

# A Review of the Poultry Meat Production Industry for Food Safety in Indonesia

*by Nanang Dwi Wahyono*

---

**Submission date:** 09-Nov-2021 02:09PM (UTC+0700)

**Submission ID:** 1697570847

**File name:** oultry\_Meat\_Production\_Industry\_for\_Food\_Safety\_in\_Indonesia.pdf (408.95K)

**Word count:** 2698

**Character count:** 14428

## PAPER • OPEN ACCESS

## A Review of the Poultry Meat Production Industry for Food Safety in Indonesia

To cite this article: N D Wahyono and M M D Utami 2018 *J. Phys.: Conf. Ser.* **953** 012125

View the [article online](#) for updates and enhancements.

### You may also like

- Occurrences of *Salmonella* spp. and *Shigella* spp. in chicken meat, intestinal contents, and rinse water at slaughtering place from traditional market in Surabaya, Indonesia  
5 Julistiani, D Praseptianga, Supyani et al.
- The physical and microbiological quality of chicken meat in the different type of enterprise poultry slaughterhouse: a case study in Karanganyar District  
5 B S Hertanto, C D A Nurmalasari, A M P Nuhriawangsa et al.
- Priority areas for stimulating innovation and technological development of the poultry industry  
12 D Burova, A Akopyan and L Roiter

### Recent citations

- Effect of long-time immersion in edible film solution from local chicken claw on the physical and chemical properties of chicken meat  
9 M Sompie et al



The Electrochemical Society  
Advancing solid state & electrochemical science & technology

## 241st ECS Meeting

May 29 – June 2, 2022 Vancouver • BC • Canada  
Abstract submission deadline: Dec 3, 2021

Connect. Engage. Champion. Empower. Accelerate.  
We move science forward



Submit your abstract



## A Review of the Poultry Meat Production Industry for Food Safety in Indonesia

N D Wahyono<sup>1</sup>, M M D Utami<sup>1</sup>

<sup>1</sup>Department of Animal Husbandry, Politeknik Negeri Jember

Jl. Mastrip 164, Jember

e-mail: merry.mdu@polije.ac.id

**Abstract.** Poultry meat is an indispensable source of animal protein in human growth and development, so it is in great demand by people all over the world. Poultry meat has several advantages, namely the quality of nutrition is good enough, delicious taste, relatively affordable price, easy to get and accepted all levels of society with diverse backgrounds. The era of globalization requires competitive products, such as chicken meat in Indonesia, the current chicken meat industry is not only based on high production capacity and decreased production costs but also chicken products are safe to eat. As a consequence of trade liberalization, the poultry industry faces the threat of competition with cheaper products with better quality. The food safety of chicken meat starts from the farm, processing process until consumed. Food safety is a requirement of food products that must be handled by involving government, industry and consumers.

**Key Words:** poultry meat production, food safety

### 1. Introduction

Poultry products can be considered as one of the most important sources of cheap protein, where the white meat (poultry meat) is very cheap as compared with the red meat (cow meat). The price of one kg of animal meat is equivalent to the price of 3–4 kg of poultry meat. The poultry production is characterized also by a higher conversion rate of feed to meat in comparison with other animals, where the production of one kg of poultry meat needs from 2 to 2.5 kg of feed meanwhile the production of one kg of red meat needs more than seven kg of feed [1]. Poultry production is characterized by its high economic return due to its short production cycle, where the production cycle of poultry production takes 7–8 weeks. In the case of poultry production the capital cycle can be repeated 7 times a year [2]. Poultry production needs small area in comparison with other animals.

Based on FAO statistics from 2000–2006, suggest that chicken meat production will increase by 2.3 and 4.0% per year respectively in developed and developing countries between 2006–2016. In 2013, the United States ranked first as a contributor to poultry meat with a contribution of 43.6%. The second rank is Asia at 33.5%, followed by the EU, Africa and Oceania [3]. In 2013, the production of poultry meat in Asia, Indonesia ranked fourth after China, India and Iran. The production of broiler meat in China, India, Iran, and Indonesia was respectively 14,279; 3,520; 1.828 and 1.566 [4].

Poultry production can contribute to the solution of the unemployment problem. It can open new jobs indirectly through the development of the industries connected with poultry production such as: feed industries, slaughtering industries, food freezing and packing industries, meat conservation industries, industries producing machines and technical tools necessary for poultry production.

