Implementation of Good Manufacturing Practices in Halal Certified Chicken Slaughterhouses in Daerah Istimewa Yogyakarta

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ABSTRACT: The study aims to investigate the implementation of Good Manufacturing Practices (GMP) in halal certified chicken slaughterhouses (RPA) in Daerah Istimewa Yogyakarta (DIY), and to determine the meat oderived from quality halal certified RPA in DIY. 20 respondents at of halal certified RPA in DIY were used in the study. They were selected using purposive sampling as much as 50% of all halal certified RPAs in DIY. Date collection were taken using questionnaire. Survey included observations and assess the activities directly in the RPA's the implementation score of RPA 1 (the best score) to 5 (the worst score). The quality of meat was determended total plate count (TPC) test and acidity (pH). The meat of the spearman Rank test was used to determine the correlation between the implementation of GMP and meat quality in terms of TPC and pH test. The results that the average value of GMP implementation was 368.27 with a score of 4.05 showed nearly the correct application of GMP. The average pH meat value was 5.91 and the average TPC value was 3.5 x 103 cfu/g. There was high correlation between the implementation of the GMP with a pH test the value of the Rank Spearman was 0.666. There was high correlation between the implementation of the GMP with a TPC test the value of the Rank Spearman was 0.782. It could be concluded that the implementation of GMP in halal certified RPA in DIY has not been entirely implemented well. There was a highly significantly correlation between the implementation of the GMP with meat quality (pH value and TPC) on the halal certified to RPA in DIY.

Keywords: Good Manufacturing Practices (GMP), Chicken Slaughterhouses (RPA), Halal Certificate, and Meat Quality.

INTRODUCTION

Population of Indonesia in 2014 of approximately 250 million people and approximately 85% of the majority of the population of Indonesia is Muslim, it requires the willingness of animal food of high quality, safe and lawful consumption. Total meat consumption was a national consists of 56% is chicken meat, beef, 23% 13% 5% of pork, mutton and 3% other (Fajria, 2007). There are four main problems of national food safety and quality (Fardiaz, 1996), namely: first, food products that do not meet the quality requirements of food safety, secondly, there are many cases of food poisoning occur. Third, the low level of knowledge, skills, and responsibilities of food manufacturers about the quality and food safety, which was marked by the discovery of a means of distribution of products and food that does not meet the requirements of Good Manufacturing Practices (GMP) especially on small industries or households. Fourth, consumers lack of quality and food safety caused a limited knowledge and capabilities of the low purchasing power, so they are buying food products with a level of quality and security.

Basic health quality assurance system which is used in food production that is GMP and Analyze the Hazard and Critical Control Point (HACCP). It is emphasized that GMP is a staple

food safety assurance is to be done, especially in the food sector. Global picture concerning the RPA in the Yogyakarta special Daeah there are some who have already done the production process well but there are many some that do less hygienic production process so that the need for supervision and implemantasi GMP at a RPA in DIY. This study was conducted to find out the level of knowledge of GMP and know the level of participation of the businessmen in the implementation of GMP in the RPA at DIY.

MATERIAL AND METHODS

This study was carried out during the five month i.e. September 2014 until March 2015. The implementation of this study was conducted at a RPA in DIY. The analysis was conducted at the Faculty of animal husbandry, Gadjah Mada University, Yogyakarta. Study material used was the respondent who was the perpetrator of the attempt at DIY RPA. Tool used to test the acidity (pH), namely pH meters and test total total plate count: erlenmeyer flask, magnetic stirer, test tubes, autoclave, incubators and laminar flow cabinet. Study tools there used, namely: sheets of paper questionnaires, labels, bulpoint and data. Materials used for testing of total plate count that was sterile, aquadest pepton water and medium Plate Count Agar (PCA). Data capture slaughtering process this study respondents by means of purposive sampling of 50% certified halal RPA in DIY. The number of respondents was a RPA in DIY. This criterion was based on study that the respondents have the ability to implement the agreed GMP from the LPPOM MUI to have halal certificate. The variable in this study include: (1) variable x was the implementation of GMP in the RPA certified halal in DIY, (2) the variable y was the quality of the meat at a RPA certified halal in DIY.

