CROP SCIENCE SOCIETY OF S.A. INCORPORATED

C/- WAITE CAMPUS

P.M.B No 1, GLEN OSMOND, SOUTH AUSTRALIA 5064

INCORPORATING THE WEED SCIENCE SOCIETY

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Next Meeting	**'The Season for Rust'**
Venue	**Stefanson Theatre, Roseworthy Campus**
Date	**WEDNESDAY 20th July**
Time	**7.30 pm*******

Speakers

Hugh Wallwork - SARDI – ***Stem Rust***

Second speaker TBA

Recording and transmission of Crop Science meetings.

With the help of the University of Adelaide's ITS section we have been trying to video conference our meetings at Roseworthy to the Waite. Unfortunately, in the absence of Cindy Martin, we amateurs failed to have our proceedings viewed at the Waite, although we could see them. Better luck next time! But thanks to Max and Tom for their efforts!

It has become routine for University lectures to be recorded for viewing by students who were unable to get to the lecture. So our meeting was recorded at Roseworthy. It has been successfully uploaded on my Dropbox on the iPad. Regrettably, the sound system had not been switched on so it is rather tedious watching. Again, better luck next time. Or, preferably, please come back Cindy!

However, it is likely that we will soon have a method for those unable to attend to watch and hear the proceedings of our meetings within a couple of days on their own iPad or computer.

Breeding for Agricultural Systems (part 2),
(with particular reference to Durums)

Tony Rathjen, University of Adelaide

Inevitably, we face a 'review' of our Durum Breeding program, so it is worth revisiting some of the principals which underlie long term breeding projects and which we try to inculcate into our students. The need for long term perspectives and a flexible definition of objectives as our knowledge of the environment and scientific opportunities increases.

In the previous article, the key argument was that selection needed to be undertaken in the actual conditions in which the crop was to be grown. Here the emphasis will be on the long term nature of breeding programs and how many years of effort are needed to substantially contribute to improving our agricultural systems. And on the over-riding importance is the definition of breeding objectives. For once objectives are understood then virtually by the definition a range of meeting these objectives becomes apparent. For example, once we realized that high levels of soil boron were a problem then all sorts of selection procedures were obvious, such as growing seedling in soil with added boron, screening seedlings in hydroponics, selecting for grain yield at locations with high soil boron and even using molecular markers.

A few examples of long term breeding programs:

- Soy bean breeding in the USA extends back into the 1800s, after WW2, initially the crop was cut for hay, then a range of varietal maturities for different latitudes were developed so that it is now the second most important crop in USA.
- Canola from Canada, starting with the double zero variants.
- Machine harvestable tomatoes in California which needed disease resistance as the plants were no longer staked and had to ripen uniformly
- And even the CCN story locally which started in the 1960s, and reached satisfactory varieties in the 1990s.

In contrast one can easily find examples where there has not been long term commitment, with the prime example is the lack of break crops (pulses in particular) for the lower rainfall areas. This was a key problem when the Crop Science Society was founded in the 1970s and still remains today. If anything, progress is even less likely now as with 'rationalization' more remote and problematic trial sites are abandoned. An upsetting example is the level of research investment on Eyre Peninsula.

The uncertainties associated with short term funding are virtually devastating but not dealt with in this article directly. Here I would like to focus attention on the scientific review process which has allowed a distortion of funding into 'band wagon' topics. In a previous incarnation of the GRDC, the Wheat Industry Research Council, funding decisions were made by the Director Generals of Agriculture and a very senior and accomplished Professor of Agriculture. This group circulated proposals through their departments so that they brought the best advice available to the table for the funding decisions. A much stronger model than that at present, but it did have the drawback that there was inadequate input from farmers.

<u>Now to local Durums</u>. With the appointment of Drs Jason Able and Alison Millar there has been a increase in the resources which has enabled an expansion of the trial program into the Bordertown/Kaniva district and onto the sand over clays at Angas Valley. The former has been adopted as a result of farmer interest and the latter as it is necessary to expand the area of durum production to ensure supply.

