



CROP SCIENCE SOCIETY OF SA INCORPORATED

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NEWSLETTER

June 2020

The next Crop Science Society Technical Forum is scheduled for Wednesday the 17th June at Roseworthy from 7.30pm.

Welcome to the June issue of the Crop Science Society of SA.

The next Crop Science Society technical forum is scheduled for Wednesday 17 June at Roseworthy from 7.30pm. Due to COVID restrictions a maximum of 20 people are to be present in Richardson Theatre of the Callaghan Building. If required, we will utilise separate rooms and Zoom the presentation. If you will be attending online, please use the following link to login via Zoom. <https://us02web.zoom.us/j/81501903995> & Meeting ID: 815 0190 3995.

At this meeting Prof Matthew Gillham (Director, Waite Research Institute, University of Adelaide) will provide an overview of the Waite Research Institute's current activities and will discuss current and future research priorities of our members; he will also review some of his work on salinity tolerance in cereals. Our second speaker will be PhD candidate Kara Levin (University of Adelaide) who will present her research on genetic processes of CCN resistance within cereals. In addition to these two presentations we will also be honouring one of our regular contributors with Life Membership.

In this month's issue we explore:

- Insights into historical rural development of South Australia – a review by Craig Davis
- South Australian Government's productivity commission enquire into R&D - HAVE YOUR SAY!
- Member in focus: Neil Wittwer

Craig Davis, President

Reminder:

Your subscription is due and we kindly ask for payment. The Crop Science Society relies on your subscription for the planning of Industry activities and scholarships.



South Australian Government's productivity commission enquire into R&D – HAVE YOUR SAY!

The South Australian Government's productivity commission is conducting an inquiry into R&D and GPSA are encouraging the Crop Science Society, and its members, to make a submission.

The Commission's inquiry is related to the trends in Research and Development and the factors that influence the extent to which Research and Development contributes to long term productivity gains and economic growth in South Australia.

Industry has until **26 June** to submit a written submission.



Insights into historical rural development of South Australia – a review by Craig Davis

Recently I was offered the opportunity to read a locally authored book detailing some of the key facets of the development of rural SA, as well as the agricultural progress within the state. This book provided great insights into how growers worked to overcome production problems in SA in the 1960's. Some of these were unique at the time (Mallee stumps, Cobalt deficiency), whilst some were broadly important (phosphate, nitrogen, zinc, copper, acidity, take all, rust, smut & poor wheat prices). This review highlights some of the key issues and their management strategies – I think it is important for us to reflect on how our industry has moved forward.

Recently I was offered the opportunity to read a locally authored book detailing some of the key facets of the development of rural SA, as well as the agricultural progress within the state.

I found it an enthralling & informative text with significant local references.

The preface summarises the challenges as follows;

"With a wide variety of climate and soil, South Australia has never been prodigal with favours. Nature's open hostility still bars settlement in vast areas, and elsewhere fertility has to be wooed with patience and endurance. But however reluctant the territory, generations of men of faith have probed its secrets. Knowledge of the land has grown slowly, sometimes through hit-and-miss methods sometimes through laboratory experiments. Too much enthusiasm brought as many mistakes as too much caution, but most defeats were followed by an important break-through, whether in machinery, manure, markets, or hope. In the unending struggle horny-handed farmers and careful scientists played their parts, and from their joint successes came the sustenance of growing urban populations. With the passing years hosts of families cut their rural ties, but carried their rural traditions to town.

In the country the struggle with Nature goes on. So does its enduring legacy – that land is best nurtured when it is loved."

The book also discusses in detail the expansion of the northern agricultural zone beyond "Goyder's Line".



As detailed in D.W. Meinig's 1962 book 'On the Margins of the Good Earth.' the SA Surveyor General from 1861-1894 G.W. Goyder had warned against expansion beyond the line of rainfall reliability (which was identified by changes in vegetation type). In spite of this, the push for expansion & belief that "rain follows the plough" influenced the government to open up the unreliable north & east (beyond Orroroo & Burra) and even set up an experimental farm at Manna Hill in 1876 to investigate the potential for wheat production deep in the north eastern pastoral country! A lot of settlement country was transacted for £1/acre!

In 1877 Port Augusta was a significant wheat exporting location receiving wheat from as far north as Blinman and crops east of Orroroo were reported as 10 bu/acre! The early 1880's disappointed many with severe droughting resulting in complete crop failures in many areas, and a subsequent withdrawal from beyond the margins after around 1885. In saying that, the 1884 wheat crop had produced 15,000,000 bushels equaling NSW & Vic combined, with a record wheat area of just under 2M acres planted.

The greatest interest I had was in the significant developments in overcoming production problems in SA. Some of these were unique at the time (Mallee stumps, Cobalt deficiency), whilst some were broadly important (phosphate, nitrogen, zinc, copper, acidity, take all, rust, smut & poor wheat prices).