Assessment of GMP Aspects

Assessment of aspects of GMP in the RPA was done with the process of charging a question about the State of the place and the production process. Assessment of the parameters refer to the National standards bodies and carried out according to the standard method (Standard National Indonesia, 1999).

Table 1. Assessment indicator of GMP aspects

Score	Description
1	If it does not meet the requirements
2	When a quarter of the eligible
3	If half the eligible
4	When one-third of eligible
5	If it meets the requirements

The Quality Of The Meat

Test the pH of the meat was done according to the standard method (Bouton and Harris, 1972) and the test of Total Plate Count (TPC) was done according to the standard method (Fardiaz, 1993).

Date Analysis

Spearman Rank correlation was used to find out the correlation between the implementation of GMP (variable x) with the quality of the meat (variable y). Data collection and analysis was carried out using a questionnaire and standard methods (Singarimbun and Effendi, 1995).

RESULTS AND DISCUSSION

Table 2. The implementation of all aspects of GMP RPA certified halal in DIY

No.	Name RPA DIY	Implementationi Good Manufacturing Practices (GMP)									
		Building		Slaughtering proces		Human Resources		Production & Transportation		All Aspects Of GMP	
		Value	Criterion Score	Value	Criterion Score	Value	Criterion Score	Value	Criterion Score	Value	Criterion Score
1	RPA 1	118	3	114	4	21	2	46	4	299	3
2	RPA 2	118	3	111	4	20	2	36	3	285	3
3	RPA 3	141	4	141	5	35	3	46	4	363	4
4	RPA 4	79	2	69	3	15	2	30	3	193	2
5	RPA 5	136	4	112	4	30	3	36	3	314	4
6	RPA 6	161	4	144	5	34	3	46	4	385	4
7	RPA 7	107	3	59	2	22	2	36	3	224	3
8	RPA 8	136	4	111	4	30	3	36	3	313	4
9	RPA 9	134	4	127	4	32	3	46	4	339	4
10	RPA 10	167	4	145	5	34	3	52	4	398	4
11	RPA 11	167	4	145	5	34	3	52	4	385	4
12	RPA 12	112	3	100	4	22	2	41	3	284	3
13	RPA 13	133	4	120	4	31	3	48	4	329	4
14	RPA 14	116	3	112	4	24	3	42	3	291	3
15	RPA 15	208	5	174	5	59	5	52	4	454	5
16	RPA 16	208	5	174	5	59	5	52	4	468	5
17	RPA 17	208	5	174	5	59	5	52	4	456	5
18	RPA 18	208	5	174	5	59	5	52	4	464	5
19	RPA 19	208	5	174	5	59	5	52	4	466	5
20	RPA 20	208	5	174	5	59	5	52	4	468	5
21	RPA 21	208	5	174	5	59	5	52	4	468	5
22	RPA 22	208	5	174	5	59	5	52	4	456	5
								Total		8102	89
								Avarage		368.27	4.045

Criterion	Score	Description
Not very good	1= ≤ 101	Not applying the correct way
Less Good	2= 102 – 202	Apply a small portion of the right way
Good Enough	3= 203 – 303	Apply half the right way
Good	4= 304 – 404	Almost close to the correct application of the GMP
Very Good	5= 405 – 505	Apply the correct way of GMP

The Implementation of GMP Building

The results showed that the percentage of implementation of GMP building on the RPA with a value score of 5 was 15%. At a good value with RPA score 4 was 20%. On the RPA which was pretty good with a value score of 3 was 55%. At a RPA that was less good with a value score of 2 was 10%. The observations showed that in general the location of RPA has already qualified, but the density of population in the vicinity of the RPA can certainly be one of the factors the causes of product contaminants because the population was about free activities in the area of RPA. Building a RPA hygiene techniques and approaches but needs a lot of improvement. In general the RPA structure differences there almost the same, i.e. the amount of space equipment. Although the amount was inadequate compared to PT Daghsap and PT Saliman. The floor is made of material which was waterproof, it is not easy, is not toxic, corrosive resistant to crunch, easily cleaned and disinfected and is not easily peel off (standard National Indonesia, 1999). The walls on the RPA already lined ceramics of about 1 metre from the floor. According to Permentan (2010) the terms High wall at the site of the slaughtering process and manufacture the minimum 3 meters carcass.

