Peracto news
Knowledge through Experience
The industry newsletter from Australasia's leading private agricultural research organisation
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Food looms as one of humanity's greatest challenges

Award winning journalist and science communicator – Professor Julian Cribb – sounds the warning bells over global food insecurity

Food - how it is grown, sourced, moved and consumed - is the global crisis of the 21st century.

As climate change dominates in every arena – from boardrooms to backyards – the looming food crisis facing nations around the world has yet to gain ground.

And according to many in the field, there is little time to spare in addressing just how humanity will face the global food crisis challenge.

One campaigner looking to provide solutions is Professor Julian Cribb – award winning journalist, author, editor and specialist science communicator.

Dr Cribb has been at the forefront of agricultural issues for decades and was a guest speaker at this year's Australian Institute of Agricultural Science and Technology Conference.

In his address – *The Coming Famine: risks and solutions for global food security* – Dr Cribb sounds the warning bells surrounding global food insecurity and how these challenges may be met.

"Global demand for food will more than double over half a century, as we add another 4.7 billion people," he states.

"They will eat 600 quadrillion calories a day.

"My first point is that the central issue in the human destiny in the coming half century is not climate change or the global financial crisis.

"It is whether humanity can achieve and sustain such a harvest.

"My second point is that agriculture today faces critical constraints. Not just one or two, but a whole constellation of them, playing into one another. And serious ones.

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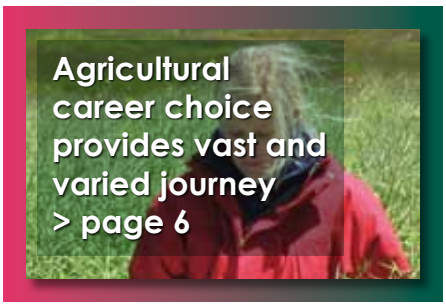

Editorial...

Ian Macleod
Managing Director

Local audience goes global in today's business world

In almost every industry – local is now global.

Today, doing business goes beyond just our own backyard and national interests, to participating in a global community.

Be it services, goods or networks – establishing and nurturing an international presence and profile is integral to a business remaining viable and competitive.

While Peracto has actively pursued many global initiatives, including staff exchanges and attending conferences, we continue to work towards building our international presence.

In October, Peracto was represented at the inaugural board meeting of The Global Alliance of Independent Agricultural Consultants (GAIAC) in France.

Myself and six other Directors, from countries including France, United Kingdom, Canada and the United States, have established the organisation in a bid to provide an international forum for exchange of ideas and information.

There is no other organisation of its kind in the world.

It is through GAIAC that independent agricultural consultants and contract researchers will be able to tap into networks from across the globe – sharing information, research and providing a platform for building crucial relationships.

While it is still early days, with goals and directions outlined and a webpage coming soon, it certainly holds great potential to provide a hub for agricultural professionals world wide.

Also on the global stage, Peracto was recently named as a finalist in the Agrow Awards.

In a field of international companies, Peracto is shortlisted in the category of Best Supporting Role.

The winners will be announced at a gala dinner in London.

This is a great honour and recognition for all Peracto staff, where their hard work and commitment continues to receive praise.

To be recognised amongst our global peers is a great achievement and I congratulate all involved.

Attending the inaugural Global Alliance of Independent Agricultural Consultants (GAIAC) board meeting are (from left) Gary Coukell (Canada), Ian Macleod (Australia), Al Averitt (USA), Allen Scobie (UK), Bob Glodt (USA), Julie Coulerot (France) and Patrick Stephenson (UK). Photo: GAIAC.

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Food looms as one of humanity's greatest challenges

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"Today the world faces looming scarcities of just about everything required to produce high yields of food – water, land, nutrients, oil, technology, skills, fish and stable climates, each compounding the others.

"So this isn't a simple problem, susceptible to technofixes or national policy changes.

"It is a wicked problem."

