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UKAS accreditation shows technical quality

Competition is fierce in the agricultural and animal feed analysis marketplace with organisations vying for work based upon cost and turnaround time. Whilst these factors are important, low cost, fast turnaround are of no use if the quality of data is poor and subsequent decisions are incorrect or the data gets rejected by the regulator.



Jeff Ruddle

"Procurers of agricultural and animal feed analysis services need assurances that the organisations they employ are technically competent and can and will deliver to the right level of quality," says Jeff Ruddle, Divisional Director (Operations) for UKAS, the national accreditation body appointed by government to assess organisations that provide certification, testing, inspection and calibration services against internationally agreed standards.

"Traditionally people have relied upon certification to ISO 9001 as demonstration of the competence of their suppliers. However, although this provides confidence in the organisation's management systems, ISO 9001 is not a technical standard. It therefore cannot provide confidence in the technical competence of an organisation, nor can it provide full confidence in the validity and suitability of the data produced."

So what should procurers be looking out for? Since its publication in 1999 the international standard ISO/IEC 17025 'General requirements for the competence of testing and calibration laboratories' has been recognised as the standard for this area. According to Mr Ruddle, accreditation

to the ISO/IEC 17025 standard is the route by which procurers and regulators of sampling and analysis services can have confidence in an organisation's competence and compliance and ultimately therefore confidence in the quality and validity of data produced.

Alongside ensuring appropriate quality management systems are in place, accreditation to ISO/IEC 17025 requires that organisations robustly determine the technical and service requirements of their customers and then ensure that they have the technical and resource capability to meet these requirements.

Additionally, ongoing quality control ensures that the validity and accuracy of data produced by accredited organisations is maintained. Whilst ISO/IEC 17025 is the most appropriate standard in this area it is necessarily flexible to allow its application over a variety of fields that range from the chemical testing of agricultural soil and animal feed through to the forensic examination of footprints. UKAS works with stakeholders in the agriculture and animal feed sectors to ensure that its assessments and accreditation are fit for purpose.

"By engaging the services of an organisation that is accredited to ISO/IEC 17025 procurers can ensure that they will receive a service that is fit for purpose and meets regulatory requirements," he maintains.



Schedules of accreditation for organisations accredited to ISO/IEC 17025 by UKAS, which contain details of specific activities which are covered by accreditation, can be found at www.ukas.com

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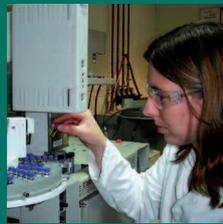
Investing in Animal Health

NRM Sciantec is gearing up its animal health business with investment in new equipment and staff.

The company has a long tradition in animal health product testing but there are now new opportunities to be grasped. Consultant David Clapperton explains: "Building up this side of the business has been identified as a key priority, and having successfully passed a Medicines and Healthcare Products Regulatory Agency inspection in April, we are concentrating on training up new staff and getting some additional equipment operational. The result will be faster turnaround times, enhanced quality and a wider range of tests on offer in line with market developments."

With one Animal Health Group, the Bracknell and Yorkshire teams are also working more closely together, sharing expertise to meet customers' needs.

Meet the staff



Val Goodwin, Sciantec

Using the whole team's microbiological skills to provide customers with practical, accessible information is the clear focus for Sciantec's Microbiological Section Manager Val Goodwin.

Val, a microbiology graduate from Edinburgh University, has many years experience in the areas of food/animal feed, water and environmental microbiology, working for Nestlé, Yorkshire Water and BOCM-PAULS, whose Yorkshire laboratory merged with NRM and then Sciantec Analytical Services.

As Section Manager her remit is wide ranging. "With a team of seven experienced staff, and operating as a DEFRA Approved Laboratory it is vital that our analytical work maintains a high standard. In addition we have to make sure that everything is running to UKAS quality standards."

Val also develops and documents new analysis methods for any

new organisms requested by customers, and sets up approved research projects. Customers today come from the animal feed, horticulture, agriculture and environmental/recycling sectors.

"We already offer over 40 different tests and the number is growing," she adds. "I feel I am bringing together my knowledge and experience gathered from all my different jobs over the years to help the team take on all the new methods we are starting to do".

One recent development has been the introduction of bioaerosol testing. "Within the environmental industry concerns have arisen about the possible impact on the health of workers and the residents who live in

the vicinity of recycling sites.

