



Sean Rickard

Agriculture must embrace science and technology and become more industrialised if it is to meet the challenge of producing more, and to do so more sustainably.

So argues leading independent economic analyst, Sean Rickard, who also maintains that accurate and reliable analytical services will play a key role in this process. "My vision is of farmers in white coats, not smocks! We need farmers to be good knowledge managers who embrace new ideas and have the ability and sense to gather around them experts who can add value to their businesses," he explains.

Agricultural industrialisation essential

Mr Rickard also says that the best way he can describe what needs to happen is 'agricultural industrialisation'. Unfortunately in Europe at least, society has been persuaded that agricultural industrialisation is a bad thing even though industrialisation is generally understood to be the basis of development and rising living standards. This has come about because

Science holds key to future of farming

in the 25 years or so prior to 2007 the world enjoyed a period of relatively low food prices.

The widespread belief in Europe was that the problem was too much food production. This led to cutbacks in agricultural R&D and policies which rewarded lower productivity. Alongside this the green lobby has successfully pushed the environmental agenda and brought celebrity cooks onboard so that the thought of industrialising agriculture is now frowned upon.

A new era of higher prices and volatility

But change is afoot. "Since around 2007 there has been a fundamental shift in the balance of global food production," says Mr Rickard. "This is a new era of much higher global commodity prices and greater volatility although it is taking time for politicians and society in general to recognise that what is happening is not just a feature of bad harvests or poor weather."

In Mr Rickard's view, the fundamental cause of the change is not the predicted rise in world population, although that is a factor, it is rising affluence in the developing world where it is clear that, as incomes rise, people demand more meat, more dairy products and more fresh vegetables.

So how is this rising global food demand to be satisfied? "While we will need to do more to reduce waste it is very clear that more food

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will need to be produced starting with cereals for animal feed," he suggests. "Assuming that we do not want to cut down the whole of the Amazon rain forest there is very little new arable land available. The FAO estimates perhaps 10% more, at best, over the next 40 years."

A further factor is urbanisation which goes hand in hand with rising incomes. Many cities are sited on good agricultural land.

Water and energy challenges

Then there are the problems of fresh water availability – more than 60% of the world's fresh water is already used by agriculture – and rising energy costs which impact primarily on fertiliser and machinery costs.

Add to this mix climate change which is predicted to bring more extremes of weather and it is pretty clear that agricultural productivity must rise enormously.

However countries with the lowest productivity, such as many African countries, do not have access to sufficient capital and knowhow to improve productivity. ...Continued on page 3

NRM sponsor AD Output award

Over recent years the biological waste treatment industry has expanded substantially and, at the recent 18th annual 'Organics Recycling' conference, NRM was pleased to sponsor the 'AD Output' award.

Renowned for celebrating hard work, dedication and success within the industry, this year's winner was Eco-Sustainable Solutions.



NRM's Sean Stevenson, left, and Trelawney Dampney

Meet the staff



Dominic Pia, NRM

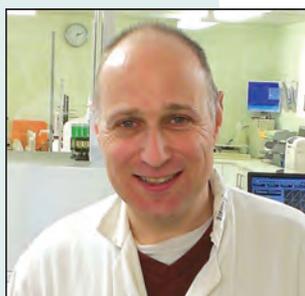
Dominic (Dom) Pia reckons he landed on his feet when he joined NRM 2½ years ago. "I really enjoy my job," he says. "I am fortunate because the routine aspects of analysing fertilisers are actually more varied than most, whilst the method development work I do is extremely interesting."

Dom is responsible for all aspects of fertiliser analysis at NRM, with one exception, the nitrogen content.

Once the samples have come in he prepares and then performs elemental analysis on them covering major nutrients (e.g. P, K and Mg), Secondary Nutrients (e.g. S, Ca, B etc) and potential contaminants such as heavy metals.

"When I joined, the number of fertiliser samples received was relatively low but recently, the work has taken off. More and more of my time is being taken up analysing samples."

This is probably a reflection of all the different materials that are now being applied to land. Samples for analysis include standard solid and



NRM's Dominic Pia

liquid fertilisers but also seaweed-based products, ash, industrial waste materials such as paper waste and digestates – in fact anything that is going to be applied to the land. The section has got so busy that Dom is now training up someone to provide help at peaks times and to cover for holidays.

Talking to Dom it is soon apparent that the method development part of his job is the most stimulating. He gets a real buzz from finding ways to speed up and streamline processes. For example he has devised a paperless results handling system to remove the need for reams of print-outs all of which had to be laboriously signed and dated. Importantly the system still includes all the quality safeguards and a full audit trail.