Poultry production can contribute to the state food security policy and strategy. The sustainable growth of poultry meat production volumes, including broiler meat takes place all over the world for many years. According to FAO statistics broiler meat production worldwide from 2012 to 2016 (in



Content from this work may be used under the terms of the Creative Commons Attribution 3.0 licence. Any further distribution of this work must maintain attribution to the author(s) and the title of the work, journal citation and DOI.

metric ton) was respectively 83,267; 84,399; 86,555; 88,694 and 89,584. Further growth of broiler meat production builds up in South America, South Asia and Africa. Substantial increase of chicken meat production volumes in specified regions can lead to a geographic shift in the poultry farming industry. In particular, United States leadership in broiler meat production and export is possible in case of new industrial technologies of chickens growing implementation. This applies also to European Union countries, which have already exhausted reserve of land resources for chickens growing for meat with the classic floor technology. Demand in China and India for livestock products has been increasing at a rapid rate in concert with rapid economic growth. Indonesia with large populations has recently experienced growth growth and has a large expanding middle class. It is thus surprising that the future demand for animal products will come from Indonesia.

As income increases, demand for meat also increases. The consumption of world poultry meat in 2011 averaged 14.5 kg per capita, an increase of 32% from the year 2000 as much as 11 kg. Consumption of poultry meat in Asia, increased from 6.6 kg to 9.5 kg per capita per year. By 2015 meat consumption is 41.3 kg per capita and by 2030, world meat consumption is predicted to increase to 45.3 kg per capita from. Of the total world consumption of meat in 2030 of 45.3 kg, poultry meat is estimated to contribute as much as 17.2 kg (38%), increased from the contribution of poultry meat in 2015 as much as 13.8 kg (33%). Thus, the contribution of poultry meat is estimated to increase from 33% to about 38%. In developing countries, by 2030 there is an increase in poultry meat consumption from 10.5 kg (in 2015) to 14 kg per capita or an increase of 25%. In Asia, the increase in per capita consumption per year, from 6.6 kg to 9.5 kg (30.5%). Indonesian poultry consumption is only 9 kg per capita per year, while Malaysia reaches 36 kg per capita per year [5]. Broiler population in Indonesia in 2016 reached 1.59 million head, poultry meat production accounted for 66% of national meat supply.

Factors influencing the growth of poultry meat consumption, among others: population, real income growth, price of poultry meat which is relatively cheaper than other meat, and change of dietary preference of society. World poultry consumption in 2011 averaged 14.5 kg per capita, up 32% from 11 kg in 2000. Table 1 shows the price of chicken meat in 2016, Indonesia ranks second after Malaysia, while Thailand, Philippines and Vietnam is more expensive than Indonesia.

**Table 1. Comparison of egg and poultry prices at consumer level in some ASEAN countries**

Country	Price of Breast Meat (Kg)	Price of Meat (Kg)	Price of Egg (Kg)
Indonesia	42.024	30.000-60.000	13.200-22.000
Thailand	39.034	30.179-57.598	16.127-25.343
Malaysia	36.379	25.722-48.229	12.861-19.291
Vietnam	52.137	36.917-79.988	14.767-21.535
Philippines	43.983	35.282-52.923	17.641-22.983

Source: www.numbeo.com

## 2. Industrial poultry meat in Indonesia

In Indonesia, the low consumption of meat and chicken eggs per capita nationally is an opportunity that should be utilized by all stakeholders of Indonesian poultry. The needs of livestock in Indonesia in the last five years (2012-2016) continue to increase, the greatest need is poultry, followed by cattle, goats and sheep. In 2012 the poultry demand reaches 1.70 billion heads and in 2016 it increases to 2.10 billion heads.

FAO has categories that different poultry production system into 4 sectors. These range from sector 1, large scale commercial operation, integrated with hatcheries, feed mill and processing plants, and utilizing sophisticated housing and equipment with conventional rearing slices, housing and feeding of commercial broiler genotypes. Sector 2 system to be similar to sector 1 but are generally smaller, not integrated to the same extend with other poultry facilities. Sector 3 production units are essentially small scale commercial units from 100 to 500 commercial broiler. Sector 4 is largely comprised of very small flocks of 10 to 50 indigenous breeds of the population of many countries [6]. In Indonesia limited facilities and capital is to be made to be the most important.