Soil sampling at Angas Valley suggested that the subsoil there had considerable similarities to that at Coonalpyn. James Hall drew attention to the soil forming and geological formation “Loxton-Parilla Sand”, which often has high enough clay content to texture as a sandy clay, as a particularly hostile substrate for soil formation, usually forming sand over clay soils with sodic and poorly structured subsoils. The Loxton-Parilla Sand formation occurs in the Murray Mallee and eastern parts of the Upper-Mid South East (occurring on the eastern or inland side of the ancient shoreline indicated by a line following the Marmon-Jabuk, Coonalpyn and Naracoorte Ranges). Similar soil-forming materials also occur in other parts of the state. In many places in the Mallee and the South East, the Loxton-Parilla Sand formation is overlain by younger clay and sand material. The main clay is the Blanchetown Clay formation, which was deposited in the ancient Lake Bungunnia between around 2 million to 700,000 years ago. The Angas Valley occurs in a part of the landscape where these materials can be expected to be found. Coonalpyn occurs just to the west of the Marmon-Jabuk Range, where Loxton-Parilla Sand and Blanchetown Clay are not common or expected. However, reworked sands mixed with clays (often derived from Loxton-Parilla Sand material) have blown across the landscape in recent geological times, with sand over clay soils forming in these deposits – so it is possible that similar soils formed from similar materials could occur at both Angas Valley and Coonalpyn. James has kindly agreed to write a fuller description of the Loxton-Parilla Sand and Blanchetown Clay substrates for our newsletter.
An examination of Hall, Maschmedt and Billing’s classic book ‘The Soils of Southern South Australia’ confirmed that most of our most difficult soils are underlain by B horizon material derived from Loxton-Parilla Sand. And their accompanying diagrams indicate that frequently very high soil pH was a feature. This brought to the fore Rengas (Dr P Rengasamy) observation that at pH10 organic matter becomes soluble! And leaches away as a brown liquid.
The surface of Loxton-Parilla Sand formation material is sometimes covered by a thin layer of ironstone nodules. This is the Karoonda Surface, which is a remnant of times when the environment of the Murray Mallee was very different to today, and was dominated by ancient acidic soils with ironstone (similar to the present central plateau of Kangaroo Island), not by young sands, carbonate-rich deposits and alkaline clays! We still need a definition of the soil at our Bordertown site, but it does have ironstone on the upland soils in contrast to the grey/black Wimmera soils in the drainage lines where durums grow most satisfactorily.
I have been surprised with the rapidity of genetic progress with durum breeding. In the previous review I devoted attention to Crown Rot. Since then we have seen little of this ‘disease’ and it seems that often the genetic improvement has come through breeding for tolerance to the predisposing factors for Crown Rot, the major one being, probably, the Root Lesion Nematode, *Pratylenchus neglectus.* (In northern NSW, it appears that *P. thornei* has a similar role). Adaptation to the major Land Types is also progressing so that Tjilkuri had similar yields to Wyalkatchem and Yitpi at Nunjikompita in Leigh Davis’trials on Woorinen soil. One of our current problems is to persuade some advisors and farmers that there really has been genetic progress and that they need to consider durums as crop in their system.
<u>Institutional problems.</u> The continuing pressure on research scientists and academics to seek funds and the continued pressure to justify their output and to meet bureaucratic demands has the potential to curtail scientific progress. In the past, I was accustomed to see, with amazement, CSIRO Division of Soils scientists were tapping away at computers when their primary focus was heterogeneous soils. Now I note with concern, both for their science and for their health, that mostly my colleagues are now similarly preoccupied with replying to emails and other computer generated distractions.

Organic matter in alkaline soils

Pichu Rengasamy, The University of Adelaide

One-third of the world's soils are alkaline, highly prevalent in northern Indian subcontinent, northern African regions, semi-arid regions of Americas and southern regions of Australia. Alkaline (pH > 8) soils occupy 23.8% of the land area (172 million hectares) in Australia with pH ranging from 8 to 10.5 (Northcote and Skene, 1972). Over 80% of soils in agricultural zones in South Australia are alkaline, with mostly subsoil layers affected by high pH. It is estimated that the soil alkalinity costs the farming economy approximately A$ 940 million per year in lost production in Australia.

Soils represent a major pool (172×10^{10} t) in the cycling of C from the atmosphere to the biosphere and are the habitat for terrestrial photosynthetic organisms which fix annually about 11×10^{10} t C (Oades, 1988). While about half of the C fixed by organisms is retained in soils, the same amount of C is also returned to the atmosphere by the organisms as they utilise the organic matter as a source of energy and nutrients.