What is more, Dr Cribb argues other factors including the decline in research and development investment, and people "fleeing regional sustenance disasters", further the call to action.

"Let there be no doubt in anyone's mind that solving the challenge of global food insecurity should be the paramount concern of all nations and all people in the coming two generations," he states.

"The global financial crisis is trivial in comparison.

"In the final analysis, money is far less important to us than food.

"Even climate change, for all its menacing potential, is less immediately pressing.

"If we don't want wars and tidal refugee movements, one way we can prevent many of them is by securing the food supply – everywhere."

So how does humanity tackle the pending food insecurity crisis? How will farmers today, plan for tomorrow? And where does the next harvest come from?

Dr Cribb points to several key solutions in a bid to take on the challenge.

Firstly, the need to "redouble" global investment in agricultural science.

Here, Dr Cribb not only argues increasing the total agrifood R&D spend to $80 billion but, just as importantly, investing further to ensure the information is accessible to all stakeholders.

"We must generate the greatest knowledge sharing effort in history – to reach not only farmers, but consumers everywhere, because the farmers alone will not be able to solve the challenge," he states.

Declaring a "World War on Waste" and creating farming and food systems which focus on reducing waste are also among Dr Cribb's strategies.

In order to achieve this, Dr Cribb states we need to overhaul and redesign our diets, and the food production and distribution systems which support them.

"It means greening our mighty cities, mining and recycling the vast volumes of water and nutrients they presently collect, purifying them and designing entirely new urban-based food production systems," he states.

"It will involve growing large quantities of fresh vegetables within urban areas by hydroponic, aquaponic and aeroponic methods.

"We need to design this new urban agriculture or mass permaculture from scratch and incorporate it into buildings, landscapes and social milieu of our mighty cities."

Dr Cribb explores the concept of diets further, stating a return to how past generations lived is a way to help reduce carbon footprints.

"One way to do this is to double the amount of vegetables in the diet, many produced in these new urban systems using recycled water and nutrients," he states.

"There are over a thousand "undiscovered" indigenous vegetables to make this a culinary adventure as well as global awakening and a health revolution.

"This richness of nature has scarcely been tapped in this regard and our shops, supermarkets and restaurants are poor in diversity compared with what they will become."

And just how much we enjoy our food comes down to the price we are willing to pay for it.

"It is imperative in the coming decade we do two things – first abolish all trade barriers so food production can go where it is most efficient and second, to start paying all farmers a fair price.

"Today we enjoy the cheapest food in human history. It is a third the price our grandparents paid for it," he states.

"But it is destroying landscapes, water and farming communities worldwide and causing colossal wastage.

"It is too cheap to last.

"Delivering new farming systems and technology to all the world's farmers, paying fair prices and changing our eating habits is a matter of both national and global urgency."

United effort to analyse soil fertilisation methods

Peracto SA's project officer Daniel Hillebrand Greenseeking to gain NDVI readings

Peracto SA is working hand-in-hand with its local community in tackling a major agricultural issue

A bid to increase and utilise a region's natural soil fertility, while providing cost-savings and ecological benefits, is behind a new South Australian Landcare project.

Commencing earlier this year, the four-year study is a collaborative effort in pursuing more cost-effective and environmentally sound approaches to soil fertilisation methods.

Stakeholders including growers, regional NRM members, agronomists and research scientists - together with community and school groups - have banded together to address the issue.

"At the heart of the project we are looking at alternative crop nutrition regimes, and aiming to do things differently by promoting and exploiting soil fertility," Peracto SA's project officer Daniel Hillebrand said.

"Richard Porter (Peracto SA Manager) has previously conducted work with biological fertilisers, and the concept was to trial products over an extended time period to assess cumulative changes in soil carbon, general soil health and grower returns.

"Creating better land management practices, while also reducing farm input costs, are ultimate goals of the project."

