, and once gone, are



gone forever. Over 500 degrees, most organic matter is lost, with Phosphorous loss at around 650 degrees. Over 800 degrees organic matter is completely lost (biochar production happens at around 450-700 degrees). Severe bushfires can reach 800 – 1,500 degrees, and it is important to appreciate that the fire ground burns long after the fire front has passed.

Some nutrients may be 'mineralized' by fire, that is, they will be converted to forms that are more available to plants and soil biology. Crystalline minerals, for example, become dehydroxylates e.g. Al, Fe, Si, which can make some clays like cement.

The presence of combusted organic matter and ash can create a water repellent surface layer that, combined with loss of soil cover, can result in severe erosion, leading to loss of additional nutrient.

So, what are the first things to consider post fire?

Understanding 'what' you are dealing with is the first step to recovery, said Tim, as he then identified the 'how' of restoring soil health. Of greatest importance is to:

- **Re-establish ground cover as fast as possible.**

Keep soil covered with mulch or cover crop ('living mulch').



- **Protect waterways.**

This may include installing erosion barriers e.g. hay bales or geofabrics to protect streams and dams.

- **Prevent erosion and restrict weed establishment.**

This may involve reducing/removing stock, taking care not to drive over fire ground and ensuring vehicles and equipment are weed free, and establishing preferred pasture species asap.

Water repellency (one of the effects of fire) can be repaired through the addition of wet compost, liquid seaweed and/or humates, compost tea or extracts and/or pulse irrigation.

Adding organic matter, where possible, especially compost, has enormous benefits in supplying the full range of macro-nutrients and trace elements, helping to hold nutrients in the soil and prevent leaching, improving the structure and drainage of soils, and reducing soil erosion – to name a few.

Plant roots are vital for soil health and there is a need to give special attention to Mycorrhizae (endo and exo) in feeding plant nutrient and trace elements.

Many of the methods of improving soil that Tim spoke of in the context of post-fire recovery are implicit within organic management practices, and he was at pains

to emphasize just how practical and sensible organic standards and methods really can be.

As Tim said to the audience, “No one could say it is not a beneficial way to farm.”

RON WATKINS

Ron is a third-generation farmer and owner, until recently, of Payneham Vale Organics, a 552-hectare certified organic, mixed cropping and sheep farm at Franklin River, WA (350 kms South of Perth).

Over 46 years on the land, Ron has been widely recognized for his innovative approach to land and water management, which has seen him transform a conventional broadacre farm battling rising salinity and poor watercourse management into an “oasis in the middle of the ordinary.”

Ron has seen fires in his area over the years, but has fortunately never been directly affected. He used his presentation to relate his experiences as a certified organic farmer, in designing a landscape to support better agricultural production, with an understanding of available resources.

As Ron said, fire can make people feel they have no control.

But he asked the audience to consider and identify the elements that were still



consider all facets of the environment for a stable ecosystem.

Ron drew heavily from his experiences in planning, designing and improving his own farm over the years. Innovative practices at the time that made the most of available resources, applying the same thoughtful consideration and observation.

He gave examples of improving water management with contour swales and building a holding dam at the highest point of the farm, which had a capacity not previously imagined (now small at 30 ML). Ron shared his design of shelter belts with understorey shrubs to encourage biodiversity and increase birdlife, particularly insectivores, whilst also providing windbreaks to reduce stress on productive plants and create shelters for livestock.

“All elements need to be considered together, and not in isolation,” said Ron.

“And, never forget the resilience of the environment.”

As a community run event, there were several offers of direct assistance and promotion of services for fire affected landholders. This included the promotion of mental health services from Fab Mentors; free Woodhouse adventure activities for children and families; donations of liquid seaweed soil conditioner from Australian Kelp, free compost from select AORA (Australian Organics Recycling Association) members and speedy beet horse feed supplement from local fodder store Marlborough Park.

The event was supported by **Natural Resources Adelaide Hills & Mt Lofty** and **Natural Resources Murray Darling Basin**, with contributions from the Haus Group, Beyond Content, Kersbrook Hill Wines and Ciders and DJ's Grower Services.

We would like to say a big thank you to all. With the positive feedback we have received, we hope to bring similar events to other fire affected regions across the country.



I personally found the talk by Ron Watkins uplifting and heavily aligned with my own philosophy of finding and focusing on the positive...to start from there and work towards a new future, a better future.

Mark and Rhiann, Cudlee Creek

in existence post-fire. To take stock of the resources remaining to work with; energy, soils, seasons, water, air, plants, animals and human capital that in Ron's words, “represent the source of your real farm wealth”.

Element by element, Ron asked the audience to identify considerations in working toward recovery, challenging us to recognise the interrelatedness and interdependence of all things in regeneration, and the need to

SUSTAINABLE PROSPERITY CONFERENCE

MODERN MONEY AND A GREEN NEW DEAL

Hosted by the School of Economics, University of Adelaide, 10-12 Jan 2020.

The Sustainable Prosperity Conference provided a forum to explore elements of a Green New Deal for Australia, informed by the work of some of the world's leading progressive economists and others.

Central to the conference was a focus on the perceptions of a tension between jobs and growth, and taking care of the planet, as we look to transition to a low carbon economy.

"What the Green New Deal says is that we don't have to pick one," was the message from keynote speaker, Professor Stephanie Kelton.

Professor Kelton was a senior economic advisor to Bernie Sanders and former Chief Economist on the US Senate Budget Committee. She was listed as one of the 50 people who defined 2019 and is one of the leading experts on Modern Monetary Theory (MMT), a new approach to economics that advocates Government seek to 'balance the economy', as a concept distinct from 'balancing the budget', recognising real and ecological limits.

Professor Kelton was the honorary Visiting Professor of Economics at the University of Adelaide in January, delivering the annual [Harcourt Lecture](#), headlining the conference, and meeting with political and business leaders in South Australia.

Reflecting the broader economic paradigm that is MMT, the sold-out conference was multi-disciplinary – drawing speakers and attendees from the political, economic and social sciences; environmental, and trade union movement.

NASAA Certification Officer, Carolin Möller, attended the conference and shared her perspectives.

"I found the conference program very interesting, particularly the discussions around ecological economics," says Carolin.

Highlights for Carolin from the program included:

- **Professor Robert Costanza**, an ecological economist from the ANU who spoke on the importance of natural capital, or 'putting a price tag on nature' and valuing the planet. His presentation recognised the 'economy' as a tool that integrates the environment.

- University of South Australia **Associate Professor Phil Lawn** outlining the concept of a Genuine Progress Indicator (GPI), rather than the traditional measure of GDP to more adequately capture economic, social, and environmental benefits. Importantly, the GPI takes the value of ecosystem services and the true cost of climate change into account.
- *Workers, jobs and climate change*, a hot topic with union representation from the Commonwealth Public Sector Union (CPSU), Construction, Forestry, Maritime, Mining and Energy Union (CFMEU) and Queensland Electrical Trades Union (ETU). Representatives spoke on the topic of a 'just transition' that ensures no-one is left behind.
- GetUp's Economic Fairness Campaign Director **Ed Miller** and **Lachlan McCall** acting as MCs throughout the event, spanning several speaker forums, challenging and stimulating discussion threads.

According to Carolin, there was a diversity of views and opinions shared throughout the conference.

"For some, the concept of MMT doesn't go far enough," she says.

"It is seen simply as an amendment of the current system, and not the radical paradigm shift that is hoped for."

The key out take from the conference is that Times Up. Change is needed Now. We have enough ways to redesign a post capitalist system. All the tools are there. Technologies, economic, environmental. There is hope for a better future and huge opportunities for workers.