Major factors which influence organic matter accumulation in soils are temperature and water regime. Low temperature and high water regime favour accumulation of high amounts of organic matter in soils. Correlating several factors with organic carbon in Australian soils, Spain *et al.* (1983) found that, for both temperate and tropical regions, precipitation is positively correlated and temperature negatively correlated with C. In these correlations, they also identified soil pH and clay content as important soil factors involved in the retention of C in soils. Comparing different Australian Great Soil Groups, they found that organic matter content of surface layers of Solonetz, Solodized-solonetz and Solodic soils and Sodic red-brown earths, Red-brown earths, Siliceous sands and Yellow earths (nomenclature based on the earlier Australian soil classification) was < 1% while Krasnozems, Podzols, Black earths and Terra rossa soils had > 2% organic matter.

In the early part of the last century, solonetz and solonchalk were the names given to the alkaline-sodic soils and saline-sodic soils. Hilgard (1900) distinguished the two main classes of 'alkali' soils: **'black alkali'** soils predominantly containing sodium carbonate (sal soda) which is highly corrosive and destructive to vegetation; and **'white alkali'** soils characterised by the presence of sodium sulphate (Glauber's salt), which is less injurious to vegetation. Black alkali is so called because soil water dissolves humus (decomposed organic matter), forming a darkcoloured solution which, when it collects in puddles and evaporate, produces characteristic black spots. Presence of sodium carbonate increases the soil pH above 9, whereas soils with sodium sulphate (or sodium chloride) have pH less than 8. These black alkali soils were used for washing clothes in India before the days of washing soap powders.

Soil scientists generally use alkali (sodium hydroxide) solutions to extract organic matter from soils and these solutions have high pH (>12). We conducted a preliminary experiment using an Urrbrae soil (organic matter content 1.4%; 35% clay, pH 7.5) and then adjusting the pH to 7.5, 8.0, 8.5, 9.0, 9.5, 10.0 and 10.5 by using appropriate amounts of sodium bicarbonate or sodium carbonate. Water soluble carbon was estimated in the equilibrated soils. The results given in the following table show that as the soil pH increases above 9, organic matter dissolves easily and above pH 10, 75% of organic matter is dissolved in water.

Table 1. Dissolution of organic matter in relation to soil pH

Equilibrium soil pH in water (1:5)	Dissolved organic carbon (% of total C)
7.5	2.5
8.0	2.8
8.5	9.6
9.0	26.0
9.5	40.0
10.0	62.0
10.5	75.0

High pH of subsoils in the agricultural soils of South Australia is a major factor in the low accumulation of organic matter. Abiotic stress caused by soil structural conditions and the nutrient deficiencies and element toxicities in high pH soils leads to reduced biomass production and low input of organic matter. Further, because of dissolution of organic matter under high pH, added organic matter is not retained in the soil layers. Carbon sequestration in soils and carbon farming in the alkaline soils region will be possible only when issues related to high pH are resolved.

Phosphorus Availability of Chicken Manures Decreases on Stockpiling

Courtney Peirce[1], Therese McBeath[2] and Ron Smernik[1]
[1]University of Adelaide. [2]CSIRO Ecosystem Sciences

In this study we compared the uptake of phosphorus (P) from three chicken manures by Axe wheat in a glasshouse study. The P in the freshest chicken manure had the highest availability to plants while the two aged chicken manures was less available to the plants with the 12 month manure having the lowest manure P recovery. When P is applied in an organic form it must be converted to inorganic P in order to be taken up by plants. This is the same reaction that is occurring in the manure stockpile as it ages. However, as there are no plants for P uptake this inorganic P interacts with cations and organic matter in the manure to become less available over time, in the same way that mineral fertilisers are stabilised in soils over time. Further studies are required under field conditions and for different soil types. The residual benefit and long-term availability of P in manures also requires further evaluation.

In response to the fertiliser price spike in 2008, there has been growing interest in the use of manures as a source of P. Manure is a difficult nutrient source to research because it is heterogeneous and has variable amounts of C:N:P with source, age and treatment.

Methods

The Axe wheat plants were grown in low P (according to diffusive gradient in thin film test P_{CDGT}) Langhorne Creek soil (Table 1) which was a non-calcareous slightly alkaline sandy topsoil.