To keep a check on the air quality, a specialist service has been developed by Sciantec to support this important area."

"Unlike some disciplines, microbiology is still a relatively labour intensive process. We have to grow the bacteria or other micro-organisms in selective media and on agar plates in the incubator. It is then down to the expertise of the team to identify and count the organisms on the plate. The team works hard to speed results through to get as quick a turnaround as possible to meet our customers' requirements".

Val still finds time to work 'at the bench' and clearly relishes the challenge of isolating and identifying the living organisms and then interpreting results.



Val Goodwin

"We are working with some potentially unpleasant organisms – Salmonella, Enterobacteriaceae, E coli, for instance – which means that safety protocols must be strictly followed," she adds.

When not at work Val and husband Gordon enjoy travelling around the country – both city breaks and visits to the countryside feature in the itinerary along with the occasional foreign adventure.

Caroline Wolton, NRM

At the laboratory in Bracknell, Caroline Wolton, who is an experienced Analyst in the general analytical section at NRM, clearly enjoys working for the company; although she does confess to finding some of the samples received pretty gruesome!

Caroline spends much of her time in the lab operating a number of Rapid Flow Analysers (RFAs) to measure ammonia-N and nitrate-N in a range of different samples, including forages and all types of soil samples, but it is the slurry and, particularly the manure samples, which she finds particularly interesting first thing in the morning!!

She clearly enjoys the challenge of every day being different. "It might be running 100 forage nitrates or over 300 soil mineral

nitrogen tests in a day," she says. Making sure the equipment is running smoothly and checking that the results coming out are accurate is clearly something she relishes. "The RFA is a really useful piece of kit but it does require quite a bit of manual input. You've got to keep an eye on it to make sure there are no blockages or leaks which would distort the results," she adds.

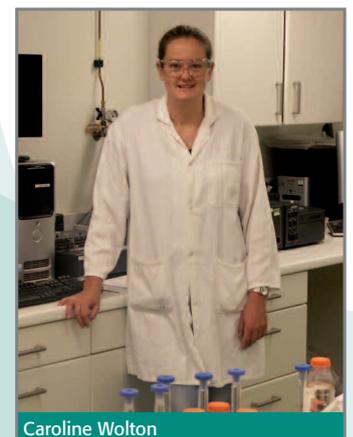
A biomedical science graduate from Kingston University London graduating in 2002, Caroline has always had an interest in science.

When she left school she worked as a trainee in a laboratory and had two years of practical experience before deciding to go to university.

In addition to the RFAs, Caroline has also worked on soil characterisation within the General Analytical department and spent some time in the Pesticide Section. That experience means she knows a lot about the different activities in the lab. "I enjoy working with others and getting involved in problem-solving," she says. "You've got to keep a level head in this job. There's no point in getting stressed or upset about the day-to-day issues," she adds.

Caroline's energy and enthusiasm also permeates her social life. When she's not working she's

likely to be doing something to keep fit – aerobics and the gym both feature in her routine but if it's Wednesday then it's boxing! "The boxing is just a really good way to keep fit and to relieve any stress," she explains. Well you can't argue with that!



Caroline Wolton

New anaerobic digestion service

NRM has recently launched a new analytical testing service for operators of Anaerobic Digester (AD) plants to ensure that the digestate produced complies with the specifications set out in the new PAS (Public Available Specification) 110.

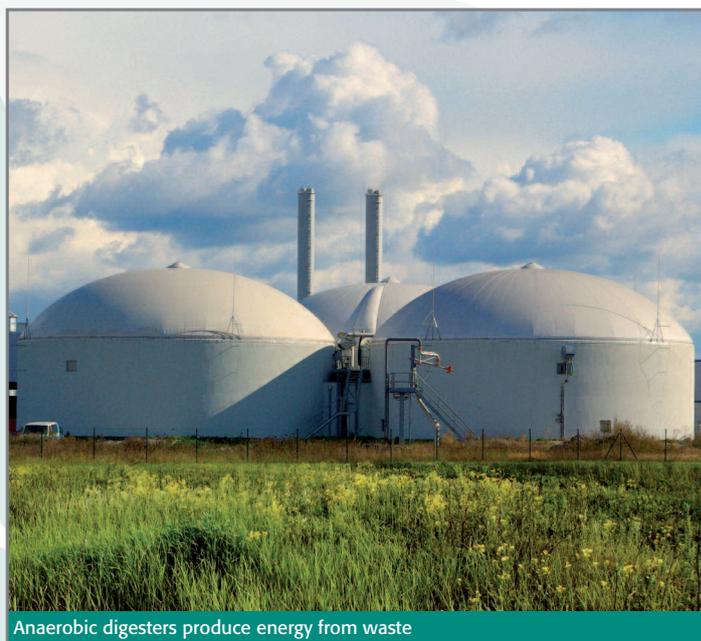
"The introduction is particularly timely as it follows the announcement in May of the new coalition government's plans to promote AD as a means of producing energy from waste," says NRM's Sean Stevenson. "The NFU envisages that there will be around 1,000 farm-based AD plants by 2020 alongside at least 100 larger waste-linked AD facilities," he adds.