"It was a very positive mood coming out of the conference," says Carolin.

Further Information

For the full list of speakers, visit mmt-adelaide-2020.com/

For videos from the conference proceedings

CLICK HERE



Building resilience through bushfire recovery



Kim Deans of Integrity Soils, featured in our last edition of Organic Insights as a keynote speaker at our IntoOrganics seminar, knows only too well the journey from devastation to renewal, having lost everything in the NSW fires of February 2019.

She understands first-hand the psychological, economic and ecological rebuilding that takes place post fire, continuing over many years. It's a journey that she herself is only just beginning, and one that she is approaching with a positive mindset.

Here, we feature an extract from Kim's blog article on her experiences of recovery.

After the fire: recovering, redesigning and rebuilding

Fire is a fast-moving disaster, it can catch us off guard and destroy what has taken years, if not a lifetime, to create in just minutes.

Unfortunately, fire came too close to home for us in February 2019. Our property was impacted by the Tingha Plateau fire in NSW

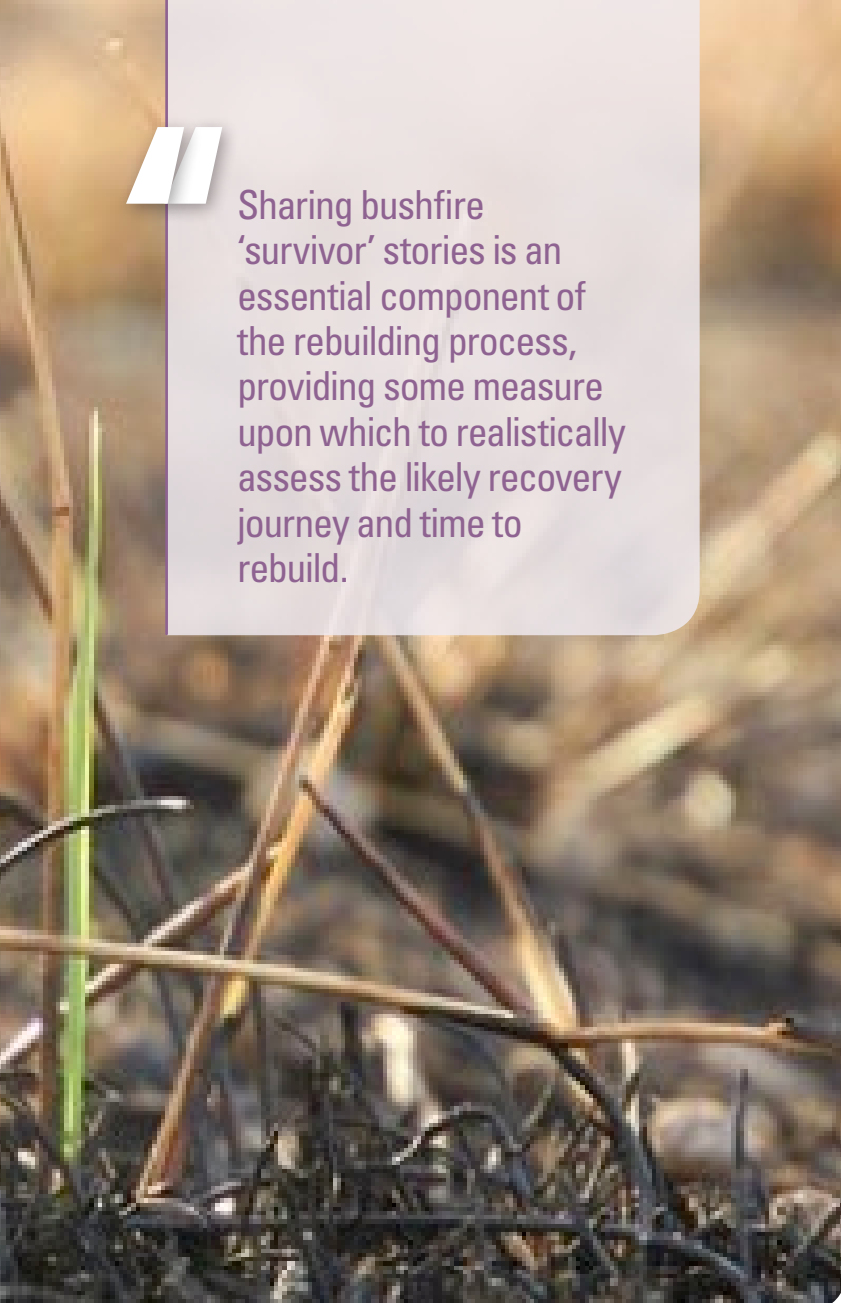
which burnt through 23,400 ha, destroying 13 houses and 44 outbuildings. Miraculously, there was no loss of human life.

All our pastures, our fences, yards, shelter belts, orchard, gardens and a shed were lost. Our house also sustained damage, so we had a very close call!

Recovery

Fire recovery is a long-term process, and it presents a unique opportunity to redesign your property. Do not feel pressured to have everything back together quickly, potentially missing an opportunity for making the most of the blank canvas a fire leaves behind. It amazes me how quickly many people who have not been through a fire expect you will recover. I have been lost for words when people ask optimistically if we are all recovered from the fire yet. It was only 12 months ago, and we are still in the midst of a record-breaking drought!

Whilst the infrastructure damage can be easily repaired if you have good insurance, fire recovery in the landscape takes years and,



Sharing bushfire 'survivor' stories is an essential component of the rebuilding process, providing some measure upon which to realistically assess the likely recovery journey and time to rebuild.

without rain, there can be no recovery! So, whilst we are still in the midst of drought and far from making a recovery, this experience has taught us much. Our learnings include the importance of de-stocking and resting our land following fire and creating a plan to nurture our soil back to health when it does rain.

If you run livestock, destocking after fire is the first priority, as it is in a drought. Stock left on burnt land only increases the degradation to your soil and landscape. They also take up precious time through the need to hand feed. Removing livestock frees up time to concentrate efforts on redesigning and rebuilding, at the same time as allowing ground cover to re-establish.

If you want the grass to grow, you need to let the grass grow! Destocking meant our place gained about 30% ground cover after a small amount of rain landed in the months following the fire. This encouraged our underground soil workforce to stabilise our burnt soil and work to bind it back together. These microbes include fungi which release sticky proteins and

chitin to help bind soils. We have noticed that our place is one of the only properties around where topsoil has not blown off in windy weather. These dust storms are not a natural phenomenon; they are in direct response to poor land management.

Our next priority is to be prepared to rebuild our soils when it rains, through kick starting biological processes. Fire damages microbial populations, particularly fungi. Depending on the intensity of the fire, it can create bacterially dominant soils and may destroy organic matter. In some places, our topsoil has been burnt down to underlying sand some 2" lower. Low successional weedy plants colonise the bare soil and soils may even become water repellent.

Soil amendments, such as lime, contain calcium that can help to disrupt waxy water-repellent coatings. To speed up recovery, it is essential to combine calcium with fish hydrolysate and molasses to feed a wide range of soil organisms. Vermicast extracts are also a vital fire recovery tool, as they contain biology and signalling proteins to catalyse the soil building processes. Vermicast also contains microbes which eat waxy coatings and the bacteria which produce them. We are ready to apply a broadacre application of bio-stimulants when there is a good chance of rain.

Establishing a diverse mix of plants when the rains come will also kickstart the soil building process and help maximise water infiltration. Coating seeds with bio-stimulants, such as vermicast or compost extracts, sets them up for success as their microbial partners will be reduced in the burnt soil. Such coatings are scientifically proven to increase germination, plant nutrition and increase resilience to stress.