Table 1: Selected properties of the Langhorne Creek Soil

pH (H_2O)	Clay %	Carbonate %	OC %	N_{total} %	CEC cmol(+) kg^{-1}	$P_{Colwell}$ [a] mg kg^{-1}	P_{CGDT} [a] µg L^{-1}	P_{total} [b] mg kg^{-1}
7.5	3.5	<0.2	0.83	0.06	3.7	52	58	106

[a]Colwell P is bicarbonate extractable P ; CDGT is P concentration measured by diffusive gels in thin films, both determined by methods described in Mason et al. (2010)
[b]Total P as per manure digest

The nutrient treatments for the pot trial were two rates of N (0 and 15.4 mg N/kg of soil), three manure ages (0, 6 and 12 months stockpiling- all adding 15.4 mg P/kg soil) and a control of no manure. This means that different amounts of manure were added for manure age in order to add the same amount of P. There were 4 replicates for each treatment which gave a total of 48 pots. The properties of the manure are shown in Table 2 and it can be seen that the 12 month manure had the highest concentration of P and the lowest concentration of C. While these manures have different stockpile ages, it is not the same manure aged for different times. For this reason there are some differences between the manures that are not necessarily due to age (for example the difference in Al concentration between the different manures).

Table 2: Total concentrations of selected elements in the three manures

		Fresh manure	6 month manure	12 month manure
P		1.15	2.23	3.44
C		27.27	31.73	22.59
N		2.94	3.65	3.97
Ca		2.99	3.39	6.06
Fe		0.25	0.10	0.12
Al	%	1.45	0.08	0.67
K		2.16	3.19	4.05
Mg		0.70	0.79	1.17
S		0.53	0.82	1.06
Zn		0.08	0.07	0.09
Cu		0.02	0.02	0.03

The total P concentration of the manures was further analysed by ^{31}P solution nuclear magnetic resonance (NMR) spectroscopy on NaOH-EDTA extracts and we found there was a difference in the inorganic and organic P fractions of the three manures (Table 3). The organic P percentage decreased with the age of the manure, resulting in an increase in the inorganic P fraction.

Table 3: Organic and Inorganic concentration and proportions of P in the three manures

	Inorganic P	Organic P
	% of detected NMR signal	
Fresh	54.25 ± 0.70	45.75 ± 0.70
6 month	65.69 ± 0.74	34.31 ± 0.74
12 month	85.33 ± 0.63	14.67 ± 0.63

The soil was isotopically labelled with ^{33}P so that uptake from manure vs. soil could be distinguished. Dry manure was then mixed thoroughly throughout the whole pot. Pots with +N treatments also received N in the form of urea added in solution to the top of the soil after planting the seeds, prior to watering (this was to have a non-limiting N treatment to ensure P response was not limited). A basal nutrient solution was added to each pot once a week to the top of the soil to provide nutrients at the following rates: K and Mg (30 mg/kg), S (18 mg/kg) and Cu, Mn and Zn (2 mg/kg). After four weeks of growth, at Zadoks growth stage 30, the shoots were harvested. After harvest, plant shoots were dried, weighed and digested before being analysed for P content and ^{33}P radioactivity.

Results

There was a significant wheat biomass response to manure addition, with the fresh manure yielding the highest and 12 month manure the lowest shoot biomass (Figure 1). The addition of extra N as urea also increased the shoot biomass for each manure source.

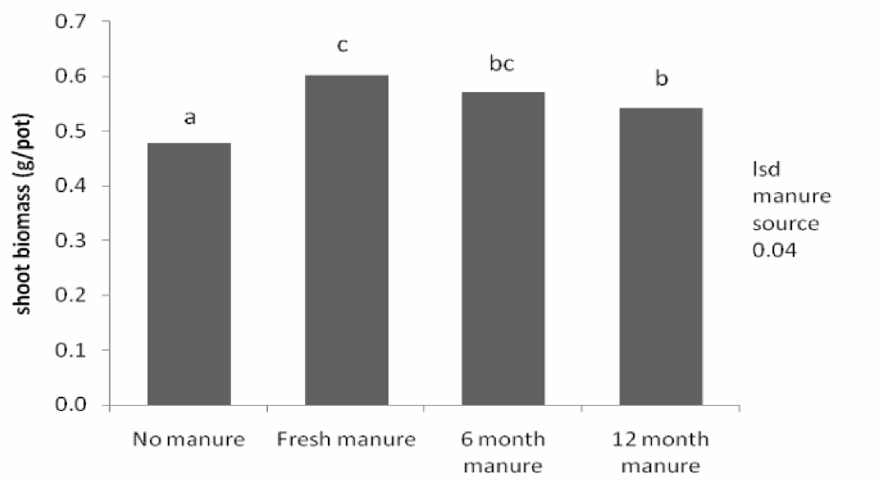

Figure 1: Shoot biomass in treatments of varying age manures, with and without addition of extra N as urea. A manure source (mean of +/- N) with a different letter indicates a significant difference.