Poultry-free poultry companies with higher production costs will be more likely with lower production costs but cases of illness is high. The main problem of biosecurity application in Indonesia is the untrained human resources causing inconvenience and difficulty in doing biosecurity routine. In the year 2016/2017 outbreak bird flu / avian influenza (HPAI), occurred several cases in countries in Asia, Africa, Europe, Russia, and the United States. Although these outbreaks will constrain expansion, global broiler meat production is forecast up 1 percent to 89.5 million tons in 2017 [7]. Transportation restrictions in quarantine zones and a decline of parental stock resulting from depopulation will impact domestic supplies. Imports are forecast up 13 percent to 145,000 tons. Japan is poised to remain at the top global importer at 960,000 tons for 2017. Mexico will continue as the second largest global importer of broiler meat at 825,000 tons. Both countries use regionalization to restrict shipments from HPAI-impacted trading partners which impacts Japan and Mexico's imports. [8] Reported that reliable biosecurity and hygiene concept should be established to avoid out breakers of disease and to ensure good performance conditions.

Hatchery data is signaling an increase in broiler chicken production for 2015 and 2016, according to WASDE [9], but avian influenza has also negatively impacted forecasts for egg production for 2015 and 2016. USDA said broiler prices are unchanged on strong domestic demand which is expected to absorb increased supplies of broiler meat.

The population of Indonesia is the largest Muslim in the world, so the halal guarantee system is required to meet the needs of consumers, in addition to halal guarantee, poultry meat must also meet the security requirements set by the government, namely safe, healthy, halal and intact. The Government makes a policy to produce and enforce regulations that determine the procedure for purchasing halal poultry meat through a chicken mortgage guarantee system. The regulatory agencies are BPOM and MUI, while the target is poultry vendors in traditional markets and in modern retailers. To maintain the quality of meat, the entrepreneur verifies the process and administration directly to the chicken slaughterhouse to ensure chicken slaughter house has been certified halal and halal test from the Ministry of Agriculture Government of Indonesia.

### 3. Poultry Meat Safety Hazards

Food safety is a global issue that requires an integrated global response. Food chain approve is a complex process of farm <sup>4</sup> where poultry, harvesting, transportation, slaughtering up to packaged, sold <sup>13</sup> consumed products. The hazards that could contaminate poultry meat divide into three categories: chemical hazards include contaminants such as toxic chemicals, unsafe levels of cleaning and sanitizing chemicals, and biological hazards include organisms such as bacteria, Viruses, fungi, and parasites. Poultry meat safety hazards include at farm and during processing. Approximately 70-80% of poultry meat in Indonesia is produced through a modern management system and <sup>30</sup> the rest still use the traditional system, but 70-80% of poultry meat is marketed by traditional system, not through slaughterhouses so there is often contamination in the production process.

### 4. Poultry Industry for Food Safety <sup>4</sup>

Food safety standard must apply to poultry meat. Good food safety practices throughout the poultry <sup>4</sup> eat production chain from farm to table will minimize the chance of contamination and eliminate to the impact of contamination that has already occurred. Slaughtering system is a critical control point so that for poultry industry investment absolutely must be accompanied by development and operation of slaughterhouse. Control of the quality of poultry meat includes the following controls: storage space temperature (2-4°C), meat color, meat elasticity, odor, and meat size or weight according to specifications. To maintain customer satisfaction with quality poultry products, each retailer must include an expired information label and treatment when the product is on display.

Poultry is an animal food that is easily damaged and has the potential to transmit disease in humans, how to prevent it is by cutting the hygienic and cold chain system. After cutting the poultry meat can be stored at room temperature for four hours, after which it should be cooled to reduce bacterial



contamination. Currently the Ministry of Agriculture campaigning consumption of fresh chicken products fresh to maintain food security consumed by the community.

Constraints faced by Indonesian poultry society is the price of live chickens and chicken meat is very fluctuating, so one of the efforts to control the price is trying to get out of the country. Export of chicken meat to Japan, export is done in the form of processed meat which has been heating process 70°C for one minute, this is done because Indonesia has not been free from bird flu so that export frozen meat products are not allowed.

## 5. Conclusions

The consumption of poultry meat with adequate safe is critical to health and well-being. Growing, collecting, transporting and handling poultry reduces the risk of food safety hazards in poultry meat product. In recent years we have talk more about having better respect for improving product control and trace ability. Since the market is becoming ever more global and evolving increasing rapidly, in order to stay in it we must be united, reactive, flexible and willing to change tradition should be interpreted and constantly develop new techniques that will enhance both poultry health and welfare and poultry meat safety for consumers.