Life is change, growth is optional.

We can choose to see the challenges life presents us as a disaster, or as an opportunity to learn and grow. Acceptance of 'what is' allows you to regroup and move forward more effectively than being stuck in resistance.

Fire destroyed 15 years of infrastructure development and the results of our landscape remediation. It also left us with a blank canvas to be transformed again based on 15 years more experience.

Nature is resilient, and so are we.

Key observations for supporting recovery

BY KIM DEANS



In addition to my personal experiences, I have had the privilege to walk beside many Australian farmers on their journey to recovering from natural disasters.

Whilst everyone's journey is unique, there are common themes I have seen that make some agricultural businesses more resilient than others in the face of these challenges.

What I have observed has only served to grow my passion for the regenerative agriculture path.

FOCUS ON HUMAN, NATURAL, FINANCIAL RESOURCES.

An agricultural business that pro-actively manages the three key areas of **human resources**, **natural resources** and **financial resources** will always be more resilient to challenges from natural disasters, market volatility, climate variability and will be better situated to manage the recovery process to achieve a good outcome.

Businesses that run down their **natural capital** (soil health and ecosystem functions) end up with greater losses and a slower recovery from disasters that further erode their natural capital, continuing along a downward spiral.

Businesses running down their **human capital** will struggle to manage a business that finds itself under even greater strain, and the pressure can mean the human resources side implodes with increased stress leading to accidents, illness or relationship crises.

When **financial resources** are already stretched to the limit there is no buffer when disaster strikes.

A regenerative, profitable agricultural business, however, seeks to generate financial, human and natural capital.

Human resources

Mindset is the key enabling factor when it comes to human resources. We can't change what's happened, but we do have a choice in how we respond.

Steven Covey's* model of a circle of influence/circle of concern is a useful tool to help us focus where it matters most. When we spend time in our circle of concern, worrying about things which we have no control over, our circle of influence shrinks, due to lack of attention and energy because worrying disempowers us.

When energy is spent within our circle of influence, it expands and we become able to tackle some of the issues that were previously

out of reach. We shift from being reactive to proactive. Any activity that we can do to take care of ourselves, increase our wellbeing, communication skills and knowledge, is within our circle of influence and will also impact everything around us.

Recovering from natural disasters is a grief process which eventually leads to accepting 'what is'. Acceptance can open access to a perspective, that makes it possible to see opportunities and to learn to be better prepared for disasters in the future.

The human resources in your agricultural business are your most valuable, however, often the most worn out and neglected, particularly during stressful times. In burnt out, drought ravaged landscapes, often the people are burnt out too. Stress wreaks havoc

- Recovery, redesigning and rebuilding needs time and a clear head.
- Don't feel pressured to get fully restored overnight.
- Allow time for adequate consideration in decision making.
- Meeting and sharing experiences is an essential component of the recovery process.
- Focus on your circle of influence.

* The Seven Habits of Highly Effective People

on our body biochemistry and our brain function with poor concentration, judgement, and communication breakdown impairing decision making. Land managers who manage stress proactively and prioritise self-care so they avoid burn out will make better decisions and have a speedier recovery.

Natural resources

After fire and/or drought, it is vital to focus on rebuilding soil health to restore and regenerate the natural capital which drives the system. This can take the form of bio-stimulants to restore soil life after fire, resting pastures or cover crops to restore ground cover, and feeding the soil to nourish perennial plants if they have survived the fire.

Operations who survive natural disasters best prioritise looking after their soils and pastures, so feed recovers quicker when it does rain. They don't spend more money on feed than their livestock are worth. For grazing enterprises, de-stocking after fire allows time for pastures to regenerate and the breathing space to focus on planning and rebuilding farm infrastructure while paddocks regain ground cover. It is incredibly difficult to focus on the future and make effective decisions when you are on a treadmill of feeding and watering livestock.

Financial resources

Managing your financial resources through proactively monitoring cash flow in times of disaster, is vital in getting through the situation in the best shape possible. Knowing the numbers helps to make more informed decisions, plan ahead, take advantage of opportunities, weigh up alternative options and communicate with your creditors.

Further Information

Follow Kim's journey at www.biodynamiclife.com/about-us

For consulting advice, visit www.integritysoils.co.nz

Donate to the Organic Farmer's Bushfire Appeal at mailchi.mp/e65984357d18/oricoop_bushfireappeal-553579

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Water Source: River / Dam Water

Process: Ultrafiltration, GAC, Chlorination

Notes: Containerised system for portability and equipment housing. Automated with remote operation and monitoring. Integrity testing, chemical dosing and system cleaning options utilised. System providing potable water for organic chicken breeding facility.



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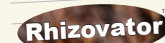
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the hydration plan

THE HYDRATION PLAN AUTHORED BY ADAM WILLSON, DIRECTOR OF SOIL SYSTEMS AUSTRALIA, IS BOTH A CHALLENGE AND A CALL TO ACTION FOR AUSTRALIAN POLICY MAKERS AND FARMERS

Desertification in Australia, through deforestation, overgrazing, and rising salinity, has expanded from the desert regions well into the grassland regions and now accounts for more than 50% of Australia's land mass.

"As an organic agronomist, I feel the best thing farmers can do, therefore, is consider how they can rehydrate their farms," says Adam.

"Here, keyline farming, natural sequence farming, contour farming, holistic grazing management and building soil carbon through composting, provide the tools to minimise loss of moisture from the farm," he says.

"What is required is a fast tracking of regenerative farming practices across all of Australia; practices that increase biodiversity, enrich soils, improve watersheds and enhance ecosystem services.... to build resilience against extremes in weather."

1 Identify farm landscape designs that hydrate the ground

The first thing that must be done, is identify the farm landscape designs that have worked well during long dry periods here in Australia, and overseas. The landscape designs that have worked well are loosely termed 'contour farming' and include

concepts of *terrace farming*, *bund farming*, *contour farming*, *key line farming*, *natural sequence farming* and *permaculture*. Each of these have slight differences, however, the principle is to slow down what water lands on the property, build organic matter that allows the water to infiltrate into the soil, and with the appropriate use of trees and agroforestry, allow that water to recharge the aquifers.



2 Time controlled grazing systems

Good management of pastures occurs when producers know exactly what amount of feed is in each paddock. Larger numbers of stock are rotated for short periods on each paddock (like wildebeests in Africa) and stock numbers are managed so that pastures are never grazed to the ground. This is what is termed Holistic management or Cell Grazing.

It is critical that the best grazing management systems are identified, documented and then implemented across

Australia, especially in the grasslands areas. This should be a national priority because good grazing management directly effects the amount of soil carbon and, hence, soil moisture that builds up across the farm and catchment. Grazing management is also highly productive, providing the producer with both good rooting systems, diversity of feed and productive feed.



Building and monitoring soil carbon

There are many benefits to building soil carbon, but two of the most important are that it holds more moisture and nutrients. With most Australian soils now well below 1%, it is no wonder dry periods, droughts and now desertification is affecting agricultural production so severely.

Regenerative farm practices that help build soil carbon include:

- Biochar
- Compost, Compost Tea, animal manures
- Conservation farming, No-Till Farming, minimum tillage
- Cover crops & multi-species cover crops
- Ecological Aquaculture
- Fodder crops and trees
- Grassfed livestock
- Habitat borders, planted for pollinator and other beneficial insect habitats
- Holistically Managed Grazing, Cell grazing
- Keyline Farming, Natural Sequence Farming, Contour, terrace, bund farming
- No kill cropping (early dry sowing)
- Organic Annual Cropping and Crop rotations
- Pasture Cropping
- Perennial Crops
- Perennial pastures
- Permaculture Design
- Polyculture and full-time succession planting of multiple and inter-crop plantings
- Silvopasture

From a national point of view, these practices are critical if we are going to rehydrate the landscape.