The isotopic dilution technique enabled us to measure the total P uptake from soil and uptake from manure. The total P uptake by plants was greater with manure addition than the control (Figure 2). Plants took up a similar amount of P from the soil when manure was applied, and the increase in total P uptake was due to the additional uptake of P from the manure. The uptake of P from the manure was greatest for the freshest manure and decreased with the manure age (Figure 2).

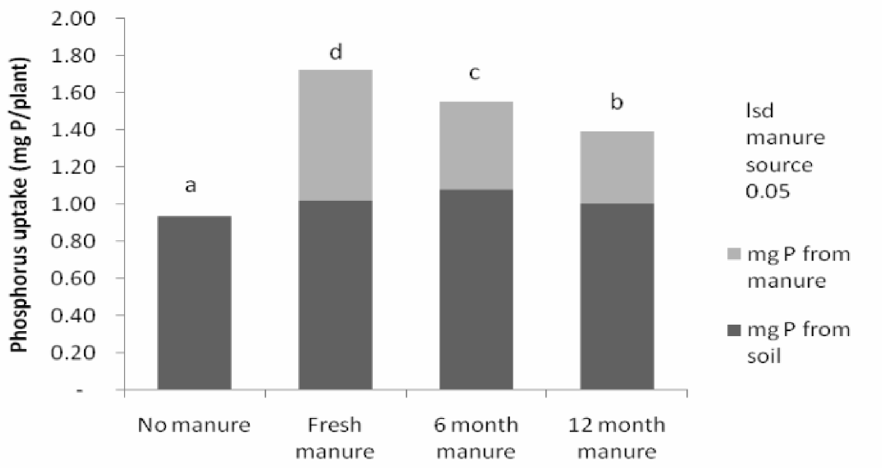

Figure 2: Total P uptake from both soil and manures for treatments of varying age manures with or without addition of extra N as urea. A manure source appended by a different letter indicates a significant difference.

The percentage of P added in the manure that was recovered in the shoot biomass was highest for the fresh manure and decreased with stockpile age (Figure 3). The addition of extra N as urea did not influence the manure P recovery for any manure sources. The higher recovery from the fresh manure suggests that its P is more available to plants than the P in the aged manures.

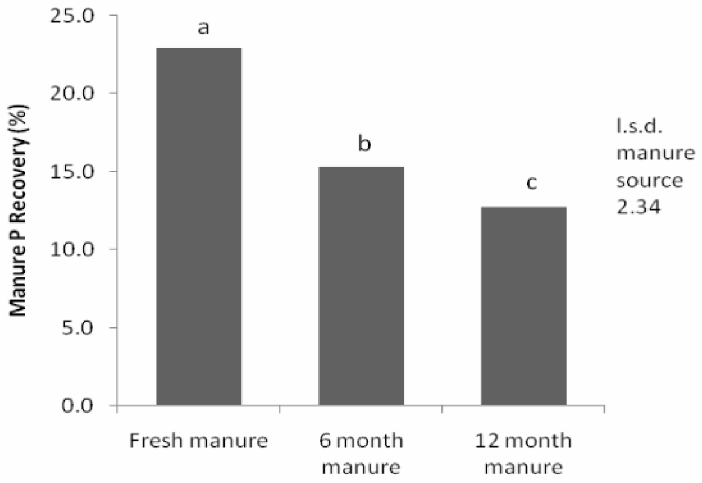

Figure 2: Phosphorus recovery percentage from manure for the three manures of different ages with or without addition of extra N as urea. A manure source appended by a different letter indicates a significant difference.

Conclusions

In this study the fresh manure provided the best source of bioavailable P in a P-deficient soil, and the bioavailability of P decreased with manure stockpile age. The manure P recoveries of the three manures indicate that manure P was less available from manure that was stockpiled for the longest time. As the manure aged, there was a conversion of organic P to inorganic P forms (data not shown) in the stockpiles due to microbial activity. This is necessary for plant uptake, as plants require P to be in an inorganic form in order for it to be utilised. However, it appears that inorganic P in the manure was stabilised within the stockpiles much in the same way mineral fertiliser P becomes less bioavailable over time in soils (Hedley and McLaughlin, 2005). This can be due to processes including sorption reactions of P with colloids, cations such as iron, aluminium and calcium or organic matter.

