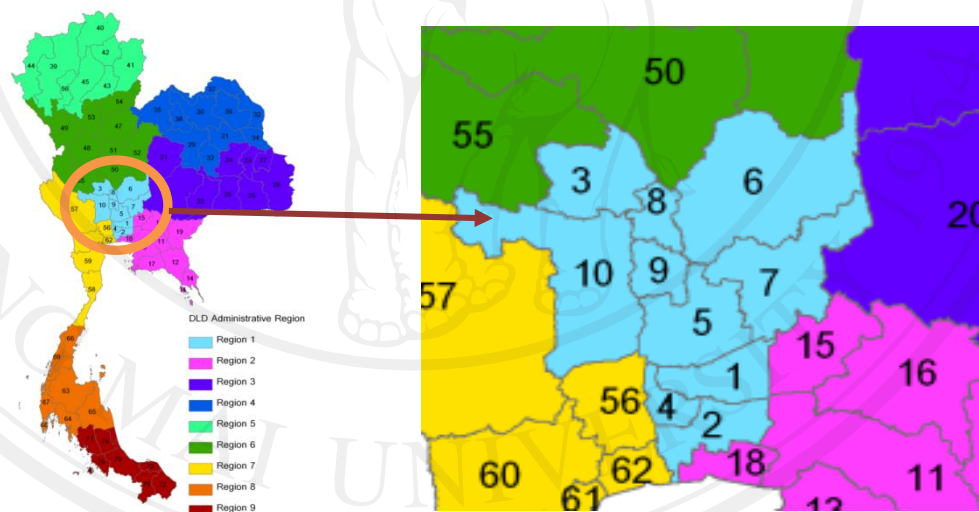


CHAPTER III

MATERIALS AND METHODS

3.1 Study area and period

The study was conducted in 5 slaughterhouses under the DLD Slaughterhouse and Butcher Shop Improvement Project which is located in Livestock Region 1 from November 2012 to April 2013. Laboratory results of meat bacterial contamination were sourced from the Slaughterhouse Domestic Control Division Bureau of Livestock Standards and Certification.



□ Livestock Region 1

1- Patum Thani, 2 - Bangkok, 3 - Chai Nat, 4 - Nonthaburi, 5 - Ayutthaya, 6 Lop Buri, 7 - Sara Buri, 8- Sing Buri, 9 Ang Thong, and 10 - Suphanburi

Figure 1 Location of the study area, Livestock Region 1, Thailand

3.2 Study design

The study was conducted in selected slaughterhouses under the DLD Slaughterhouse and Butcher Shop Improvement Project describes and monitors over time the pig and poultry slaughter conditions, facilities and operations in domestic slaughterhouses based on the new regulation “Ministerial Regulation on Determination of Criteria, Procedures and Conditions for Establishing the Slaughterhouse, Lairage and Animal Slaughter B.E. 2555 (2012)”, depict slaughterhouse facilities for post-mortem inspection and record post-mortem inspection findings, finally analyse the 2012 data of bacterial contamination of meat .

3.3 Target slaughterhouses

Livestock Region 1 is the middle part of Thailand (Fig. 1) which has the highest density of chicken population (DLD, 2012) and highest number in human population (NSO, 2010). The meat sample testing for slaughterhouses under the DLD Slaughterhouse and Butcher Shop Improvement Project from Livestock Regions 1 are performed at the Quality Control of Livestock Product Laboratory in Pathumthani, which is the DLD Reference Laboratory of Food Safety of Animal Derived Products and ISO/IEC 17025:2005 certified (Bureau of Quality Control of Livestock Products (BQCLP, 2012). Accessibility to slaughterhouses complemented by convenience in transportation and to its laboratory results were additional factors for the selection of Livestock Region 1 to conduct the study.

Under the DLD Slaughterhouse and Butcher Shop Improvement Project in Livestock Region 1, there are 7 pig slaughterhouses, 3 chicken slaughterhouses and 4 cattle slaughterhouses (BLSC, 2012). As the cattle slaughterhouses slaughter only in small numbers as beef consumption in Thailand is as low as 2.85 kilograms per capita per year (BLED, 2011) we considered only pig and chicken slaughterhouses to be eligible for this study. Slaughterhouses for this study were selected based on the following criteria:

- being under DLD Slaughterhouse and Butcher Shop Improvement Project and located in Livestock Region 1;
- with a slaughter capacity of
 - more than 50 pigs per day, or
 - more than 500 chicken per day;.
- regular slaughter due to uniform and consistent collection of sufficient data; Ease of accessibility by transportation and not too far from the town;
- positive feedback after consultation with local veterinary officer to assess the slaughterhouse selected and
- permission of slaughterhouse owner to conducting this study which allowed to observe all process, all area of the slaughterhouse during the operation and publishing their information.

According to these criteria the following slaughterhouses are purposively selected and listed in Table 5.

Table 5 List of slaughterhouses selected in Livestock Region 1, Thailand, 2012

Slaughterhouse name code	Species slaughtered	Size category	No. of animals slaughtered per day	
			Pigs	Chicken
1	Pig	large	130	
2	Pig	large	150	
3	Chicken	small		500
4	Chicken	small		500
5	Chicken	large		6,000

3.4 Development of a checklist and recording sheet

A. Slaughterhouse checklist

The slaughterhouse checklist is composed of 2 parts which are as following;

- Recording sheet for general information of the slaughterhouse.