Minimum levels of forest cover on each farm

Windbreaks have been used for thousands of years to reduce evaporation and increase yields within catchments. Evidence from around the

world indicates that windbreaks increase crop production by 15-45%, depending on the soil type and topography. Windbreaks are essential in creating a microclimate, an area between the trees that buffers the crops and buildings from the extreme weather and desiccating winds. Adding trees to a farm doesn't decrease production but rather provides, through the microclimate created, ideal conditions for plants and animals to thrive. Through what is called the biotic pump, trees are essential for making rain and moving that rainfall vast distances. Australia has seen significant decline in rainfall due to deforestation.

A national on-farm reforestation programme of a minimum 10-30% of the property is required. Boundary windbreaks together with strategic plantings based on the contours of the property are needed to reduce the drying effect of these desert and desiccated grassland winds. Farm plans using contour maps can be drawn up and timeframes easily set.



Strict outlawing of Organo-phosphate, Endocrine disruptors and fire-retardant chemicals

Organo-phosphates are neuro-toxic chemicals used in agriculture to kill insects. They work by blocking signals in the nervous system, which also affects humans. Endocrine disrupting chemicals are used in farming for weed and insect control. They are dangerous because they are hormone mimicking, affect mammary glands (breasts), alter sex in amphibians from males to females and kill bees, our primary pollinators in food crops and flowering plants.

In order to produce clean food and protect our children, these chemicals, along with fire retardant chemicals, can no longer be used on our farms, nor these chemicals be allowed to enter the waterways, affecting aquatic animals and ecosystems. If we want a hydrated landscape full of biodiversity, then it must be free of such dangerous chemicals.



Irrigation based on protecting rivers and maximum return per ML

Our emphasis has to move to agricultural practices that protect water quality, eliminate sediment flow into each catchment, build soil carbon and maximise returns per megalitre (ML) of water.

Water intensive crops like cotton should not be grown in the Murray Darling Basin, as they have a low return per ML and high

environmental footprint. In order to help these farmers transition to higher value crops, like vegetables and other specialty crops (hemp seed or fibre), the Federal Government will need to invest in new industries.

The transition towards new crops for irrigated agriculture must be based on sound science and replacing flood irrigation with drip and sprinkler irrigation. Crops should be diverse, suited to the climate and soil type, provide good weed control and be rotated with multi species, green manure crops.



Dryland cropping and integrated farming

Many of the dryland cropping properties located in and around the grassland zones are under severe ecological and financial stress. With many farming businesses having equity below 60%, the economics of farming in these areas is under question.

The government needs to begin helping farmers move back towards tried and tested integrated farming practices, but this time with a difference. Integrated farming practices incorporate livestock, pastures, green manure crops and grain production, all using long term rotations or using perennial pastures as a foundation. The difference this time, is that contour farming practices (eg Keyline or Natural Sequence Farming) need to be adopted. In some areas, cropping may need to be abandoned and replaced with permanent pastures. Some farmers may need to adopt a number of regenerative farming practices to rehydrate and rebuild the fertility of the soil.



Biodiversity and increasing it on farm

Research is showing that the broader the number of species in our soil and above ground, the healthier the landscape and humans are. Some of the best ways to increase farm biodiversity include;

- Design the farm to maximise water retention, windbreaks and include small shrubs that will encourage small birds to establish nests. These small birds will help control insects. Transition to biopesticides and avoid chemicals.
- Maximise annual and perennial plant species using crop rotations
- Use quality compost or extracts to build better root systems
- Utilise livestock through holistic management

Search on-line for regenerative farm practices and visit as many farmers as possible.

•

Link up with other likeminded people that always believe in a glass half full!

•

Consider doing Regenerative Agriculture studies through Southern Cross University.

•

The Hydration Plan has both business and ecological benefits for all of Australia. There are a number of solutions to solving our current crisis and everyone can contribute.



Educate a whole new generation of farmers and land managers

What is important now is to re-educate a whole new generation of farmers and land managers. We need to change the mind set from an extractive mentality, to one of rebuilding natural capital. All our energy needs to focus on what solutions are working, and how we can adapt and improve them in our local community and catchments.

Further Information

Read *The Hydration Plan* in full at adamwillson.com.au/

turning red lights green

“IT’S NOT ABOUT ME... IT’S ABOUT YOU.”

In a reversal of a love story gone wrong, certified operator Chris Colbert, owner of The Herbal Connection and motivational speaker with Greenlight Co, laid out the fundamental principle at the heart of a [successful] Sales approach.

Speaking at our recent IntoOrganics Conference, Chris acknowledged that the sales function has suffered a bad reputation over time, due to some questionable selling practices.

But, as he identified, fundamentally everyone is in the business of selling.

“Many organic producers are experts in their field of production but may be uncomfortable thinking about the other side of the equation,” he says.

“Whether you’re selling to a wholesaler, abattoir or direct to consumer... we all have customers... and understanding their needs is just so important.”

In an entertaining hour, Chris took us through the psychology of selling, and some simple sales truths:

- Perception is reality.
- Goals drive behaviour.
- People buy on emotion. [Then, they justify with logic.], and
- Selling is about influence and persuasion.

“With this in mind, it’s important to deeply understand what motivates customers, or groups of customers,” says Chris.

“To ask, not tell.... Shifting from talking about yourself, to finding out what matters to them,” he says.

Chris identifies that there are 4 main reasons people do not buy:

- NO Need
- NO Financial motivation
- NO Trust
- NO Urgency

“The sales effort should be focused on overcoming each of these barriers, or on ‘charging these batteries’ and ‘turning those red lights green’, he says.

And, this is where an understanding of the ‘art of persuasion’ comes in, according to Chris, as he identifies 6 key pillars that act as strong motivators for overcoming barriers:

- Reciprocity
- Consistency
- Liking
- Authority
- Social Proof
- Scarcity

“An understanding of these principles should underpin not only your sales and marketing plan, but also your product development activity,” says Chris.

“In this way, we are ensuring that our business proposition matches what our target market is after.”

A certified wholesaler of crafted organic herbs, spices and tea, Chris believes that there is an inbuilt authenticity and genuineness that is incredibly attractive in organic agriculture.

“It’s a great story to tell!” he says.

Further Information

Greenlight Co offers 1:1 coaching, Sales Team workshops, events, online training, podcasts and more. Visit greenlightco.com.au/

Check in to The Herbal Connection to indulge in some beautifully crafted organic herbs, spices and tea herbalconnection.com.au/

Contact Chris at chris@herbalconnection.com.au

With 25 years’ experience in sales, Chris is well qualified to assist business owners and individuals to develop strategies for sales success.



To view
Chris's full
presentation

**CLICK
HERE**



HEALTHY SOIL. HEALTHY PLANTS. HEALTHY PEOPLE.

A simple equation and the characteristics of a regenerated planet, according to Andre Leu, Director of Regeneration International, as he addressed the recent IntoOrganics conference on the topic of 'Farming and Eating Safely.'

"The genesis of the Regeneration movement recognises a shift beyond 'Sustainability', with its implied focus on maintaining the status quo," says Andre, "to a growing awakening that we have now gone too far and need to restore and 'Regenerate' our planet.