"Currently there are some obstacles preventing this development; not least of which is the investment required for their construction and inadequate Renewable Obligation Certificate (ROCs) and Feed-in-Tariff (FITs). However if the new government is serious in its desire to see AD developed these problems are not insurmountable."

Well-managed AD systems confer multiple environmental and social-economic benefits. AD is an important technology for the local recovery of source segregated biowastes. The biogas produced can be converted into energy to power the AD system itself, for local use, as electricity for the national grid or for processing into biofuel for vehicles.

The whole digestate, separated liquor and separated fibre outputs that AD systems produce can have significant fertiliser value and can return useful amounts of organic matter to soils.

PAS 110 has been developed to remove a major barrier to the growth of AD and to encourage markets for these digested



Anaerobic digesters produce energy from waste

materials. It is a specification against which producers can check that their digested materials are of consistent quality and fit for purpose. The PAS details which materials are within or outside its scope, the quality management systems that should be in place and the digestate production sequence, including details of the sampling and testing requirements needed to make

sure that the digestate produced is no longer considered a waste but a product.

In addition to the PAS 110 testing, NRM is also able to meet the analytical requirements for the soil that the digestate is to be applied to as laid down in the ADQP (Anaerobic Digestate Quality Protocol) as well as analyses associated with process control of the AD plant.

Medicated animal feeds update

Testing animal feeds to ensure that the declared level of medicine is present is a core part of the Sciantec animal testing service. However, as Sciantec's Mike Robinson explains: "Interpreting the results is not as easy as you might think."

"All our assay methods are tested using known amounts of the pure additive. By assaying the feed sample before and after this addition we can make sure our methods are capable of recovering close to 100% of the additive," he explains.

However having a methodology which is capable of recovering 100% of the additive is not the same as saying we will find 100% of the declared level in a sample of commercial feed submitted for analysis. "There are plenty of reasons why a discrepancy may exist," says Mike.

"Clearly the wrong amount might have been added or there may have been poor mixing or an unrepresentative sample taken. Problems can occur during pelleting or with an additive binding to other ingredients. There may be physical loss in the mill with the additive sticking to chutes etc. The feed may have degraded over time or there may be other additives in the mix which are interfering with the drug we are looking for."

With the exception of the addition of the wrong amount, all of these possibilities will vary with the medicine being used.

So, given a low result for one sample, or for more than one sample from the same mill, it is virtually impossible to say which of these factors is responsible for that 'poor' recovery. "However because

Sciantec has a comprehensive database of results covering many additives in a range of feeds from many feed mills, we are in a much better position to interpret the findings and put individual results into context," says Mike. "If we find a drug at only 80% of its expected level there is no point in the compounder undertaking a thorough investigation at the mill to find the reason for the shortfall if it turns out that everybody is getting a similar 'recovery' for that drug.

To help customers assess their results Sciantec has produced a brief summary of its key findings and recovery rates for the most popular additives. "Of necessity we have chosen fairly simple parameters to include in the summary but more detailed breakdowns can be provided on request," adds Mike. Please contact Mike or the Customer Services team on 01757 242400 for more details.

Changes in limits imminent

But what about feeds which are 'medicine-free'? Legislation is driving down the limits for traces of medicines allowable in these feeds in what is increasingly becoming a search for the vanishing zero. Under legislation introduced last year, the maximum content for a range of medicines in non-medicated feed is to be no more than one hundredth of their normal inclusion levels in one that is medicated. Taking nicarbazin which is added to feed at 70 parts per million as an example, the new legislation will reduce the maximum allowed limit down to 0.7 ppm. This is a pretty small amount which, not that long ago would have been beyond the limit of detection in the laboratory.

