

Gene technology will drive avian health in the years ahead

The way in which we manage flock health is set to change radically over the next 20 years thanks to developments in molecular technology. That was one of the conclusions from a recent meeting in Brussels, entitled Advances in Diagnostics.

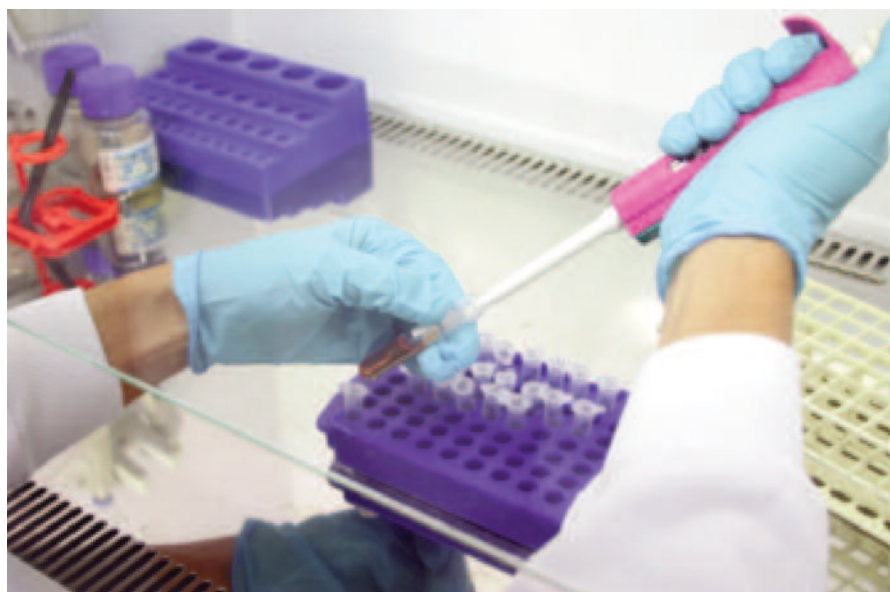
The meeting was told how on-going developments in molecular technology are opening new possibilities for disease prevention and control.

Better disease understanding

“The application of molecular technology means that we can now understand diseases and animal health at a more fundamental level than ever before – at the gene level – and that will have a major impact on the way we approach animal health in the near future,” Dr Kirk Adams, director of product management at Life Technologies, told the meeting.

“Veterinarians now have access to a wider range of diagnostic tests than ever before; and they are faster, more accurate and more precise than ever before. These advances have the potential to revolutionise the way in which we manage the health and welfare of food animals.”

Technology plays an ever increasing role.



Sample preparation.

According to Dr Adams, the advances in technology mean that diagnostic tools can be used to take a more pro-active and holistic approach to animal health.

“Diagnostic tests are no longer confined to finding out what killed the chicken. We now have the means to take a more targeted approach to treatment, and reduce the use of broad-spectrum drugs. In the future, we will even be able to use gene sequencing to determine the sensitivity of individual flocks to specific treatments.

Facilitating eradication

“Molecular tests, such as PCR, also facilitate disease eradication programmes, more strategic use of vaccination, more effective biosecurity measures and the management of diseases for which there is no effective treatment by allowing the identification of asymptomatic, persistently infected animals.

“There are many ways in which this technology can and will be applied to improve the health and productivity of food animals.”

One of the key areas discussed at the meeting was the use of new diagnostic tools to safeguard Europe’s farm animals against the threat of new, emerging diseases.

“One of the biggest threats to animal health is the development of new types of pathogen or new diseases spreading from other regions. Schmallenberg virus in ruminants is one of the most recent examples.

“Molecular technology gives us the ability to characterise these threats quickly and accurately and to develop diagnostic tools that allow us to track the threat and assess our management,” concluded Dr Adams.

Wide range of diagnostic tests

During the meeting it was highlighted how in recent years there has been an explosion in the accuracy, precision and spread of diagnostic tools for animal pathogens and that today a wider range of diagnostic tests are available for a wider range of pathogens than ever before.

Gene sequencing technology means that we now know more about pathogens at a fundamental level than ever before. As an example to the speed of change the mapping of the human genome was highlighted. Just a decade ago it took years and millions of dollars to sequence the human genome for the first time.

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Today it can be sequenced in less than 24 hours for less than \$US1,000.

Improved diagnostics

Nowadays we have the technology to develop diagnostic tests for any animal pathogen and such advances must have the potential to revolutionise avian health, welfare and productivity over the next few decades. In essence better diagnostics equates to better poultry health because:

- A more holistic approach to flock health can be operated.

- More targeted therapies can reduce the usage of broad spectrum drugs such as antibiotics.

- There can be an even more strategic use of vaccination.

- Health monitoring and screening can be more focused.

- Disease eradication programmes can be made easier.

- Better biosecurity will be possible.

- Earlier disease identification should be possible.



- There will be better opportunities for managing diseases for which there is no effective treatment.

- Emerging diseases can be more accurately tracked.

- Flock performance should be more predictable.

- Better productivity.

In the future diagnostics will be at the heart of flock health and will interface with treatment, biosecurity and vaccination.

Today, diagnostic technology is advancing too fast for some farmers and their veterinarians to keep up with, as many veterinarians qualified before gene based tests, such as PCR, became available.

Thus, there is a need to help producers and veterinarians so that they can make the most of new advances in diagnostics. ■

