

ANIMAL PRODUCTION FOOD SAFETY IN ASIA

Development of on-farm food safety in Thailand's poultry industry

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Summary: *Achieving food safety, both on-farm and indeed throughout the food chain, is the responsibility not only of the government but also of the industry. The development of on-farm food safety in the poultry industry in Thailand has been successful because of close cooperation between the government sector, the industry and other stakeholders. Supportive legislation, regulations, standard operating procedures and education have played an important role in achieving this success. International trade is also an effective driving force both for the industry and for the government in order to meet the requirements set by the importing country as well as the importers. Most importantly, awareness and a clear understanding of the relevant legislation, regulations, requirements and standard operating procedures are necessary tools for the successful implementation of on-farm food safety. Suitable training and education provided by both the public and private sectors are therefore essential. However, a testing laboratory is considered to be an important tool for the success of the surveillance and monitoring system, which is the key to evaluating whether the appropriate measures have been implemented and whether the food safety objective is being achieved. Lastly, traceability is also essential for achieving food safety, since it enables investigations, corrective actions and preventive measures to be carried out.*

Key words: Thailand – food safety – poultry industry – avian influenza – legislation

Introduction

The poultry industry of Thailand has developed and grown significantly since 1978 to meet demands and requirements of markets, especially the export market. Chicken farming systems have changed from small-size farms to large-size farms with fully integrated systems.

According to the 2006 Yearly Statistic Report of the Department of Livestock Development (DLD), Ministry of Agriculture and Cooperatives of Thailand [21], there were 147 breeder farms, 7,456 broiler farms and 2,188 laying farms rearing 16,030,512; 169,271,750 and 49,217,273 birds, respectively. In 2006, Thailand exported 272,630 and 7,237 metric tons of cooked chicken meat and cooked duck meat, respectively. The export of fresh poultry meat has ceased since 2004 due to avian influenza outbreaks resulting in serious economic losses to farmers and the poultry meat processing industry.

Characteristics of poultry farms in Thailand

At present, ninety per cent of the poultry farms in Thailand are managed under an integrated system by companies.

There are two types of farms:

- farms owned by the company;
- contract farms owned by the farmers themselves but managed under the supervision of the contract company.

The contract company supplies everything needed for poultry rearing to the farmers, e.g. day-old chicks, feeds, medicines, etc. The contract farmers are not allowed to use feeds and pharmaceutical products from other sources. Treatment and prevention of diseases are also under the supervision of DLD-registered farm

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veterinarians provided by the contract company. The contract farmer must comply strictly with the company rules.

Development of on-farm food safety for poultry industry

On-farm food safety depends on several factors such as farming practice, quality of feeds and water used in farms, disease control and treatment, animal husbandry and farm sanitation, farm environment, as well as the use of pharmaceutical products and chemicals.

The misuse of pharmaceutical products and chemicals resulting in residues in animal tissues and products threatens consumer's health. Poor farming practices can lead to contamination with pathogens harmful to man, which can end up in animal tissue and products. Hence to ensure food safety on farms, good control measures on the factors mentioned above must be in place. The control measures include legislation, surveillance and monitoring system and traceability.

Legislation and requirements

The Government of Thailand considers food safety as a priority and acknowledges that this is not achievable if every step in the food production chain is not safe. Necessary measures must thus be applied throughout the food chain from farm to table.

In order to achieve food safety goal, the Government should pay closer attention to all elements in the food production chain including farming systems as well as legislation or rules to underpin actions to achieve food safety.

In November 1999, the Ministry of Agriculture and Cooperatives issued a Notification on Livestock Farm Standard [13] in order to enforce measures on the management of farms, animal health and the environment to produce safe and hygienic meat for consumption. The notification is voluntary but compulsory for those who want to send their birds to slaughterhouses approved for export. The implementing agency of the notification is DLD. To implement the notification transparently and successfully, it is necessary that the operator and the industry understand how to implement it. Therefore DLD issued the following regulations:

- Broiler Farm Standard (2002) [3];
- Chicken Breeder Farm Standard (2003) [4];
- Poultry Hatchery Standard (2003) [14];
- Layer Farm Standard (2003) [11];
- Duck Breeder and Duck Farm Standard (2003) [7];
- Regulation on Traceability of Livestock Products (2003) [16];
- Notification of the Department of Livestock Development on the Control Measures on the Detection of Prohibited Substance in Feed, Veterinary Drug or Residues in Poultry (2003) [12].

In 2003, DLD issued three Standard Operating Procedures (SOPs), as follows:

- Standard Operating Procedure on requirements for obtaining standard farm accreditation for farmers [20];
- Standard Operating Procedure on inspection of broiler standard farm for DLD farm inspectors [19];
- Standard Operating Procedure on supervision over broiler standard farm for DLD-registered farm veterinarians [18].

The essential elements of these regulations, notifications and SOPs concern 'good agricultural practice', 'good veterinary practice', 'good hygienic practice' and biosecurity, as well as the penalty in case of non-compliance.

Feed, animal drinking water and all pharmaceutical products used in DLD-registered standard farms must comply with Animal Feed Quality Control Act (1982/1999) [1], Regulation of the Ministry of Industry on Standard for Drinking Water (1978) [15], Drug Act (1967/1987) [6], Hazardous Substances Act (1992) [10] and the Code of Practice for Control of the Use of Veterinary Drugs (1997) [5].

After the Standard Farm System was initiated, all poultry farmers were encouraged to apply for farm accreditation. Training courses, particularly on farm standardisation and good agricultural practice, have been organised for farmers, both by Governmental agencies and private sector, in order to provide knowledge to the farmers to enable them to upgrade their farms and farming systems and thus comply with farm standards. The farmers who apply for standard farm accreditation are assessed, inspected and evaluated by the DLD farm

inspection team. After accreditation, the accredited farms remain under annual surveillance. Several training courses have also been organised for the regulatory officers and veterinarians by DLD.