The "Mullenising system" of rolling & burning mallee reshoot to allow direct cropping into virgin country was important in allowing rapid clearing & production when stump removal was slow and laborious. In the 1860's this system was mastered by C. Mullen's of Wasleys in the "Mudla Wirra forest"! Add to that the development of the stump jump plough by R.B. Smith of Kalkabury (near Mailand) in 1876 and country previously un-workable was opened up.

SA was instrumental in the development of the stripper harvester which was successfully tested in 1842, by J. Ridley (the Colony's miller) & in commercial production in 1843 and was also an important step in developing the "combine" harvester we know today. This machinery development & testing led to the formation of the "Northern Yorke Peninsula Field Trial and Show Society" in 1894. The Paskeville trial site was set up to test agricultural implements the following year.

Education was identified as critical in maximizing successes & minimizing risk of failure. Serious calls were made to provide formal scientific research & education to address issues of reducing yields and fertility. In 1882, 828acres of "Olive Hill farm" 3 miles from Roseworthy was purchased for £6/acre to establish trials to assist education. In the first instance phosphate response was investigated, and subsequently the Roseworthy College was opened in 1884.

This important work led to a continuation of rapid developments in wheat production with sub-clover being identified at Mount Barker (1889), combine seeder drills to place superphosphate with seed (1905), donation of the Waite & Urrbrae precincts (1913), ley farming (1927), coastal disease/Copper deficiency (1933), barrel medics (1937), and lime banding for acidity (1954).

I expect you will also find this book as highly insightful.

Craig Davis



An extraction from 'Rural development in South Australia'

by W.S. Kelly, published in 1962 by Rigby Limited SA

"South Australia has succeeded in establishing a sound rural economy despite many formidable handicaps."

"This has been, to some extent, the outcome of favourable seasons, but A. G. Strickland, the Director of Agriculture, pointed out in September 1960, how remarkably the State came through the record drought of 1959.

He showed that South Australia had only 6-22 inches of seasonal rainfall in 1959 compared with 6.83 in 1914, yet our average wheat yield per acre was 7.7 bushels in 1959 as against 1.4 bushels in 1914. Strickland then set out the reasons in these words: "The fundamental point is soil fertility. The widespread adoption of livestock farming and long rotations have placed the soils of the cereal areas in wonderfully good heart. Not only can we produce more from fewer acres in a good season, but in testing time of a severe drought, the soil can hold and give up to the growing plants almost every point of rain that falls.""

"Land values have risen to a dangerously high level and will require very careful management or there will be trouble ahead. Also the increase in the number of stock being carried on the farms has been associated with the replacement of fallows by ley-farming practices. Fallows, which we thought so essential in the early days of the century, and which so greatly helped to control weed growth and maintain moisture, have now been greatly reduced. Can we afford to let them pass out of our normal farming practice? Generally, I think, the answer will be "Yes." Farmers will continue the ley-farming or rotation methods, though these could mean lower yields on the average, and seriously less in years of low rainfall. However, the costs are much less when fallowing is omitted. More stock can be carried, and the risks of erosion are minimised."

"Farmers will need to keep their fields well filled with legumes to build up the nitrogen content of the soil. Peas will greatly help if they can be successfully grown, but certainly lucerne, clovers, or medics, if well maintained, will give good ground for confidence."

"There will be acute problems ahead, as there have been since our forefathers started farming, but I have no doubt our people will carry through bravely, as did our pioneers whose memory we honour.

The telling of this simple story of land settlement in our State makes me more proud of being a South Australian."



Member in Focus – Neil Wittwer

This month we catch up with Crop Science Society Neil Wittwer. Neil reflects on what has inspired him throughout his agricultural career.

Just a Mallee kid trying to understand the difference of what can be achieved with rainfall and the fertile soils of the Yorke Peninsula.

Like many other members I was initially drawn into CSSSA by the challenging thoughts of the late Dr Tony Rathjen during my final uni years, however it was the polite arm twist of the late John Both (and lets be honest who could ever say no to Bothy!) which saw me join the committee several years ago in which I initially took the role as secretary now act as the treasurer.

Growing up it was the thrill of driving the “big toys” and the smell of burning diesel and free turned soil which built my love for farming. However after Agricultural Science Uni degree, 4 years working as a researcher for Agxtra and now 6 years as a Farm Manager for AG Schilling & Co the love for the Ag sector is no longer fuel by “the big toys” but more by the challenges of sustainably producing food and educating consumers about how food is produced.

For me there's excitement experienced many times during a growing season, however the greatest reward is when the products we produce are delivered directly to the consumer. Since entering the industry a decade ago I've been fortunate to be involved with many groups and sat on numerous discussion panels however my continued involvement the Adelaide Uni Students Association is by far the most enjoyable. Helping inspire/mentor the future leaders of our industry is incredibly satisfying.