Three different trials and demonstrations, including a comparison

Daniel Hillebrand, Julian Marchant and Rachel May conducting in-field assessments

of biological fertilisers with granular or liquid standards, are part of the study which is targeting the Northern York Peninsula, mid North and lower North cropping regions of the State.

Each region is hosting two sites, with the project also focussing on reducing the risk of wind and water erosion.

The Landcare project is funded through the Federal Government's Caring for our Country initiative.

"High fertiliser prices can put pressure on grower returns, and any efficiencies we can demonstrate will be of benefit to our growers," Mr Hillebrand said.

"We are trying to explore alternative fertiliser regimes which are able to sustain grower returns and simultaneously improve soil health.

"Growers can then potentially rely less on inorganic fertiliser inputs."

As part of the four-year study, annual summaries including gross margins will be produced, helping to provide growers and farmers with both physical and economical assessments.

Results are conveyed to growers through annual meetings and field walks at the sites.

Mr Hillebrand said 2010 was the first year of the project's field program, with positive feedback being received at the field walks conducted in September.

"A number of farmers have seen or heard of the products we are demonstrating, but have not felt comfortable adopting them or understand how they might be of benefit," he said.

"Our aim is to demonstrate significant long-term benefits achieved with the sustained use of biological products, where the natural soil fertility increases and growers can rely less on synthetic fertilisers.

"Ultimately, we're hoping for benefits for the back pocket and the environment."

Other demonstrations include a comparison of tillage techniques and post-harvest stubble management options, as well as time of sowing and variety/sowing rate interactions.

"Disc seeding units are gaining popularity in some areas over knifepoint systems, and we want to demonstrate these practices and evaluate the impact on soil carbon over a sustained period," Mr Hillebrand said.

"The time of sowing issue has come about following a spate of early finishes to growing seasons in our area over the past decade.

"These demonstrations also educate the general community and help non-farming people understand the steps our own growers are taking to conserve the natural environment.

"In response farmers are sowing a few weeks earlier than previously, which conflicts with over 100 years of experience.

"We want to evaluate the sustainability of early sowing timings and demonstrate how cultivar choice is also important in this scenario."

One of the demonstration sites located at Jamestown in the mid-north of South Australia

Agricultural career choice has already provided a vast and varied journey

A keen interest in science and learning – coupled with working directly with people who benefit from your endeavours – has been a driving force behind Peracto Study Director, Kate Allen's, career

Kate's work involves crop residue studies

1. What projects are you currently involved in?

I am directly involved with crop residue studies, which generate residue data under a quality system called GLP (Good Laboratory Practice).

The data collected in these studies is generally used to set Maximum Residue Limits (MRLs) for registration, or off-label minor-use permits issued by the APVMA (Australian Pesticides and Veterinary Medicines Authority).

We conduct this work for several agrochemical companies and industry funded bodies. Our teams work in a range of locations across Australia and are involved in a variety of crops ranging from almonds to sugarcane, sunflowers to hydroponic tomatoes.

Our GLP recognition with NATA (National Association of Testing Authorities) was recently expanded to include environmental toxicity studies on aquatic and terrestrial organisms.

2. What attracted you to a career in agricultural science?

I didn't come from a farming background and when I was growing up I actually wanted to be a vet.

I had a general interest in science and learning, and the school I attended had a good agricultural science program so I was able to get a feel for what I enjoyed. I liked the idea of being able to work outdoors, and the physical aspect of agricultural work, combined with problem solving and working in a team environment.

3. How has your career progressed to date?

When I started my agricultural science degree I wasn't sure what field I wanted to work in.

We covered a diverse range of units before I had to make any significant decisions about what area I should specialise in.

In my final year I chose to focus my Honours research project on a viticulture topic, and my first job when I left uni was at a winery.

My next job was with a viticulturist as an assistant where I gained valuable experience in the vineyard and developed other skills in coordination of harvesting, communication and liaising with clients.

I left this industry to gain a broader knowledge of other aspects of agriculture and worked for one year as a trainee agronomist.