Andre was at pains to emphasise that the concept of 'regenerative agriculture' came from the organic industry and is, in fact, seen as a stepping stone to organic agricultural practices.

"However, the term recognises the need to regenerate not only the earth's ecology, but its people and communities, the social orders, systems

and democracy that govern," he said.

"Essentially, delivering a system that does not harm our children and destroy our future generations."

Are we poisoning our children?

An emphatic "Yes", was the answer from Andre as he pointed to a significant body of supporting scientific evidence around the safety of our foods.

The World Health Organisation (WHO) identifies that we have an epidemic of non-communicable diseases (NCDs) globally, such as heart disease, stroke, cancer, chronic respiratory diseases and diabetes. NCDs, linked to lifestyle and environmental factors, are the world's leading causes of morbidity and obesity.

"Exposure to chemicals, particularly pesticides, is recognised as a substantial environmental contributing factor," said Andre, as he went on to explore the key 'myths' [['Myths of Safe Pesticides' on page 16](#)] that continue to be perpetuated around the regulation of toxic chemicals used in our food supply.

But, the greatest concern about pesticides in our food and water is for children and the unborn, according to Andre.

"Children have the greatest biocide exposure in proportion to their size," he said.

"Research has shown that children and the developing fetus are at risk from common agricultural chemical mixtures found at levels below those that authorities regard as safe," he said.

"The influence of these low dose mixtures on developing neurological, endocrine and immune systems can cause diminished learning ability and increased aggression."

"We are seeing exponential increases in behavioural issues, ADHD, autism spectrum disorders, auto-immune diseases and respiratory issues."

Andre himself co-authored a study (peer reviewed) that looked at the correlation between the increase in a range of recognised childhood conditions and the increasing use of glyphosate in corn and soy production in the US.

The study found an unequivocal link since the introduction of Roundup ready crops in the early 90's.

"Our research was bulletproof," says Andre, "and the probability that they are not linked is 1:10,000."

There are several other international studies that show that these neuro-toxins are having a negative impact on brain development. Much of the available research has focused on glyphosate, but other organophosphate (OP) classes have been shown to have similar impact.

The WHO has given Glyphosate its highest Class 2A carcinogen rating, identifying that it impacts animals in studies, and may have a limited effect on humans. A positive association has been made with Non-Hodgkin's lymphoma, and we are now seeing some court actions resulting.

With such evidence available, "Why would a society choose to poison it's children?" Andre asks.

It doesn't have to be this way.

"Taking a regenerative approach, an organic approach, means that we don't need pesticides and we can achieve good, productive, high yielding systems," he says.

"It comes down to the management of functional biodiversity, or agro-ecology, in a system that supports increased soil health – soil that is rich in organic matter, nutrients and beneficial organisms; a system that builds plant resilience and resistance to pests and diseases" he says.

"Healthy soil. Healthy plants. Healthy people."

Further Information

Visit Regeneration International at regenerationinternational.org/

View Andre's research paper [here](#).

To view
Andre's full
presentation

CLICK
HERE





The myths of safe pesticides

Conventional farming is dependent on the use of synthetic biocides in food production (pesticides, fungicides and herbicides) to kill pests, diseases and weeds. There are currently more than 7200-registered biocide products used in Australian agriculture.

THE RESIDUE MYTH

Most modern agricultural chemicals leave few residues.

TRUTH

Most agricultural and veterinary chemicals leave residues in food.

- That is why residue tolerances called the Average Daily Intake (ADI) are set for these poisons.
- Testing in Australia only looks at a small sample of the large number of chemicals used. Some of the most widely used chemicals, including herbicides such as Atrazine, eGlyphosate, 2,4-D, Diuron and Paraquat are not included in the testing.
- Many of the current chemicals, including some of the Synthetic Pyrethroids, Organophosphates, Carbamates and Herbicides are as residual as banned Organochlorines such as Dieldrin, DDT, Chlordane, Heptachlor, Lindane and Aldrin.

THE BREAKDOWN MYTH

Once a chemical degrades, it disappears and is harmless.

TRUTH

Most agricultural poisons leave residues of breakdown chemicals when they degrade.

- A substantial number of agricultural pesticides such as organophosphates like Diazinon become even more toxic when they break down.

- Where research exists, it shows that many of the breakdown chemicals from agricultural poisons cause health and reproductive problems.
- There is virtually no testing to detect the residues of the breakdown chemicals of agricultural poisons in our food.
- Very little research has been done to determine safe intake levels for the breakdown chemicals of agricultural poisons. Consequently, there are virtually no safety levels to determine the Average Daily Intake (ADI) for the toxic breakdown chemicals that contaminate our food.

THE RIGOROUSLY TESTED MYTH

All agricultural poisons are scientifically tested to ensure their safe use.

TRUTH

Most of the 7200 registered agricultural and veterinary products used in food production are not tested for health and reproductive effects.

- Most agricultural poisons are mixtures of one or more chemicals called the active ingredient(s) mixed with other mostly toxic products, such as solvents or surfactants, that are defined as "inerts".
- Only the active ingredient is individually tested to determine a safety level for the Average Daily Intake (ADI). The actual registered product i.e. mixture of chemicals, is not tested for long-

term effects such as cancers, hormone disruption, birth defects, immune & nervous system damage. Testing of Roundup, for example, a mixture of the active ingredient Glyphosate, solvents and surfactants shows that the compound is more toxic than the active ingredient Glyphosate.

- Regulatory authorities do not test the safety of combinations of chemical product i.e. chemical 'cocktails' of herbicides, pesticides, fungicides and some of the synthetic fertiliser compounds. The emerging body of science demonstrates that many chemical cocktails act synergistically. This means that instead of a 1+1= 2 scenario, the extra effect of the mixtures can mean 1+1= 60 or even 1000 in toxicity.

THE VERY SMALL AMOUNT MYTH

The residues are too low to cause any problems.

TRUTH

Research shows that the toxicology used by our authorities is inadequate in determining the safety of chemical compounds.

- The current model of toxicology works on the notion that the lower that a certain dose level of poison causes no observable ill effects, this dose becomes the basis for determining the Average Daily Intake (ADI). Authorities then claim that any residue levels below the ADI are too low to cause health problems.
- A significant number of studies show that compounds considered to have very little toxicity in parts per million (ppm) have a range of adverse effects in parts per billion (ppb). These compounds disrupt our hormone systems at levels 1000 times lower than previous research stated was safe. Agricultural chemicals have been shown to mimic hormones such as estrogen, blocking hormone receptors or stopping hormone activity. These chemicals have been implicated in lower sperm counts, increases in breast, uterine, testicular and prostate cancers and deformities in the genital-urinary tracts.

THE REGULATORY AUTHORITIES MYTH

Government regulatory authorities ensure agricultural poisons are used safely and cause no adverse health or environmental problems.

TRUTH

History shows a consistent failure of regulatory authorities to prevent the contamination of the environment and human health by products previously said to be safe such as Asbestos, Lead, Mercury, Dioxins, PCBs, DDT, Dieldrin and other Persistent Organic Pollutants.