A zoology graduate, Dom says he first took a job in a laboratory as a stop gap measure. He liked it so much he stayed for 19 years and ended up managing the ICP section and a team of nine.

When that company was taken over and fewer people were needed, he tried his hand as a teaching assistant. Although the experience was valuable, teaching was not for him, hence getting back into the laboratory by joining NRM.

Dom is married to Tracy and has two daughters eight year-old Georgie and 17 year-old Emily. Outside work he is a keen bird watcher and, in fact, has a strong interest in natural history in general. A recent new activity, stimulated by NRM colleagues, is moth trapping.

Jackie Szewczuk, Sciantec

Going the extra mile to help customers is something which Jackie Szewczuk clearly relishes. She obviously takes a huge amount of pride in delivering good service to Sciantec's customers.

Jackie has been looking after those customers in her role as Sciantec's customer services administrator for almost five years. She joined the company after 13 years in a completely different market sector, but she has always had roles with 'customers' as her main focus.

Making sure things run smoothly

One of Jackie's key tasks each morning is to make sure all the courier bookings are well organised. This involves making the bookings for all the regular customers, processing any changes that customers need to make and generally making sure the whole process is running as smoothly as possible.



Sciantec's Jackie Szewczuk

"The couriers are a vital link in the chain as they bring the samples to us," she says. "If they go wrong the whole process can be put in jeopardy."

Jackie is also the first port of call for visitors and other deliveries to the site so she needs to know who's doing what and where. "Sometimes we get items coming in with no documentation so it can be quite a challenge finding out where they belong!"

Making sure customers have the correct documentation is also vital to the efficient passage of samples through the laboratory so Jackie spends a good deal of time providing advice to new customers on the paperwork and getting sampling packs out to customers.

The only real difficulty she encounters is when there is just so much going on that she is unable to give each customer as much time as she would like. But then that is the nature of any service – it's nigh on impossible to know how many customers will need your attention on any one day.

A Selby lass, born and bred, when she's not at work Jackie loves testing new recipes out on her family. That's daughter Rebecca (who recently joined Sciantec and now works in the laboratory) and husband Michael. "They both seem to enjoy being guinea pigs as they always ask for more," she jokes.

Her other love outside work is Northern Soul and she and Michael spend many a weekend travelling to venues to hear their favourite music.

New websites offer easier access to all our analysis

NRM and Sciantec have both launched new websites for 2013. They can be accessed respectively at www.nrm.uk.com and www.sciantec.uk.com

Both sites provide easier navigation and a comprehensive list of all the frequently requested analytical services provided by each business, along with a one-click facility to request a quote.



Full contact details are also provided, so if the test you are looking for is not listed, or you are interested in putting together a tailored suite of tests, it is easy to find the right person to talk to about your analytical requirements.

Quality is a fundamental part of the analytical services provided by both organisations so it should come as no surprise that the new sites also provide a detailed description of the quality systems that are followed.

There are useful search facilities to help with site navigation and separate download areas where all the publicly available items published by NRM and Sciantec are freely available to download.

New secure customer areas have been developed where clients have access to more detailed technical information and can order customer service items such as sample kits, book couriers and so on.

Get results online through new Sciantec portal



Sciantec has developed an online service to allow customers to view their samples and results using a unique username and password.

After registration the portal is accessible via an internet browser or direct from the new Sciantec website by clicking the 'Client Area' button. It allows customers to view completed samples as well as samples that are 'in-progress'.

Completed samples are listed with pdf certificates that act as a library of previous results and can also be downloaded.

Searchable fields allow easy location of previously completed samples and the 'searched' results can be exported to spreadsheets, allowing easy management of the data provided.

The ability to review 'in-progress' samples not only assures customers that the samples have arrived, but also allows them to access results in real time. The portal is updated every hour during the day, allowing access to results within a maximum of an hour after they have been approved by section managers.

The screen view can also be customised. The portal has been designed to allow further functionality to be added in the future and will therefore be an on-going developmental process.

Customers interested in registering to access the portal should **contact Customer Services (01757 242 400) to discuss their requirements further.**

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Science holds key to future of farming

UK farming should be in a strong position

UK farming is in a stronger position than many to make the investments required to implement scientific advances and achieve higher yet more sustainable levels of productivity. However at the policy level a complete change in mindset is needed.

In Europe the Common Agricultural Policy (CAP) dominates and its overriding objective is to protect the incomes of smaller farmers. The result is a population of small-scale farms who lack the resources and, in many cases, the ability, to invest in modern, sustainable farming systems.

Only science can solve the problem

Mr Rickard argues that only science can solve the problem of producing more from less and only larger scale, industrial farms can afford to adopt the scientific advances necessary to deliver both higher levels of productivity and more sustainable farming systems.