The Implementation of GMP Slaughtering Process

The results showed that the percentage of implementation of GMP slaughtering proces on the RPA with a value score of 5 was 15%. At a good value with RPA score 4 was 40%. On the RPA which was pretty good with a value score of 3 was 45%. Slaughtering proces the chicken without fainting, after the chicken was removed from the basket by the slaughter, then with a certain slaughtering proces directly carried out the killing. This slaughtering proces was almost all done in RPA DIY. Chicken with fainting slaughtering was done with the electrified water 15 to 25 volts, 0.1 to 0.3 ampere 5 to 10 seconds on the chicken will be deducted as the RPA PT Daghsap Endurance. The purpose of the fainting to make chickens unconscious before slaughter was carried out, so as to relieve pain (animal welfare), ease the process of slaughtering, reducing its shortly after the killing in order to reduce the appearance of blood spots on the carcass and accelerate the process of spending blood (Directorate of veterinary public health and post harvest, 2010). Slaughter performed was in compliance with Islamic jurisprudence which confronts a cow to the Qiblah direction then read basmallah resonate or bismillahi Allahu akbar before the knife cut three channels across the neck. The slaughtering proces was done with a disconnected three channels i.e. channel breath, gastrointestinal tract and blood channels (Soeparno, 2005).

The Implementation of GMP Human Resources (SDM)

The results showed that the percentage of implementation of GMP human resources RPA with a value score of 5 was 15%. At a good value with RPA score 4 was 10%. On the RPA which was pretty good with a value score of 3 was 30%. At a RPA that was less good with a value score of 2 was 45%. The basic requirement was that employees can create a good condition make the product, so its existence should not be considered one eye. But it should be a major concern for an industry because employees there directly confronted with the product. Based on observations in field, employee health has become the concern of the company. This is demonstrated by the existence of rules that only healthy employees who may come in the space of production. Employees who have open wounds or showed symptoms of the disease there not allowed entry. Frequently occurring contamination caused by pests entering production in the room i.e. lack of control on the environment or on the room.

The Implementation of GMP production and Transportation

The results showed that the percentage of implementation of GMP production and transportation systems on the RPA with a value score of 5 was 20%. At a good value with RPA score 4 was 25%. On the RPA which was pretty good with a value score of 3 was 55%. Each

RPA has the means of transport used to send meat to the depot, meat to markets and customers among others: (1) the car pick up open, (2) a Motor Carrier used as a second car. This has not been in accordance with SNI because according to SNI (1999) armoured vehicle cribs meat for transporting meat should be covered. Layers in the box on the vehicle to transport the meat must be made of materials that there not toxic, not corrosive easily, easily cleaned and disinfected, easily maintained and has good insulation properties. Cribs equipped with refrigerators that can maintain the temperature of the inside of the fresh meat +7 °C and the temperature of the inside of the offal +3 °C.

The Average Value of Implementation of All Aspects GMP

The value of the implementation of all aspects of GMP on RPA 11, 12 and 15 was good with a value score of 5, meaning that it has already implemented the right way. At a RPA 5, 6, 9 and 16 there good with a value score of 4, meaning that almost approaches the application the right way. On RPA 1, 2, 3, 4, 7, 8, 10, 13, 14, 17, 18, 19 and 20 there good enough with a value score of 3, meaning that it only apply half the right way. The results showed that the average value of all aspects of the implementation of the GMP at a RPA in DIY was good with a value score of 3, this indicates that the RPA on applying half the right way. The results showed that the percentage of implementation of GMP all aspects on the RPA with a value score of 5 was 15%. At a good value with RPA score 4 was 20%. On the RPA which was pretty good with a value score of 3 was 65%.