- Regulatory authorities around the world seem to be ignoring the large body of published science, showing that the current methods of determining the safety of the agricultural poisons are grossly inadequate.
- Pesticides do not just pollute our food; they poison our drinking water and air. In 1999, for example, Swiss research demonstrated that some of the rain falling on Europe contained such high levels of pesticides - atrazine, alachlor, 2,4-D and other common agricultural chemicals - that it would be illegal to supply it as drinking water. The EU banned use of Atrazine in 2003, as it is one of a number of identified agricultural chemicals linked to cancer in humans. Authorities in the US and Australia, however, have decided to ignore the overwhelming body of science about the adverse effects of this chemical.
- Most of the biocides used in farming are synthetic chemicals that have never existed before. Scientists are continuing to find serious unintended consequences on the environment and human health. An abundance of published scientific research links commonly used pesticides such as Malathion, Diazinon, Chlorpyrifos and other organophosphates as well as the carbamates, synthetic pyrethroids and herbicides to disruptions of the hormone, nervous and immune systems. They are also linked to cancers such as pancreatic, colon, lymphoma, leukemia, breast, uterine and prostate. Autoimmune diseases linked include asthma, arthritis and chronic fatigue syndrome.

Climate change – the potential of an organic response



Glenn Schaub
/ NASA Chair

Listening to [ABC radio](#) the other day, I heard an interview with a group called [Bushfire Survivors for Climate Action \(BSCA\)](#), who are seeking to lessen the impact of climate change on local environments and communities.

For them and the many others living in regional Australia, the negative effects of Climate Change are here and now. With 1.1°C of warming recorded, and predictions by the [Intergovernmental Panel on Climate Change](#) (IPCC), of [up to 3.0°C](#), the Bushfire Survivors sense of urgency is acute.

Recovery from fires, in human, environmental, wildlife and economic terms has already proven to be slow. For example the BSCA reported that of the 69 homes destroyed in the 2018 Tathra fires, only 9 homes have been rebuilt. This time, hundreds of homes have been lost along with thousands of hectares of natural ecosystems and farmlands.

The BSCA are calling for immediate and urgent action by the Victorian Government to reduce emissions of 70 per cent based on 2005 levels, by 2030, in order to better protect communities against the effects of climate change. They are not alone. The United Nations has defined 17 Sustainable Development Goals with [Goal 13 defined as Climate Action and](#) report that:

Global warming is causing long-lasting changes to our climate system, which threatens irreversible consequences if we do not act. The annual average economic losses from climate-related disasters are in the hundreds of billions of dollars. This is

not to mention the human impact of geo-physical disasters, which are 91 percent climate-related, and which between 1998 and 2017 killed 1.3 million people, and left 4.4 billion injured. The goal aims to mobilize US\$100 billion annually by 2020 to address the needs of developing countries, to both adapt to climate change and invest in low-carbon development.

Back in 2006, the [UN Food and Agricultural Organisation](#) concluded that there is need to merge the study of global climate change adaption, with the rigorous investigation and improvement of organic practices to determine how farmers may cope best.

Since that time, [Global emissions from crop and livestock agriculture](#) have risen from 4.7 billion tonnes CO2 equivalent in 2001 to more than 5.3 billion tonnes, an increase of more than 14 percent.

Science has also come to better understand how [organic agriculture can help to tackle climate change by reducing greenhouse gas emissions](#), as well as helping to manage the effects of climate change at the local level. For example, the direct correlation between nitrous oxide emissions and the amount of nitrogen fertilizer applied to agricultural land, provides an emission reduction potential from abstaining from mineral fertilizers of around 20 percent using organic farming practices. Organic practices also offer a compensation potential from carbon sequestration to between 40 to 72 percent of the world's



current annual agricultural greenhouse gas (GHG) emissions, but further research is needed to consolidate these numbers: (sited [Scialabba N. E et al 2010](#)).

In the EU nitrous oxide released from nitrogen fertilizers accounts for nearly [40 percent of agricultural emissions](#). This is particularly important because the impact of 1 kilo of nitrous oxide on warming the atmosphere is about [300 times greater than](#) the impact of 1 kilo of carbon dioxide.

A [2020 study](#) found that carbon sequestration is possible for both organic and conventional farming, but while conventional agriculture relies heavily on nitrogen fertilizers, produced through a process involving ammonia and methane, organic farmers do not rely on synthetic nitrogen fertilisers to boost soil fertility.

[IFOAM International](#) also reports that a linear increase of the share of organic farming on EU agriculture land from 6 percent to 50 percent from 2016 to 2030 would reduce or compensate cumulative GHG emissions from agriculture from 2016 to 2030 by 7.5-8.5 percent. This would occur through increased soil carbon sequestration (-5.5 percent) and reduced nitrogen fertilizer application rates (between -2 and -3 percent). It would also lead to a reduction of emissions linked to the production of mineral fertilizers, equivalent to 4-5 percent of agriculture-related emissions.

Organic farming systems offer an opportunity for farmers to develop on-farm strategies and practices that help mitigate the risks associated with the impact of climate change and dry conditions.

For example, [the Farming Systems Trial \(FST\)®](#) at the Rodale Institute began in 1981 and is America's longest running side-by-side comparison of organic and conventional agriculture. The systems used in the Rodale study represent organic dairy or beef operation, an organic cash grain system, and a conventional synthetic grain farm. Data has been collected throughout the trial, which measures differences in soil health, crop yields, energy efficiency, water use and contamination, as well as the nutrient density of crops grown in organic and conventional systems, managed with different levels of tillage. Among the many advantages, this trial has found that organic farming systems:

- yields match conventional yields after a five-year transition
- outperforms conventional farming in years of drought by up to 40 percent
- earns 3 to 6 times greater profit for farmers
- leaches no toxic chemicals into waterways
- uses 45 percent less energy
- releases 40 percent fewer carbon emissions
- water volumes percolating through soil were 15-20 percent higher than the conventional systems
- systems are more profitable than conventional ones.

Recently, NASAA Organic piloted a free community event 'Regenerate and Recover' in the Adelaide Hills, which brought together a range of experts and growers, who have recovered their farms from bushfires, to share their organic industry knowledge and expertise on rebuilding farms, communities and businesses successfully.

Attracting a range of government and industry sponsors, around 100 attended the event which assisted property owners who were directly affected by drought or bushfires, in learning how to design their property to be more sustainable and resilient using organic and regenerative practices.

NASAA will continue to [implement knowledge sharing events](#) and programs in order to support and further develop the organic industry and assist farming communities to become more sustainable.

We hope to see you there in the future.

NASAA BOARD NEWS



Welcome Phil Sutherland to the NASAA Board.

Phillip (Phil) Sutherland comes to the NASAA board with a passionate

interest in the health benefits of organic, biodynamic and sustainable agricultural practices.

A life changing personal experience convinced Phil of the health benefits of organic foods, and he has since been keen to support and promote


organic agriculture practices widely, contributing his wealth of management experience in both the public and commercial sector.

Currently the Chief Executive of the Civil Contractors Federation South Australia, Phil carries out his role in overseeing Civil Train SA and Train SA, the largest private Registered Training Organisation (RTO) in South Australia.

Serving for several years as a senior executive of a South Australian Technical College, Phil has dedicated his time in training Apprentices as part of a student Secondary Education School Based Apprenticeship Program.

Well known in industry, media and government circles, Phil is an experienced industry and business advocate with skills in public policy and government relations.

The NASAA board will value Phil's input as we seek to develop suitable training courses and programs for our membership and others.



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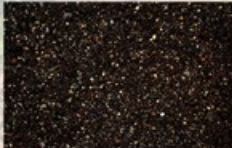


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NEWS WRAP UP



'RAMMING' TACTICS FROM SA GOVERNMENT ON GMO

A week is a long time in politics. Despite two earlier knockbacks in the Parliament last year, the South Australian Government appears determined to proceed to lift the State's GM Crop Moratorium. The Government has exploited a loophole once again in changing

regulations to exempt the Mainland from the moratorium, as of January 1 this year.

However even if Parliament votes in favour of a disallowance motion mooted by Greens MLC Mark Parnell, the Government have indicated that they will simply continue to re-introduce legislation.

