InterTrace

Integrated Livestock Information System…

Governments and other organisations responsible for the regulation and management of livestock industries face increasingly demanding requirements from national and international legislation and retailers of livestock products. InterTrace is a database system that can manage all types of livestock information, including:

- Animal identification, registration and traceability;
- Health records such as disease incidence, disease surveillance and vaccination;
- Production information for breeding organisations and to provide product traceability.

It has been developed and refined since 2000 by PAN Livestock Services Limited, a company based in the School of Agriculture, Policy and Development at the University of Reading.

The system is used by many organisations in countries including Chile, Colombia, Luxembourg, Malta and the United Kingdom. It manages data for all livestock species, including ruminants, poultry, equines and companion animals such as dogs and cats. The database structure is open and fully documented, allowing organisations using the system to commission special client programmes from in-house developers, or by tendering from the private sector. For example, the Government of Malta has commissioned a web-based system to allow farmers to check their records in the database to avoid penalties for non-compliance with reporting requirements. They may also apply for animal movement permits online.

Combining the different types of information in one system provides efficiency and cost savings. It also leads to much improved reliability and accuracy of information because the different users are constantly using and checking the information provided by others.

InterTrace is designed to allow both public and private sector organisations to use the same central database, with secure control over the information available to different users. However, if countries prefer to maintain separate databases for government and private sector organisations, the system will still allow secure exchange of information between the databases as each animal record is assigned an internal unique identifier. For example, in Luxembourg, an InterTrace database for managing animal disease surveillance and control programmes receives information on animal births, movement, death and slaughter from a separate identification and registration database. Veterinary staff are aware of animals that they need to test, and any discrepancies between the animals actually found and the animals that should have been present are reported automatically to the animal identification and registration authority.

The Government of Malta uses InterTrace for the management of all official animal regulation activities, including:

- Livestock identification and registration in accordance with all EU legislation;
- All official animal disease surveillance and control programmes;
- Inspections to ensure compliance with hygiene, animal welfare and environmental regulations;
- Checking the eligibility of producers for benefits under EU support programmes;

- Traceability information for labelling meat products, including poultry meat;
- Administration of international equine and pet passport schemes.

The management of animal disease surveillance and control programmes in Malta provides an illustration of the benefits of integrated livestock information. There are programmes for surveillance of brucellosis, tuberculosis, leucosis and bluetongue in ruminant livestock (cattle, sheep and goats). The herd tests are scheduled in the database, enabling programme managers to monitor the implementation process.

Before visiting a farm, field staff obtain a field sheet that lists those animals eligible for testing, along with barcode labels for blood sample tubes. If any animal is found that does not appear on the field sheet, it is tested, blood-sampled and recorded. The tuberculosis results, manually recorded on the field sheet, are entered into the database though a facility that records negative results by default, thus only requiring manual entry of animals that are positive, doubtful, not tested or absent, as well as those not listed on the original field sheet.

At the laboratory, the barcode labels are read by the testing equipment, which produces spreadsheet files detailing the test results. These are automatically imported into the InterTrace database. Each night, a procedure in the database is executed automatically. This reviews all of the individual animal test data and generates herd test records with details of numbers of animals eligible, tested and positive. Any animal movement record anomalies are brought to the attention of staff responsible for animal traceability.

On the basis of the herd test results, the status of each herd in respect of the various diseases is determined. The status can also be influenced by animal movement records. For example, the movement of a susceptible animal from a leucosis-positive farm to a negative farm would cause the status of the destination farm to be undetermined, requiring re-testing. However, the movement of a non-susceptible animal would have no effect. The status criteria are determined by the programme managers, and can be adjusted to reflect any policy changes.

In Malta, farmers are required to obtain a movement permit before moving animals of any species between farms. These permits are generated and recorded by InterTrace, and will not be issued if the movement would compromise the status of the destination farm. The system also checks that neither farm is the subject of an administrative movement embargo, and that the movement would not breach any limits on animal numbers imposed for environmental and/or animal welfare reasons.

In Luxembourg, InterTrace is used by the animal breeding organisation CONVIS to manage the genetics and production data of cattle in their programmes. This database receives records of animal births, movement, deaths and slaughter for members' herds automatically from the government identification and registration database. Periods that the animals have spent on non-members' premises are shown as being at an unknown location. The data from the system are periodically transferred to genetic evaluation systems in France and Germany, where the breeding values of the animals are determined.

In addition to its role in animal breeding, CONVIS also manages a beef quality assurance scheme for a leading supermarket. In order to qualify for this label, cattle must comply with strict criteria relating to their genetics, feeding, growth rate before and after weaning, conformation and carcass classification. The producing farms are regularly inspected to ensure that they meet strict hygiene, feeding policy and animal welfare rules. InterTrace is used to manage both the individual animal and farm inspection data. When an animal is slaughtered, the system reports whether the animal qualifies for the label. The quality label has been very successful because, unlike many other quality labels, it ensures that the flavour and texture of the beef is consistent. This is only possible by controlling the production conditions through the life of the animal, and cannot be achieved by inspection only at the abattoir.

National Milk Records plc (NMR), Europe's largest milk recording organisation, uses InterTrace in the United Kingdom to provide new analysis and reporting services for its 6,000 milk recording customers who account for over 70% of UK milk production. These analyses are accessible through a web application, Herd Companion (www.herdcompanion.co.uk). Farmers commonly interpret these in collaboration with their veterinarian, nutritionist or other technical adviser. The use of a large central database containing both current and historical animal records (more than 10 million in total) enables:

- Monitoring performance of an individual animal or herd over time, highlighting emerging problems at the earliest opportunity and close monitoring of the consequences of interventions;
- Benchmarking performance of a herd against similar herds to highlight individual strengths and weaknesses in performance. In addition to quantifying where individual farms need to focus greatest attention, benchmarking offers opportunities to learn from the working practices of the best performing herds.

This greater accessibility of information has resulted in closer working relationships between producers and their advisers. As disease testing of milk, mobility scoring and other new services are introduced, the role of information becomes ever more fundamental to the effective management of large dairy herds.

The results of milk recording and testing held in the NMR InterTrace database are automatically downloaded to the on-farm herd management systems InterHerd and InterHerd+, where an even more comprehensive range of analysis and reporting is possible. The sector has transformed in a matter of a few years from having too little to too much data. The emphasis is now on using key performance indicators that measure performance over time, and highlight short- and long-term trends.

pan livestock services

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