## Acknowledgment

I gratefully the support of Politeknik Negeri Jember, without which the present study could not have been completed

## References

- [1] Anonymus. 2017. <https://www.statista.com/statistics/237637/production-of-poultry-meat-worldwide-since-1990/>
- [2] Anonymus. 2016. Latest Poultry, Egg Markets, Forecast available in 2016. WATT executive guide to World Poultry Trends. [www.poultrytrends.com/2016](http://www.poultrytrends.com/2016).
- [3] Sakhatskiy, M. I. 2013. Broiler meat production in the world. <http://texha.com/en/press-center/articles/broiler-meat-production-in-the-world.html>
- [4] USDA. 2017. Livestock and Poultry: World Markets and Trade. Foreign Agricultural Service, April 2017
- [5] Supriatna, I. 2016. Tingkat Konsumsi Daging Ayam di Indonesia Masih Kalah Dibanding Malaysia. <http://ekonomi.kompas.com/read/2016/06/16/093000326/Tingkat.Konsumsi.Daging.Ayam.di.Indonesia.Masih.Kalah.Dibanding.Malaysia>
- [6] Pym, R., A., E. The Role of the World Poultry Science Association (WPSA) in Support of Poultry Production in Developing Countries. *Zootechnica International*. Volume 4, April 2011.
- [7] Anonymus. 2017. <https://www.statista.com/statistics/237637/production-of-poultry-meat-worldwide-since-1990/>
- [8] Ali, Djanet-Ould. 2014. Biosecurity in Layer Farms. *Zootechnica International*. Volume 2, Februari 2014.
- [9] Shaffer, E. 2015. WASDE: World meat production to rise in 2016. June 11, 2015.

# A Review of the Poultry Meat Production Industry for Food Safety in Indonesia

## ORIGINALITY REPORT

**22%**  
SIMILARITY INDEX

**16%**  
INTERNET SOURCES

**8%**  
PUBLICATIONS

**14%**  
STUDENT PAPERS

## PRIMARY SOURCES

**1** [eprints.utm.my](https://eprints.utm.my) Internet Source **3%**

**2** [eprints.upnjatim.ac.id](https://eprints.upnjatim.ac.id) Internet Source **3%**

**3** Submitted to Royal Veterinary College Student Paper **3%**

**4** [www.poultryhub.org](http://www.poultryhub.org) Internet Source **2%**

**5** I Vivic, M Petrovic, S Stajkovic, N Cobanović, N Karabasil. "Seasonal overview of beef meat quality in a small-scale slaughterhouse", IOP Conference Series: Earth and Environmental Science, 2021 Publication **1%**

**6** [www.mordorintelligence.com](http://www.mordorintelligence.com) Internet Source **1%**

**7** [china.iopscience.iop.org](http://china.iopscience.iop.org) Internet Source **1%**

8	Submitted to Universitas Dian Nuswantoro Student Paper	1 %
9	www.mdpi.com Internet Source	1 %
10	media.neliti.com Internet Source	1 %
11	Aleksandra Tasic, Ksenija Nestic, Marija Pavlovic, Djordje Radojicic. "Development and validation of modified QuEChERS methods for the analysis of fipronil and its metabolites in chicken meat", IOP Conference Series: Earth and Environmental Science, 2021 Publication	1 %
12	D Burova, A Akopyan, L Roiter. "Priority areas for stimulating innovation and technological development of the poultry industry", IOP Conference Series: Earth and Environmental Science, 2019 Publication	1 %
13	Submitted to Mount St. Michael's College Student Paper	1 %
14	Submitted to CVC Nigeria Consortium Student Paper	1 %
15	Mohammad Norazmi Ahmad, Nor Aini Mat Noh, Erna Normaya Abdullah, Mohd Ambar Yarmo, Mohd Bijarimi Mat Piah, Ku Halim Ku	1 %



Bulat. " Optimization of a protease extraction using a statistical approach for the production of an alternative meat tenderizer from roots ", Journal of Food Processing and Preservation, 2019

Publication

---

16

Submitted to Higher Education Commission  
Pakistan

Student Paper

1 %

---

17

Submitted to University of Surrey

Student Paper

1 %

---

Exclude quotes      On

Exclude matches      < 1%

Exclude bibliography      On