To their credit, the Greens have maintained a strong opposition to the moratorium removal via a concerted campaign including direct communications to the responsible MP's, a Parliamentary Briefing and the Community Forum: Lifting the GM Crops Moratorium: At what cost?

NASAA have been directly involved in this process including direct communications to politicians, alerting our networks, social media posts and participating in both the Parliamentary Briefing and the Community Forum.

Despite the strong calls to maintain SA's clean, green status, the Government maintains a tin ear on the issues and is demonstrating a blatant disregard for due process. The SA Primary Industries Minister said the Liberal Government was committed to supporting SA farmers looking to grow GM crops, yet he was opposed to protecting other farmers from the negative impacts that GM crops created! They appear to be hell bent on ramming the changes through.

No doubt there will be more to come on this important issue.





TERRAGEN LISTS ON THE ASX

NASAA certified input manufacturer Terragen eyes further growth through ASX listing.

Based in Queensland, Terragen Holdings (ASX:TGH) is a biotech company dedicated to supporting biological agriculture for productivity, through the development of soil improvement inputs using core micro-biome technologies. The company also has a focus on developing chemical free animal health products.

Terragen boasts a world-class R&D capability with a dedicated team of researchers across biotechnology, microbiology, plant biology, agronomy and agricultural science, and links to other researchers in Australia and the US.

Commercial products currently available to farmers include the 'Great Land' biological soil conditioner and 'Mylo' microbial feed supplement, distributed throughout Australia.

The capital raising will support expansion of product markets in the US and the EU.

Visit www.Terragen.com.au for further information.



COBWA: BUILDING CAPACITY IN THE WEST

Certified Organic Biodynamic WA Inc. (COBWA) officially launched on Sunday 9 February 2020. The launch event was held at certified organic Stormflower Winery in Margaret River and provided a wonderful opportunity for over 70 certified organic and biodynamic operators in the West to meet, get to know each other and find out more about COBWA.

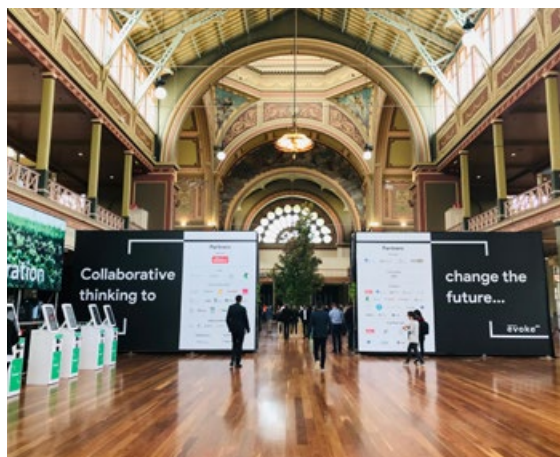
COBWA inaugural Chairman David McFall presented a historical overview of the COBWA evolution, which commenced last year and has formed the 5-year strategic plan to help realise their vision to grow and advance the certified organic and biodynamic industry in Western Australia.

David also thanked NASAA for agreeing to get behind the new entity with a substantial founding fund contribution over the next 3 years.

COBWA objectives are to:

- Grow the WA organic industry by working together
- to achieve recognition and understanding of the WA organic Industry
- to attract investment in research, development, extension and adoption in the WA organic industry
- Connect and educate WA consumers to the organic industry

Visit cobwa.com.au to find out more, and to join as a Member. While you're there, listen to the inspiring podcasts at www.cobwa.com.au/regenerative-radio



evokeAG CONFERENCE

Royal Exhibition Building, Melbourne
16 – 17 February

Billed as the Asia Pacific region's largest ag-tech event, evokeAG is an event that explores what's next in the agrifood technology space, covering three main themes of food, farm and future.

The two-day program saw more than 100 speakers from eight different countries take to the stage to inspire, challenge and transform the way we think about food and farming into the future.

More than 1,300 event delegates from 22 countries attended this year's event, including farmers, startups, innovators, accelerators, researchers, universities, businesses, corporates, government and investors to discuss the megatrends facing the world of agriculture.

Topics included:

- Population growth, increasing food consumption and the demand to cater for diversified diets.
- Consumer trends impacting the food industry and opportunities for farmers.
- Technology use to feed our growing population and evolving consumer demands.
- Research and development (R&D) for startups as a critical foundation to drive innovation.
- Biotechnology, innovative crop protection products and digital innovation.
- AI and remote sensing – big data and technology for supporting decision making.

Sustainability and water use efficiency in agriculture was another strong focus of the program.



NCO Certification Officer, Carolin

Möller attended and found it a wonderful program to explore and understand the technology opportunities available to farmers – both now, and into the future.

"I found the conference program very hands-on, and practically oriented."

"Much of the discussion focused on Industry 4.0 for the agricultural sector, with a focus on digital innovation, data management

technology and tools to support farm and agribusiness decision-making."

"There were some great sessions on traceability, which is highly relevant to the organic sector, with a good example from AACo of its traceability system, stockIT."

"There were also several examples of startup companies working with farmers to develop unique technology solutions, which included some exciting app development."

"This included Adelaide-based startup Consilium Technology's revolutionary GAIA mapping software, that provides a national census of vineyard data using AI and satellite imagery."

"There was an example from the US, SWARMFarm, started on the premise of 'My Dad used to Drive a Tractor', that looked at use of robotics on farm."

"Throughout the conference, there was discussion on soil moisture and water efficiency, building organic carbon, and climate change, but nothing new to the organic farmer."

"Closing the consumer gap, Mike Lee, from the US-based Alpha Food Labs, spoke of the future of food being 'diversity' as he went on to talk about partnering with consumers and incentivizing growers to plant diverse crops, marketed under the company's brand, Crop Crackers."

"With a focus on collaboration, speakers brought knowledge on developments from Australia, NZ, the US, Canada and Israel."

"It was interesting to learn of the investment of such major companies as Microsoft, Amazon and Airbus in ag-tech, and there were some relevant discussions around venture capital and R&D funding structures."

"Australian investment in Ag-Tech has increased threefold, from AUD\$20 Billion to AUD\$90 Billion, and this is only good news for Australian agribusiness."

Further Information

For the full event wrap-up, visit evokeag.com/evokeag/2020-day-1-wrap-up/ and evokeag.com/evokeag/2020-day-2-wrap-up/

Next year's evokeAG event will be held in Perth.

UPCOMING EVENTS AT HOME & AROUND THE GLOBE



BIOFACH CHINA 2020

Date: 1 – 3 July 2020

Location: Shanghai World Expo Exhibition & Convention Center

The decision for NASAA Organic to attend this year's Biofach Shanghai event is currently on hold due to the outbreak of the Coronavirus. We will continue to monitor the situation and communicate with all of those businesses that have shown interest, however if the danger of attending the Shanghai event is too high we will not be risking the health of our guests and staff.



ORGANIC WORLD CONGRESS, 2020

Date: 21 – 27 September 2020

Location: Rennes, France

Every three years, the organic sector assembles to host the Organic World Congress (OWC), the world's largest organic gathering. In 2020, the 20th OWC will be held 21-27 September in Rennes, France.

Drawing from the motto, 'From its Roots, Organic Inspires Life', OWC 2020 will aim to provide organic and likeminded stakeholders working toward sustainable agriculture, value chains, and consumption with an opportunity to exchange their knowledge, innovations, and experiences. The congress offers momentum and inspiration to all who take part and is seen as a leading event for the global organic sector.