European governments and policy makers need to wake up. The USA is already 10 to 15 years ahead.

A step change is needed

If Europe is to become a major part of the solution to the problem of affordable global food production it has to undergo a step change and become much more industrialised.

Wet weather impact study underway

NRM is conducting an in-depth review of the impact of the horrendous weather of 2012 and early 2013. Whilst there has been plenty of discussion about potential nitrogen losses and clearly soil mineral nitrogen testing has been important this year, it is not just nitrogen that is prone to leaching through the soil. Other nutrients may well have been affected due to the excess rainfall. This review will utilise soil data from samples received over this period to assess whether levels of other nutrients present in the soil have been affected when compared to levels in previous years.

The results of the review will be available towards the end of June and will provide advisers, agronomists and farmers with useful information allowing them to develop sensible nutrient plans to keep soils healthy and productive.

Agri Nutrient Saver Service introduced

NRM Laboratories has introduced the Agri-Nutrient Saver Service to give farmers and growers access, via their advisers, to accurate information on the nutrient status of their soils.

The new service harnesses Mehlich III universal extraction and combines it with standard RB427 analysis to provide a comprehensive picture of the major nutrients (P, K & Mg), pH status and trace elements (Fe, Zn, Cu, S, Mn, Mo, Co, Ca and Na) in the soil.

As NRM's Duncan Rose explains: "The new service is not designed to replace our existing comprehensive soil analysis offer, which utilises the recommended MAFF RB427 methods for the analysis of trace elements, but is there to provide an alternative, cost effective solution for our customers."

Mehlich III is effective for soils with a wide range of physical and chemical properties and

is used for the extraction of Fe, Zn, Cu, S, Mn, Mo and Co.

Duncan continues: "Using the Mehlich III extractant removes the need for multiple extraction methods for the different trace elements and the savings made are being passed on to our customers."

He continues: "The full service also includes organic matter, textural classification and hot water soluble Boron to deliver a complete agricultural soil suite at a very cost effective price."



To find out more about the Agri-Nutrient Saver Service contact Sean Stevenson by phone on 07825 177895 or email sean.stevenson@nrm.uk.com, or speak to Duncan Rose on 07825 177896 or email duncan.rose@nrm.uk.com

Filling in forage analysis forms

It might sound obvious but making sure the submission forms for forage analysis are filled in carefully is an essential first step to getting useful results back.

Tom Newnham who works in the forage analysis section at Sciantec points out that every sample needs paperwork so that the laboratory can do the right job on the right sample. "Each sample must have a unique reference," he explains. "But our system is flexible and that reference doesn't have to follow any particular pattern. We can fit in with whatever system the client wants to use."

Standard submission forms are supplied so it is just a matter of indicating what is required – standard nutrition NIR scan, full dietary minerals, cation-anion balance, VFA etc.

For customers using rationing software we can provide an automated file export function so that they can then import results. We have two standard exports for DietCheck and Ultramix but can quickly design an export format to suit bespoke customer software.

Beware fluoride results can vary

Interpret fluoride test results with caution – so says Sciantec's Mike Robinson. He explains: "As with analysis for other analytes, it is not just the detection method which can influence results. Of equal, if not more importance and, particularly as it turns out for fluorine, the method of sample preparation can greatly influence the result."

Even though the fluoride content of animal-derived foods contributes only marginally to total consumer exposure, the fact that too much fluorine can inhibit certain enzymes resulting in health concerns, means it is classed within the EU as an undesirable substance. There are therefore set maximum inclusion levels for finished feed and feed materials. For this reason, feed manufacturers and feed suppliers, who have a duty to demonstrate compliance, generally include regular testing for fluoride within their quality assurance sampling and analysis programmes.

These days, most laboratories use the same fluoride specific ion electrode technique to determine background levels of fluoride. However inter-laboratory collaborative studies

show significant variation between laboratories' testing results.

Mike continues: "Our investigations suggest that it is the sample preparation process which is behind these differences. This is probably why, buried in the small print within the EU Regulations, there is an exact extraction procedure specified for fluorine. This is the only undesirable substance listed in the Regulations to be given such treatment."

"Whilst the Regulations do not explain why this procedure should be followed, our experience is that using alternative, more aggressive extraction methods can break down the structure of the material yielding normally nutritionally unavailable fluorine. The result is higher levels of fluorine will be measured in the sample."

"As a result of these investigations, working with our sister laboratory NRM, when UKAS accreditation was applied for and consequently granted for fluorine analysis, Sciantec ensured that the methodology detailed exactly the extraction procedure to be employed and that it met the appropriate specification," he concludes.



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