I then moved into research as I wanted to understand more about the scientific principles behind agrochemicals and decisions associated with their use.

In my first years with Peracto I was a Research Officer involved with efficacy and GLP residue field trial work, spraying trials, doing assessments and writing reports.

A Study Director role became available in the GLP unit and I pursued this

opportunity to work more in the area of coordinating and monitoring trials, and collating data and reporting.

I am currently one of five Study Directors with Peracto.

The position involves close liaison with existing and new external clients, field operators and analytical labs.

My responsibilities include training staff, initiating improvements to our internal GLP systems and procedures, and supervising trials to ensure that field studies comply with GLP principles.

4. What are some of the opportunities/highlights you have enjoyed along the way?

I have really enjoyed working with a variety of people from different areas of expertise across a diverse range of crops.

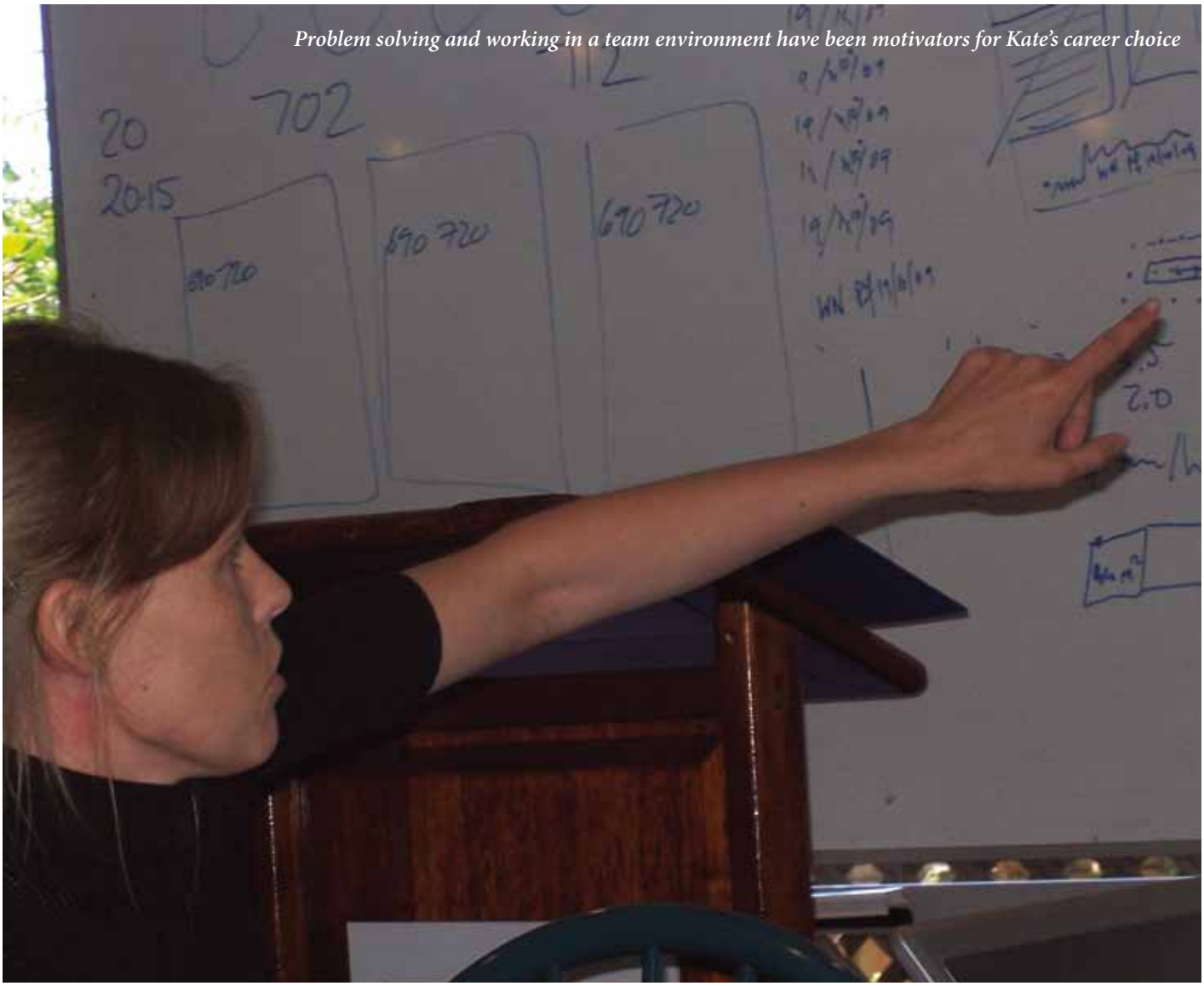
No day is exactly the same. Peracto also has offices across Australia so I've had the opportunity to travel to different regions to work.