To gain broiler standard farm accreditation, each farm must implement good agricultural practice, follow the Standard Operating Procedure for farmers and have a DLD-registered farm veterinarian responsible for supervision of their animal health and pharmaceutical prescription.

The farm inspectors are DLD officials appointed by the Director General of DLD.

The farm veterinarian must attend the DLD training courses organised especially for farm veterinarians. DLD shall register him/her after passing the performance evaluation.

Year 2004 was declared “Food Safety Year” by the Government of Thailand and a Food Safety Road Map was initiated. The National Strategic Plan on Food Safety under the Road Map was adopted under the conceptual framework over food control system whereas necessary measures have been applied throughout the food chain from farm to table. The Strategic Plan includes areas relating to industries from upstream all the way through downstream; i.e. raw materials and farm inputs industries, farm productions, food manufacturing, product certification and marketing.

Under the National Strategic Plan, more stringent measures have been applied, especially after the outbreak of avian influenza in Thailand. Farm biosecurity and animal movement control are strictly applied. Surveillance and monitoring systems have been improved.

Surveillance and monitoring

To ensure that measures and procedures are implemented in compliance with standards and/or regulations and appropriate corrective actions are taken in case of non-compliance, a surveillance and monitoring system must be in place. Testing laboratory is the core element of the system. There are eight official Government laboratories for food safety located throughout Thailand. Besides, there are also several ISO/IEC 17025 accredited private laboratories.

The following surveillance and monitoring systems are routinely conducted.

1) At broiler standard farms level:

- After obtaining accreditation, there will be an annual surveillance by DLD inspector prior to renewal of the accreditation. All documents and records shall be kept for at least two years and shall be made available to the inspectors and DLD local officers when asked. The farmers are required to send samples of feed used in farm to a certified laboratory to be tested for their quality, presence of *Salmonella* sp. and residues, and to send samples of water to be tested for bacteria, minerals and toxic substances.
- Seven days before catching birds for the slaughterhouse, a DLD-registered farm veterinarian shall visit the farm to inspect animal health and farm records and report to a DLD local officer. The officer shall visit the farm within three days prior to catching of birds, carry out an ante-mortem inspection, and review farm records before issuing the poultry inspection report at farm for the farmer.
- Eight days before catching birds for the slaughterhouse, the DLD officer will take a pooled sample of 60 cloacal swabs taken from 60 birds per farm and submit it to DLD diagnostic laboratory testing for avian influenza virus. Documents authorising animal movement will only be issued if the flock is free from avian influenza virus but the test results remain valid only for four days.

2) At feed mill and shops selling feeds and pharmaceutical products:

All feed mills are regularly inspected by DLD inspectors. The inspectors as well as the Thai FDA officer randomly inspect shops selling feeds and pharmaceutical products for animals.

Official samples of feeds and pharmaceutical products shall be regularly taken and submitted to an official laboratory for testing in order to ensure that they are compliant with Animal Feed Quality Control Act [1] and Drug Act [6] and to ensure that banned substances are not marketed or used illegally. Therefore poultry meat conforms to Food Act [9], Safety Requirements for Agricultural Commodity and Food [17] and DLD standards for meat and poultry meat and their products for export [2].

3) At slaughterhouses:

- Veterinary inspector shall check both the poultry inspection report at farm for the farmer and animal movement permit documents accompanying the flock and conduct ante-mortem inspection before allowing birds to enter slaughterhouse. Post-mortem examination is also performed.
- The following samples are collected and submitted to official laboratory.
 - 60 cloacal swabs per farm, to be tested for avian influenza and Newcastle disease virus;
 - a pooled sample of 500 g of abdominal fat collected from several birds per farm, to be tested for organochlorine pesticides;
 - 1 sample of breast meat per farm, to be screened for antibacterial substances by inhibition test (six-plate test);
 - 3 samples of different poultry cuts to be tested for microbiological quality.

4) National Residue Monitoring Plan:

DLD has carried out the task on residue control for livestock and has drawn up an annual residue monitoring plan. Since the European Union is one of Thailand's export markets, the residue plan follows Council Directive 96/23/EC [8]. Samples including animal tissues and feeds and drinking water for animals, are collected from farms as well as slaughterhouses and submitted to DLD laboratory.

5) Surveillance for Salmonellae:

DLD has been implementing surveillance for *Salmonellae*, *Campylobacter jejuni/coli* and *Listeria monocytogenes* throughout the poultry production chain.

DLD has issued measures for the control of Salmonellae enforced on the poultry production chain. The measures require both the Government and private sectors to take samples from farms and hatcheries and to undertake corrective actions when the results are not in compliance with the measures.

6) Own check:

The exporting company conducts its own check to ensure that it complies with Thai legislation and the requirements of the importing countries and the importers. Some importers also have their own inspection team to do on-site audit and some require accreditation on Assure Chicken Production (ACP), Standard for Chicken for Human Consumption, etc.

Examples of own check at farm level conducted by the industry before catching birds for slaughterhouses are:

- performing antibiotic screening test by six-plate test;
- testing for Salmonella sp. from cloacal swabs taken 10 days prior bird catching;
- testing for organochlorine pesticides, etc.

Traceability

Traceability is an important key to food safety, especially when non compliance with standards is detected. Effective investigations, corrective actions and preventive measures are not possible if there is no traceability system implemented. Therefore, in 2003 DLD issued the Regulation on Traceability of Livestock Products [16]. The regulation is enforced throughout the food chain production. Whenever non-compliances are noted, investigations shall be carried out, corrective actions undertaken, and preventive measures formulated and implemented to ensure no reoccurrence.

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