Acknowledgements

The authors acknowledge scholarship funding from GRDC and technical assistance from Caroline Johnston, Colin Rivers and Steve Szarvas.

Agronomy Matters

Therese McBeath, CSIRO

MSF Karoonda Research Site
In partnership with MSF and the local advisory group CSIRO is continuing its large-scale trials at Karoonda as part of the national GRDC water use efficiency initiative. All of the trials look at soil specific management strategies and treatments with plots running across the widest possible range of soils at the site.

Break Crops
Our break crops trial was established to measure the benefits of break crop options for Mallee systems along the soil types of the dune-swale system. In 2011 all plots will enter the wheat phase following a break in either 2009 or 2010 and the treatments for the main trial are laid out in the table below. The 2nd year effects of breaks on rhizoctonia and other disease will be able to be measured in 2011.

Tmt	Crop		
No.	2009	2010	2011
1	Legume (Kaspa peas)	Wheat (Correll)	Wheat (Mace)
2	Brassica (Sahara mustard)	Wheat (Correll)	Wheat (Mace)
3	Cereal Rye for grain (Bevy)	Wheat (Correll)	Wheat (Mace)
4	Cereal Rye for hay (Bevy)	Wheat (Correll)	Wheat (Mace)
5	Volunteer Pasture	Wheat (Correll)	Wheat (Mace)
6	Wheat (Correll)	Wheat (Correll)	Wheat (Mace)
7	Wheat (Correll)	Brassica (Hyola 50 canola)	Wheat (Mace)
8	Wheat (Correll)	Cereal Rye for grain (Bevy)	Wheat (Mace)
9	Wheat (Correll)	Cereal Rye for hay (Bevy)	Wheat (Mace)
10	Wheat (Correll)	Volunteer pasture	Wheat (Mace)
11	Wheat (Correll)	Lupins (Mandelup)	Wheat (Mace)

Results from this trial so far include:

- "Grazing" of cereal rye (but cutting and removal) reduced rye grain yield by about 30% in 2010 and up to 50% in 2009.
- Lupins yielded approximately 3.5 t/ha in the decile 10 2010 season with yields of up to 4 t/ha on the best lighter soil and 2.5 t/ha on the heaviest swale.
- Wheat grown after 2009 peas recorded yield increases across all soils of almost 1 t/ha in 2010. Wheat yield gains following 2009 volunteer medic-based pasture also reached similar levels.

To test the break crops over a range of seasons we will be setting up a small trial in a new location where we will grow Canola (Snapper), Peas (Kaspa), Lupins (Mandala) and Rye (Bevy) under 2011 growing conditions.

Cereal Strategies by Soil Type Trial
The purpose of the cereal strategies trial is to identify the most profitable strategies and tactics for managing the constraints that arise in continuous cereal systems, especially when positioned on rapidly changing soil types. In 2010 we had two treatments that were not utilised due to the wet seasonal conditions, and at our local planning meetings in March we discussed opportunities for these treatments. In 2011 one of these treatments will now be cut for hay in spring, as may happen following drought stress, frost damage, or high weed burden. The other treatment will be the inclusion of an opportunistic Canola crop to capture the benefits of the good starting soil water conditions.
In 2010 yields varied from 5t/ha to less than 2 t/ha across the swale to deep sand range of the 150m plots, with changes in yield correlating well with EM38 mapping of the paddock. This year our treatments will be as follows:

No.	Treatment	Management
1	Pasture (09)-wheat (10-12)	District practice fertiliser (50 kg DAP)
2	Wheat (09)-pasture (10)-wheat (11-12)	District practice fertiliser (50 kg DAP)
3	Continuous cereal district practice	District practice fertiliser (50 kg DAP)
4	Continuous cereal no fertiliser	No fertiliser
5	Continuous cereal high N	High N fertiliser at sowing (50 kg DAP+67 kg Urea)
6	Continuous cereal reactive to good spring	Extra N topdressed if good spring (50 kg DAP+ 67 kg Urea)
7	Continuous cereal reactive to poor spring	Hay in spring (50 kg DAP)
8	Continuous cereal reactive to starting conditions	Canola (Snapper) in response to good break (50 kg DAP+ 67 kg Urea)

*The site will be topdressed with 100 kg/ha Gypsum prior to sowing to prevent a S defiency in the emerging crop.