5. What's the best thing about working in the industry?

You get a real buzz when you know the work you do is directly benefitting those who need it most. The people are down to earth and genuine.

"I get the chance to help farmers by giving them improved crop protection options and it's great to see the results first hand in many instances."

It's also an industry where you have the chance to really get to know your client, forming invaluable and important relationships, which go a long way in helping to provide the best outcomes.



Problem solving and working in a team environment have been motivators for Kate's career choice

Company continues to ensure world class practice

Meeting industry standards and ensuring first-class practices and training are integral to Peracto's operations

GLP – Good Laboratory Practice – is not an area of business Peracto takes lightly.

A foundation to the company's core business, GLP has gained considerable attention in recent years.

"We've always conducted residue trials and aimed to meet all the industry standards and practices, especially when it comes to GLP," Peracto Managing Director Ian Macleod said.

GLP is the regulatory framework set out by the OECD (Organisation for Economic Co-operation and Development) for how scientific studies, including residue trials, are carried out.

The framework ensures a set of guidelines and principles are met to provide reliable and consistent results.

"We not only continue to meet Australian standards, but also strive to ensure our practices and training are world class," Mr Macleod said.

"While we comply with OECD principles as interpreted in Australia, one of our Study Directors, Pat Farrell, has considerable European GLP experience too.

"Requirements in Europe vary slightly to Australia and with increasing global sharing of data it is important that GLP studies conducted here are acceptable in Europe and other OECD countries."

It is the attention to detail and constant re-evaluation of systems that has driven Peracto's success in GLP.

"We are always looking to improve the way we carry out our studies," Mr Macleod said.

"We've always worked to ensure our practices are seamless, thorough and to industry specifications.

"By adhering to industry standards our clients know the work is fully compliant and ensures the required standard of work will always be maintained.

"This provides true peace of mind to clients who are safe in the knowledge their studies are being carried out in accordance with all the checks and balances.

"We conduct hundreds of studies a year, with all of our offices across Australia and New Zealand operating in alignment with GLP requirements."

Leon Radunz from Bayer Crop Science Pty Ltd said number one on the company's GLP checklist was timeliness of reports, followed closely by accuracy and competitive costing.

"When we engage a firm we really need to know that our study plans are going to be followed to a specific timeframe," he said.

"Attention to detail and flexibility are always important, and so too is close communication, letting us know if something doesn't go to plan."

In recent years, Peracto has invested considerably in GLP trials.

While committing a Study Director with international experience, there have also been initiatives carried out at a site level.

Dedicated training sessions, increased study areas, a graduate development program and international networking opportunities, including work exchanges, are just a few.

"I think high quality GLP can really define a company from being good to great," Mr Macleod said.

"It really should be what people strive for; both as a provider and consumer."

Peracto is involved in a number of GLP trials, conducting hundreds of studies a year, including:

- *fungicides of bananas*
- *pest seed treatments on sunflowers*
- *herbicides in cereals*
- *plant growth regulator in apples*
- *insecticides in peaches*
- *termiticides in a range of tree crops*