This year NCO Certification Officer, Carolin Moeller is running a session entitled "Grower Group Certification – Shared Surveillance and Regional Adaptiveness under International Organic Standards". NCO General Manager Tammy Partridge will also be attending.



NATURALLY GOOD EXPO

Location: ICC Sydney, Darling Harbour

Date: 1 – 2 June 2020

Naturally Good Expo is a total business event that's 100% devoted to all things healthy, organic and natural. As the largest event for healthy retailers, brands and practitioners in the Southern Hemisphere, it's the place where serious buyers meet with suppliers for two days of business, networking, education and to celebrate the latest exciting opportunities within the health and wellness retail market.



CLIMATE AND CARBON IN AGRICULTURE 2020

Location: Adelaide Convention Centre

Date: 31 March – 1 April 2020

As primary industries are presented with a range of challenges in the face of a variable climate, it leaves many asking, what are the facts, what is being done, and what can we do? These are the issues that speakers from across Australia and the world will be exploring at the CRSPI Conference at the Adelaide Convention Centre on 31 March – 1 April 2020.

Ethical consumerism

WE KNEW WE WERE ON TO SOMETHING

Two recent reports show why organic is the future.

This year, IBISWorld has named organic agriculture as one of the 5 fastest growing industries in Australia, with a growth rate forecast at 15% per annum over the next 5 years, surpassing the overall economy. The trend reflects increasing demand, particularly driven by millennials, for products that can truly demonstrate sustainability credentials.

Millennials and the concept of 'ethical consumerism' is also a driver for preferences in the wine sector, with a global index by Wine Intelligence showing SOLA (Sustainable, Organic, Low alcohol and Alternative) wines, including organic and biodynamic, are the future of wine. Organic wine scored the highest on Wine Intelligence's 'Opportunity Index', a measure of consumer awareness, affinity with, and propensity to buy.

Quoted by Wine Intelligence was one Australian retailer, who said, "I think the greatest opportunity in wine emphatically will be through the lens of organic, biodynamic and sustainable products."

Further Information

thenewdaily.com.au/finance/work/2020/02/09/five-top-industries-tech-ibisworld/
www.wineintelligence.com/sola-power/

Your NASAA Certified Nutrition Answers



BOROZINC Precision technologies

Borozinc is a foliar fertiliser that associates boron and zinc in a unique acid pH formulation.

Boron: 130 g/kg
Zinc: 41 g/kg

Form Powder pHa (acid pH)
 Pack size 10 kg

AMYLIS BioFertiliser technologies

Amylis is an innovative technology that will activate the life of the soil. Made from Nitrogen-Fixing bacterias, Amylis will benefit the bacteria population in the soil (maintaining soil life) but also crops (especially through the fixation of Nitrogen).

Bacteria solution
Bacillus amyloliquefaciens Pack size 5L

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DE SANGOSSE



MICROBIAL LIVESTOCK FEED SUPPLEMENT



INDEPENDENT FIELD STUDIES

LIVE WEIGHT STUDY IN CALVES

Controlled Study - Independently Conducted by University of Queensland



Introduction

The long-term productivity benefits of improving health and growth of calves in their early stages of development is well documented and understood.

The Good Clinical Practice Research Centre at the University of Queensland's School of Veterinary Science conducted a double blinded, controlled, randomized study to evaluate the efficacy of Mylo® on the live weight of pre-weaned dairy calves.

Study Design and Methods

Forty-four clinically healthy calves of approximately 3 days of age were randomly split into two equal sized groups – Treated Group (22 calves) and Control Group (22 calves). Calves were housed in individual pens as part of a controlled study design to reduce the risk of cross contamination with commonly occurring health ailments.

All animals were tube-fed colostrum before reaching approximately one day of age. The feeding regime for all animals consisted of milk replacer at 15% of their body weight, fed in a bucket twice a day, plus ad lib access to hay, grain pellets, and clean water through the entire period of the Study. With exception to Monensin, there were no feed additives or antibiotics added to the feed. Mylo was added to the milk replacer of the Treated Group.

Assessments were conducted fortnightly through the study which concluded when calves reached 56 days of age, consistent with the weaning age at this university dairy operation. At the end of the study, tissue and organ samples were taken from three calves in each Group after weaning, for measuring weights of their key gastrointestinal organs.

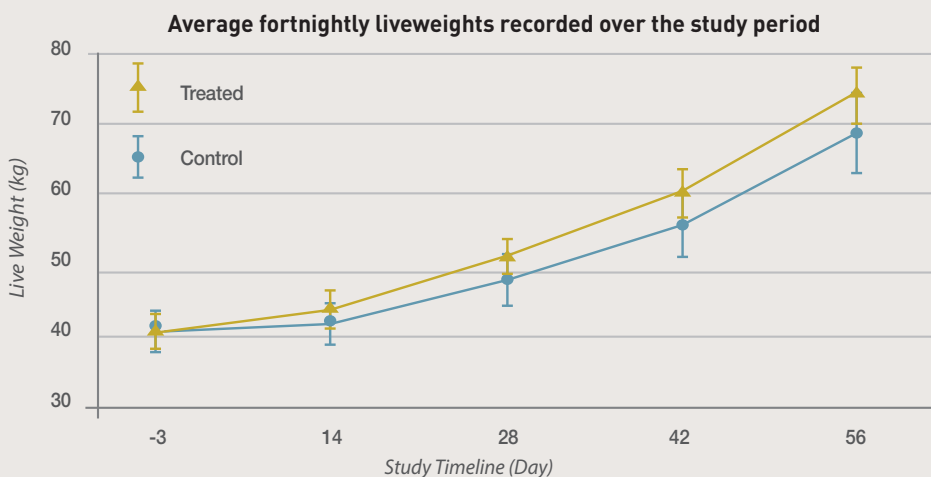
Results

Calves in the Treated Group were 8.4% heavier, and uniformity of liveweights was better, at weaning age compared with calves in the Control Group ($p=0.02$). Details are tabled below and a line-plot shows average fortnightly liveweights recorded over the study period.

Average and total feed intake did not differ between the groups.

Weaning Weight at 56 Days

	Average (kg)
Control	69.18 kg
Treated	75.01 kg
Difference Treated - Control	5.83kg, 8.4%, ($p=0.02$)



Line-plot of Experimental Groups' (A1 = Control and A2 = Treated) calves average live weight (kg) measurements.

The initial histological examination of the organ tissue of the gastrointestinal tract indicates the treated animals exhibit accelerated development of gut structures. There was an observed increase in the surface area of the lining of the gut.

Autopsy Results	Treated Group Average Weight (g)	Control Group Average Weight (g)	Difference
Duodenum with digesta	87g	33g	54g, 163% ($p < 0.05$)
Abomasum without digesta	450g	390g	60g, 15% ($p=0.05$)
Reticulum without digesta	357g	257g	100g, 39% ($p=0.05$)

Conclusion

Calves in the Treated Group were heavier at weaning (56 days) and had heavier gastrointestinal tract organs compared with calves from the Control Group, while average and total feed intake did not differ between the groups. These observations warrant further study into the impact of Mylo® on gastrointestinal tract development. Morphological examination - comparing the form, shape and size - of the organs is expected to be reported on later.

For more informations talk to your local representative: **Vic – Western Districts** Paul Weston 0438 500 032

Vic – Northern Vic / Southern NSW Dean Lombardozzi 0497 499 087 **Vic – Gippsland / Tasmania** Ross Clancy 0428 486 069

SA Adam Davies 0498 632 496 **Qld** Andrew Wollen 0413 748 794 **New Zealand** Karl Stokes +64 225 450 150



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