

Enhancing product safety through regular laboratory testing

In modern poultry production, laboratory testing is assuming an ever important role, whether it is for the farming operation or for the processing plant. To find out more about this intriguing aspect of poultry production, International Poultry Production recently visited one of Asia's leading laboratories – The Betagro Science Centre in Bangkok, Thailand.

This facility was set up to service the testing and monitoring needs of one of Thailand's leading agribusinesses – The Betagro Group – who have major poultry, swine, further processing and feed milling activities. However, an interesting development in recent years is that the Centre has made its services available to other agricultural and food businesses in the region. This now accounts for approximately 20% of the laboratory's throughput and this figure is increasing.



The Betagro Science Centre.

Vision of the future

Betagro's roots go back some 43 years when its founder saw an opportunity in utilising broken rice, which was then virtually a waste material, to make pig and poultry feeds. Quite quickly this became a feed mill and in time the vision progressed into forwards integration into pig and poultry production.

Betagro was the first Thai pig operation to import foreign genetics to improve local pig stocks and today they have some 60,000

Much of the media used is manufactured in-house.



sows whose progeny is reared by contract growers and then returns to the company's pork processing and further processing plants. Their poultry production now equates to well over 2.0 million broilers a week and much of this goes through the company's further processing operations.

Today, Betagro is a major exporter of poultry products to the EU, Japan and Canada and their joint venture with the Japanese Ajinomoto Group in pork further processing means they also export pork products to Japan.

The company has a strong domestic market for pork and poultry products and is well known for its high quality products that are backed by total traceability.

The laboratory first came into being in 1994 and about a decade ago it started undertaking external work. Some five years ago it moved to new, purpose built facilities, became the Betagro Science Centre and started to seriously promote its services to other companies. These facilities undertake a wide range of veterinary and food testing work including an expertise in antibiotic and chemical residues testing. Three years ago a second laboratory was opened in Lopburi that focuses on food testing as this area is a main one for food production in Thailand and is the area where much of Betagro's

processing operations are based. In total, the two laboratories employ some 100 staff of whom well over half are technically qualified in disciplines such as chemistry, microbiology and veterinary sciences.

Confidence in results

Both laboratories are accredited for a wide range of tests to ISO 17025 and the Bangkok laboratory is also ISO 9001 (2008) certified for the whole company – the laboratory, R&D, sales and marketing and administration. This accreditation assures those who use Betagro Science Centre's services that each stage of every accredited test procedure is done properly and in accordance with internationally agreed standards and protocols. In essence, this gives the users of the laboratory confidence in the results produced by it.

The work undertaken at the Centre falls into the categories of pathology, which determines the cause of a disease, bacteriology, virology, serology or blood testing and chemical testing. This last category covers two main areas – the testing of feeds and their raw materials to confirm they are up to specification and the testing of foods for

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The Lopburi laboratory and, right, inside the microbiology laboratory.

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human consumption to validate their freedom from undesirable chemicals and residues. As the Science Centre's director, Dr Rujawate, so succinctly puts it, 'We focus on testing to protect the people from zoonotic micro-organisms such as salmonella and listeria and from chemical and drug residues'.

Many of the tests are accredited and undertaken in house and if there is a test that the Centre does not do, it will subcontract the work on to an appropriate specialist laboratory. Thus, Betagro Science Centre is able to provide its busy customers with a very valuable 'one stop shop' service under which the customer is only dealing with one laboratory for all its testing needs.

Comprehensive LIMS

The laboratory operates a comprehensive LIMS (Laboratory Information Management System) that will soon also incorporate bar coding of samples and every aliquot, test plate or broth going through the facility.

Currently this integrates into an electronic reporting system through the Betagro intranet for in house testing and to a comprehensive reporting system for their customers.

This system can be programmed to highlight out of specification results on the reports it generates.

Being ISO 17025 accredited means that the laboratory participates in external challenge testing which some people refer to as 'ring testing'.

This is a process under which the laboratory, along with other laboratories, receives blind samples for testing. Once it has reported its results it then finds out what the actual results were and is able to compare the results to see how well, or otherwise, it has performed.

Currently, most of these test samples come from overseas, but the Thai Department of Science Services is close to becoming internationally recognised as a Certification Body and when this occurs some of these samples for external challenge testing will be produced in Thailand for use by laboratories in the region. To date Betagro Science Centre's two laboratories have an excellent record in their participation in such schemes.

Some may wonder about confidentiality and conflicts of interest for work relating to other swine and poultry producers, but Dr Rujawate sees no problem here as the Betagro Science Centre has its own independent management structure and an independent computer system. Testimony to

this is the fact that some of Thailand's poultry companies use the Centre for specialist tests that their own laboratories do not perform.

Strong research links

In addition to providing day to day testing and monitoring services, the Betagro Science Centre has strong relationships with various research centres and universities in the area with whom they collaborate on the development of new tests and technologies and in their application in the field.

They can also help their customers with advice and guidance on monitoring and control programmes. They have a wealth of experience in areas such as salmonella and listeria control and bringing together an understanding of the full dynamics of a problem. For example, they can use salmonella 'fingerprinting' techniques to identify the source of a problem, track it through an operation and use this valuable information to define the best intervention points and strategy to control the salmonella problem.

In a short time the Betagro Science Centre has come a long way and is now one of the leading testing laboratories in the region – a status that it and its parent company, Betagro, can be justifiably proud of! ■

The nutritional chemistry laboratory and, right, the generation of reports.