For some medicines detection even at these much lower limits will present no difficulties but others will be far more challenging and new equipment and methodologies will no doubt be needed.

"We are currently actively assessing the options to ensure that customers will continue to be able to obtain the necessary documentation and assurance from us in future," says Mike.

Focus on business development

A business that stands still stagnates. Little chance of that at NRM or Sciantec, where business development is seen as a priority. There are two business development managers in post – Caitriona Mullin based at Sciantec in Yorkshire and Sean Stevenson at NRM's head office in Berkshire.

"Business development is essential to maintain Sciantec's service quality to both existing and new customers," maintains Caitriona. "It's about ensuring that we are providing the analytical services required in our operating sectors, as well as accessing new markets, improving business efficiency, and enhancing productivity."

Sean adds: "Business development is all about making sure we are meeting customers' needs now and finding out what customers are going to need in future. We have to try to predict where and when gaps might be opening up in the market and what impact that might have on our business."

Both Caitriona and Sean are focussed on ensuring that the core

businesses of Sciantec and NRM continue to flourish.

At Sciantec the animal feed sector is obviously the prime focus. "One specific area we are working on is the increasing awareness and concern regarding spores and moulds and their impact on both human and animal health. We expect to be introducing a new mould identification test for the equine and poultry industries very soon," she explains.

"In the longer term greater awareness of animal health and welfare will see the importance of analytical testing within the agri sector increase."

At NRM the environment sector is a major development area for the

business. Sean explains: "There are increasing legislative requirements across the world to reduce environmental impact.

"In particular EU directives such as the Water Framework Directive and the Waste Framework Directive are likely to result in an increased frequency of testing in the future and to introduce additional testing requirements.

"One example is the service to Anaerobic Digestate plant operators which has just been launched – see page 3 – to ensure their compliance to the new PAS110 specification. An exciting range of tests to support the waste/renewable sector is also planned," he adds.



NRM's Sean Stevenson



Sciantec's Caitriona Mullin

Soils take centre stage at conference

NRM was delighted to participate in a technical conference on soils held at a hotel close to the Bracknell site in the Spring. Organised by one of NRM's long standing customers, with a detailed interest in soils and agronomy, the event proved a hit with the 30 delegates from the UK, Ireland and continental Europe. Growers, agronomy companies and advisers were all represented.

The conference included classroom sessions with a presentation from NRM's Business Development Manager Sean Stevenson on the laboratory facilities. This was followed by a half-day visit to the NRM site.

"The visit provided an opportunity for delegates to meet some of the staff involved in soils testing," explains NRM general manager Linda Radnor.

"We were able to explain just how valuable soil testing is to agriculture so that delegates could appreciate the importance of looking after the soil and gain a better understanding of how soil 'works' and what it needs to stay healthy," she adds.

Delegates seemed particularly impressed with the laboratory facilities. "We were able to explain how we deal with upwards of 2,500 agricultural soil samples a day," says Linda. "Our streamlined and highly automated system allows just 15 people to process all these samples, measuring pH, phosphorous, potassium and magnesium, and a range of other determinants.

"We also highlighted the importance of Quality Control Procedures and showed delegates some of the bespoke specialist equipment we have to deal with such large numbers of samples accurately and rapidly," she explains.

Since its launch in 1991, NRM has seen steady growth in its soils business. In the launch year fewer than 10,000 samples were processed. In the 2009/2010 season that figure had expanded to over 340,000 soil samples.

"This growth is a combination of the expansion of NRM as a business and the increasing awareness of the importance of soil testing among farmers and their advisers," suggests Linda. "Environmental legislation, the rising cost of fertilisers and the growth of precision farming have all played their part," she adds.

On the Agenda

Topics covered included:

- What is soil?
- Assessment of soils for structural integrity;
- Nutrient cycles in the soil, including the nitrogen cycle, fate of urea, labile and non-labile phosphorus, and explanation of the fate of potassium and sulphur when applied to the soil;
- Use and advantages/disadvantages of different sorts of organic manures;
- Soil pH and liming;
- Soil water and irrigation.



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