- Check list to describe slaughterhouse facilities, operation and processing based on the new regulation “Ministerial Regulation on Determination of Criteria, Procedures and Conditions for Establishing the Slaughterhouse, Lairage and Animal Slaughter B.E. 2555 (2012)”.

B. Meat inspection recording sheet

For meat inspection recording we were developing

- check lists to describe slaughterhouse facilities for post-mortem inspection
- post-mortem inspection recording sheet based on DLD procedure

3.5 The field work proper

Field work followed the sequence described below

- First, the local DLD officer introduced the investigator to the slaughterhouse owner and explained the scope of the study
- Then, in an initial visit the slaughterhouse procedures were reviewed and all checklists and recording forms to describe slaughterhouse facilities, operation and processing field- tested and the persons involved interviewed
- In subsequent visits changes and/or improvements of the study slaughterhouses were observed and recorded
- the regular meat inspection observed and findings recorded

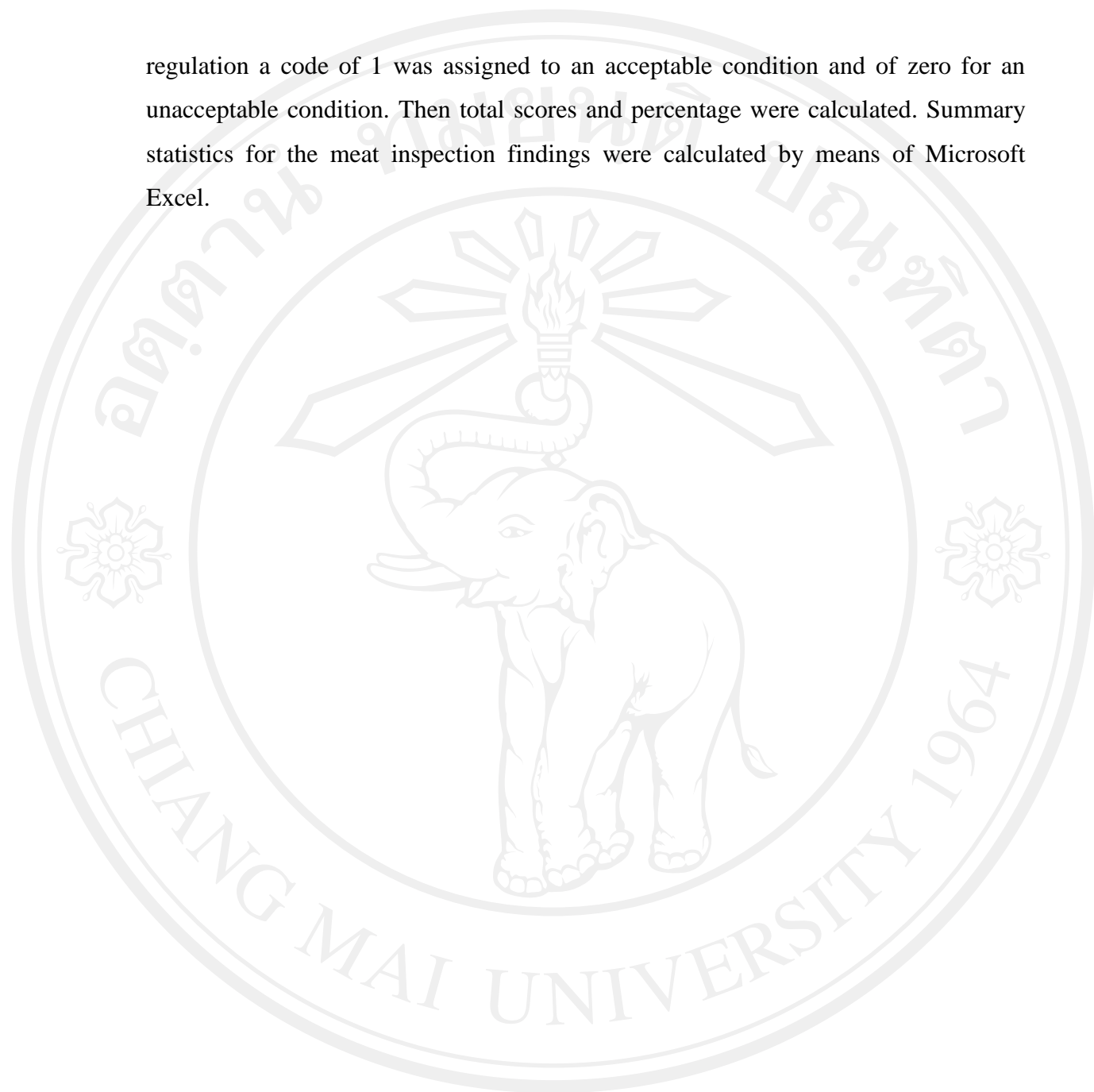
Laboratory results for bacterial contamination of meat samples from the selected slaughterhouses in 2012 were sourced from the Slaughterhouse Domestic Control Division, BLSC and checked for data consistency and completeness.

Eventually, the format for a data file to accommodate all data collected was developed and update or improve the check sheet if necessary

3.6 Data management and data analysis

All data were encoded in a computer data base. For each item of the check list, i.e. describing slaughterhouse facilities, operation and processing based on the new

regulation a code of 1 was assigned to an acceptable condition and of zero for an unacceptable condition. Then total scores and percentage were calculated. Summary statistics for the meat inspection findings were calculated by means of Microsoft Excel.



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