Variable nitrogen and phosphorus rate trial.
In the nitrogen and phosphorus trial, all available combinations of 5 rates of nitrogen (0, 10, 20, 40 and 80 kg N/ha) and 4 rates of phosphorus (0, 5, 10 and 20 kg P/ha) will be tested across the soil types of the dune-swale system.
In 2010 we saw some quite high yields and therefore removal is expected to be high. It will be interesting to see how the fertiliser requirement and response is influenced in 2011, especially as growers are increasingly interested in the use of maintenance or replacement strategies for fertiliser. Although wheat yields on the swale reached 5 t/ha, variable rate strategies that reduced N rates on the swale to increase N rates on the mid-slope and/or dune would have still been more profitable than a flat rate strategy.

In this trial nitrogen is added as urea and phosphorus as triple superphosphate. Triple superphosphate can have a low efficiency in alkaline soils and we will check that the response to phosphorus is not being limited by the fertiliser type used by adding some DAP plots to each soil.
A trial involving various sulfur fertilisers did not produce yield responses in 2010 and will not be continued.
Results from all trials can be found at
http://www.msfp.org.au/research.php?page=compendiums
The Karoonda field walk will be held on the 13th of September and all are welcome.

“Science Friction”- Review by Dr Bob Holloway

One of the most fascinating books I’ve ever read arrived in the post recently. I don’t think the book is available in Australia but my copy is going to the Waite Library so that other people can read it. The book is called “Science Friction – the Maxicrop case and the aftermath’.

The Author is NZ soil scientist Dr Doug Edmeades. Doug grew up on a farm in South Waikato in NZ and joined the Ministry of Agriculture and Fisheries (MAF) in 1976 when he was appointed to the Ruakura Agricultural Research Centre. Eventually he became National Science Leader (Soils and Fertilisers).

In the 1980’s a seaweed extract called Maxicrop was being widely advertised at a time when fertiliser costs were rapidly escalating. Maxicrop was said to be the leader of a group of liquid products that “could do everything that the traditional solid fertilisers did but at half the cost!” Doug became heavily involved in attending farmer meetings where there was a lot of curiosity about the new products. He was intrigued that the press would attend these meetings but never report them despite the obvious farmer interest. He discovered that this reluctance was due to the fear of legal action and of being sued for defamation. He thought that this situation was unbalanced.

On March 5 1985 he attended a meeting where he told farmers that, on the basis of scientific knowledge, “the product was useless”. A young farmer at the meeting stood up and “gave me an earful. He was angry and indignant. How could it be that a useless product was being promoted on prime time television as a substitute for normal fertilisers, with the promise of saving the farmer thousands of dollars! What was I doing about it? I was a public servant funded by the taxpayer to carry out research for the agricultural sector. Surely, he demanded, I had a public responsibility to do something”.

It was Doug’s decision, in the light of this challenge, to “do something”, that lead to the circumstances about which this book is written. A popular consumer programme called “Fair Go” decided to run a program on Maxicrop and Doug was asked to “assist them with their enquiries”. At the end of April 1985, Doug appeared on the show, together with a representative of the manufacturer of Maxicrop and Botanic Man (Dr David Bellamy), with newspaper headlines the following day “MAF uses TV to hit plant food”. The result of all this was that the Bell-Booth group, which manufactured Maxicrop, sued MAF for defamation as a result of Doug’s comments on Fair Go.

Doug’s reference to the outcome in his book is, “A decade has passed since the High Court of New Zealand ruled that the fertiliser product Maxicrop cannot and does not work. This conclusion came after hearing evidence from 26 scientists, some from overseas, in a marathon trial lasting one year. So why now write a book about a useless seaweed extract sold as a fertiliser to thousands of farmers, gardeners and housewives around the world?’

Doug answers this question by addressing the implications for all of us in this story, a story that needs to be told and is so relevant today. Doug has become a spokesperson for rigorous science in a world where pseudo-science holds more and more sway. The use of scientific jargon and scientific-sounding terms which have not come from a solid statistical foundation is common. More and more, we are subject to a barrage of half truths and false assumptions masquerading as genuine science. In his book Doug looks closely at these issues – he paid a high price for his decision to "do something about it". This is the sort of book that you can't put down once you start on it – unique for a topic that includes an explanation of how hypotheses should be tested!!