The Quality of The Meat

The pH value of the meat. The results showed that the percentage of pH value of the meat at a RPA with a value score of 5 was 50%. At a good value with RPA score 4 was 40%. On the RPA which was pretty good with a value score of 3 was 10%. The pH value was one of the criteria in determining the quality of the meat, especially for meat industry such as the RPA. Muscle pH values at the time the animals living around 7.0-7.2 (pH neutral). After slaughter animals (dead), meat pH values will decrease due to the accumulation of lactic acid. The decline in muscle pH value of healthy animals and dealt with well before the cuts will run in stages, i.e. from the pH around 7.0-7.2 pH value will reach decreased gradually from 7.0 to 5.6-5.7 within 6-8 hours postmortem and would reach the final pH value of around 5.5 to 5.6. Final pH value (ultimate pH value) is the lowest pH values achieved in the muscle after the slaughtering proces (of death). The pH value of the meat will never reach the value under 5.3. This is because at pH values below 5.3 enzymes involved in anaerobic Glycolysis is not actively working (Soeparno, 2005). PH values on this study has been in the good category in accordance with the opinion of Soeparno (2005) as average pH test 1 and test 2 was pH 5.6.

The Value Of TPC Meat. The results showed that the percentage of the value of TPC in a RPA with a value score of 4 was 40%. The percentage of the value of TPC in RPA which was pretty good with a value score of 3 was 60%. Testing of Total Plate Count (TPC) according to Bsn (1994) intended to indicate the number of microorganisms on a product, which in principle if the microbial cells are grown on agar medium, then the Microbe cells will proliferate and form colonies that can be seen with the eye. Based on the test results look 18 table TPC chicken meat products showed good results because of the above number of TPC standard (1x105 cpu/g) despite the RPA UD Samijan there on the threshold of the number of standards and meets the requirements of the TPC was included. Microbiology in the flesh can affect the quality, safety and durability of these foodstuffs. Microbiology on food animal products there bacteria, molds, and yeasts. In case of damage of food, food becomes unpleasant because of the color, flavor and appearance after the change, though it may do no harm (Gaman and Sherington, 1992).

The Correlation Between Implementation Of The GMP With The pH Values and TPC

Rank correlation analysis results showed that there were Spearmen very real relationships between GMP implementation with pH values on the RPA at DIY. Spearman Rank correlation was used to find out the GMP implementation relationships with keeratan pH values. The data collected as rank after the observation. These relationships can be seen in table 2.

Table 2. The correlation between the implementation of the GMP with the pH values and the value of TPC

Name of Test	Corelation Rank Spearman	t-count	t 0.05
Acidity Test (pH)	0.655	2.454*	2.306
Test of TPC	0.637	2.337*	2.306

Description: * very real relationships

Spearman correlation values of the GMP implementation with pH values i.e. 0.666 and t-test results from the retrieved value t calculate i.e. 2.526, value t calculate t value was compared to a table on probability 5% free by degrees $N - 2 = 10-2 = 8$. The results were values t count greater than t 0.05 table this means there are relationship very closely and positive influence between the implementation of GMP with the pH of the meat. That was when the positive influence the implementation of GMP quality meat was good, it was also good in terms of the pH Test. Based on the results of the study there shows the influence between the implementation of GMP with pH values of meat. These influences indicate that implementation of GMP has already approached the slaughtering proces and facility but needs a lot of improvement.

The value of the correlation of GMP implementation Spearmen Rank with TPC, namely 0.782, t test results obtained the value t calculate i.e. 2.545, this value was compared with the value of t a 5% probability on a table with a degree of non $N-2 = 10-2 = 8$, the results were values t count greater than the value of the table t 0.05 means there was a relationship very closely and positive influence between the implementation of the GMP by total plate count. That was when the positive influence the implementation of GMP quality meat was good, it was also good in terms of test of TPC.

CONCLUSIONS AND SUGGESTIONS

The conclusions of the study results was the implementation and application of GMP in the halal-certified RPA in DIY have not entirely done well. The results of the quality of the meat was either still in accordance with the SNI. There was a significant correlation between the implementation of GMP quality meat (pH values and TPC) on certified halal RPA in DIY. It was suggested the existence of further study as to the implementation of good manufacturing practices to the quality of the meat is physically (color, power tie, and texture), chemical (moisture, protein, fat, and ash) and level of knowledge. Need for scrutiny are serious about the implementation and application of GMP in the RPA certified halal at DIY so that it can be done well. Needs improvement and quality as there are places of influence between the implementation of GMP quality meat at a RPA certified halal in DIY.

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