This book should be compulsory reading for every student of agriculture, every farmer, everyone in the fertiliser industry, every research scientist. There are very few people with the courage of Doug Edmeades who grasped a tiger by the tail and defended scientific truth at a tremendous personal cost. That is what the book is about.

Doug is coming to Adelaide to talk about the conflict between science and pseudo science at the end of the month. His address promises to be absolutely riveting and very timely. Don't miss it!

***** See advertisement at the end of the Newsletter for details on a special guest lecture presented by Doug Edmeades*****

Advisory Board of Agriculture
SERVICES TO PRIMARY PRODUCTION AWARD 2011

11 July 2011
The Advisory Board of Agriculture (ABA) is calling for nominations for the **Service to Primary Production Award.**
The Award recognises the long-term achievement of a person associated with any aspect of agriculture, including farming, education, government and the service industries.
Last year's award went to Mallala farmer John Lush, former president of the Mallala Agricultural Bureau, the Grains Council of Australia and the South Australia's Farmers' Federation. Mr Lush held 24 senior board appointments throughout his career and is an innovative farmer committed to the continued improvement of many farming and agri - political bodies.
ABA Chair, Mr Richard Murdoch said: "We are keen to again recognise a person who has made a lifelong commitment to improving agriculture in South Australia. This person should be dedicated to the sector and be someone who has provided exceptional service."
Mr Murdoch said the awards are part of the ABA's ongoing commitment to the future of farming in the state.
"The Services to Primary Production Award is one of a suite of scholarships, fellowships, bursary's and awards which the ABA offer to help encourage, promote and create opportunities for people in the sector," he said.
"We encourage you to step forward and nominate someone you believe is outstanding in the field and deserves recognition."
Nominations are welcome for people from any area involved with primary production, including the service industries, government, education and agri-politics. Simply download the nomination form available on the Ag Bureau web site: (http://www.agbureau.com.au/awards/service_to_agriculture_award)
Applications close Friday 12 August 2011. The award finalists will be invited to attend the Agricultural Bureau of SA's AGM / Awards Night coined the "**Spirit of Excellence**" Award Night, to be held Monday 12 September 2011. The Spirit of Excellence Awards Night is supported by the ABA, Primary Industries and Resources SA, advisory company RSM Bird Cameron and the Stock Journal

Grain storage – Indian style! Plastic covers over 1000s of Hessian bags of grain. Makes you wonder how they keep the rats out! (*Photo: Jason Able)*

Durum Growers of SA Crop Walk 2011

We have now agreed on the following dates for this year's Crop Walks so you can mark the dates in your Diaries.

Mid North 6th September – Michael Jaeschke's property at Hart – 10.00am, lunch at the Tarlee Pub approx. 12-12.30. Then at Pat Connell's property in the High Rainfall area near Tarlee.

DGA to join the Minlaton YP Alkaline Soils Group Trial Site on 12th October.

SE/Vic 18th October – More details as to where/when a little later.

This information will be put on our website shortly with directions to individual properties.

If you have any queries please do not hesitate to ring me at any time.

Monica Trengrove

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Australian Society of Soil Science Inc

South Australian Branch invites you to join us for

Special Guest Lecture by Doug Edmeades
'Pseudo-Science: A Threat to Agriculture?'

Tuesday 2nd August, 4:00pm
McLeod Lecture Theatre, Charles Hawker Building
Waite Campus

The son of a South Waikato farmer, Doug was educated at Auckland and Canterbury Universities. In 1976, fulfilling a childhood goal, he joined the staff at the Ruakura Agricultural Research Centre, Hamilton, becoming National Science Leader (Soils and Fertiliser).

The recipient of an ANZAC Fellowship and the Arthur Yates Award in 1985 and the Landcorp Communicator of the Year 2005. He has published over 100 scientific papers, several book chapters and a book 'Science Friction: The Maxicrop Case and the Aftermath'.

In 1997 he left institutional science, uncomfortable about the increasing commercialisation of science and the increasing gap between science and the farmer, and established his own company, agKnowledge Ltd. AgKnowledge provides independent fertiliser and nutrient management advice to farmers.

Doug is fearlessly outspoken on matter of science and farming, frequently arguing that the voice of science must be asserted. He published the Fertiliser Review, a widely read and highly respected product and service guide for farmers and is a regular on Jamie McKay's popular 'Farming Show'.

Drinks and nibbles to follow presentation
All Welcome