

## *Halalan Toyyiban* Supply Chain of the Food Industry

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### **Abstract**

In the era of globalization, *halalan toyyiban* supply chain (HTSC) is a contemporary approach to the global market. This study explores the supply chain process and discloses the practicalities in the production of *halal* chicken meat. The research focus on storage of the poultry, which covers from farm to customer, in particular the identification of the HTSC critical control points along the process of the supply chain. The research also categorizes the food supply chain process into three phases i.e. pre-slaughtering, slaughtering and post-slaughtering. This study emphasizes on chicken meat, which is two-third of the meat sales in Malaysia and Klang Valley as the case study. Interviews were used in identifying the *halal/halalan* and *toyyib/toyyiban* issues, and control points along in storage, which are frequently interrelated.

**Keywords:** Food Industry, Halalan Toyyiban and Supply Chain.

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### **1. Introduction**

The Muslim population is estimated to increase to about 2.2 billion in 2030 and the demand for halal products is predicted to increase progressively (Center, 2011). The

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main issues to further deliberate in 2012 is the progress of the inevitable convergence of halal products and Islamic financial services. These two shariah-based industries form the basis of an emerging Halal market economy and Malaysia is considered as suitable investors in both sectors to discover the platform due to the strategic location (“World Halal Forum”, 2012). Since the market value for halal food is huge, estimated at US\$547 per annum because of the growth in Muslims population, it had attracted the food producing countries to involve in the market. This entails rising incomes in primary markets for halal food; increasing demand for safe, high quality and variety of halal foods. The incidents of food marketed as *Halal*, but failing to meet Halal requirements has spurred demand for genuine halal products (“Global Halal Market”, 2011). The total number of *halal* consumers is 1.5 billion which signifies the halal food consumption by world population all over the globe (“World of Halal”, 2012).

The growth of the Muslim population has influenced other countries including the non-Muslim countries to engender more *halal* producers (Omar and Jaafar, 2011) embarking in the lucrative *halal* market. As a result, the *halal* food trade is getting more globalized and its supply chain is turning more complex. Previously, consumers care only about *halal* foods, but now consumers realize that *halal* includes the entire supply chain from sourcing of raw materials to the manufacturing, transporting, storing and handling. This is due to rising issues during the handling process and thus, affects the *halal* status of the product especially when they are in direct contact with non-*halal* products. To ensure that the product is completely *halal*, it requires a specific procedure of handling, transporting, storing and manufacturing. Thus, to ensure the *halal* status of a product, it should be viewed from a total movement of the product rather than from a fragmented view. Accordingly, based on an on-going research, this study assesses the *halalan toyyiban* food supply chain (HTFSC) using the poultry industry as the case study. This

paper identifies the *halalan toyyiban* critical control points (HTCCP) in the storage aspects of the poultry industry.

## 2. Background of the Study

### 2.1 Understanding the Concept of Halalan Toyyiban

*Halal* comes from an Arabic phrase which means allowed or permitted in accordance to Islamic Law. *Halalan toyyiban* product means any products, which are not harmful and safe to be consumed as underlined by the Syariah law, and thus is allowable and permissible. As Allah swt says in the Qur'an: "O mankind! Eat of that which is lawful and good on the earth" [Surah Al Baqarah 2:172] "They ask you (O Muhammad SAW) what is lawful for them (as food). Say "Lawful unto you are At-Tayyibaat (all kind of Halal foods) [Surah Al-Maidah 5:4]. The verses explain that Islam underlines that Muslims should find rizk (sustenance) and consumed food which is *halal* and *toyyiban* as it ensures better healthy life which able to portray good attitudes and behaviours (Yousef, 2010). It represents a concept of wholesomeness, which comprises quality, cleanliness and safety for all.

### 2.2 Halalan Toyyiban food

Muslims have been directed to not only eat healthy food but also halal. Anything which has been created by Allah SWT on the earth can be used by human for their lives as stated in verses 2:29 (Al-Baqarah). "It is He who created for you all of that which is on the earth. Then He directed Himself to the heaven, [His being above all creation], and made them seven heavens, and He is Knowing of all things".

The factor of food consumption and nutrition is interrelated with human good practices which stated in verse 23:51 (Al-Mukminun) "[ Allah said], "O messengers, eat from the good foods and work righteousness. Indeed, I, of what you do, am Knowing". As

mentioned in the verses, this is meaningful because in order to make pious practice and taqwa, an individual must take care of nutrition.

### 2.3 *Halalan Toyyiban Issues along the Supply Chain*

HTSC is an application of *halalan toyyiban* principles along the supply chain from the source of supply to the customers, which adhere to the *halalan toyyiban* concept stipulated under Islamic law. The *halal* products should not be mixed with other non-halal products during the supply chain process as to sustain the products' halal status. Throughout these activities, various circumstances could expose the food product into risks that would affect the status of the *halalan toyyiban* of a product. As current practices evaluated critical control point through the Hazard Analysis Critical Control Point (HACCP) (Riaz, 2004); therefore, in this study any potential contamination and risks of the *halal* product along the supply chain process to become non-*halal* are identified as *Halalan Toyyiban* Critical Control Points (HTCCP). Furthermore, if a *halalan toyyiban* product be mixed with the hazardous goods or exposed to hazardous environments, the product would be exposed to the risks where the goods would become hazardous and affect human health and even life.

In the poultry supply chain, most pre-slaughter problems and losses are related to transportation. During the process of transportation, the microbiological, physical and environmental risks can stimulus the safety and quality of meat products. Some of the transportation's condition could increase the stress level which also may possibly raise the excretion of pathogens, thus easing contamination amongst birds. The physiological stress can affect the quality of the meat and consequently reduce its economic value (Southern et al, 2006). A product could only be considered as *halalan toyyiban* when it has gone through a *syariah* compliance. Therefore, *halalan-toyyiban* supply chain approach is significant in providing the solutions to the current issues in the *halal* food

supply chain. Issues highlighted above are only part of the whole supply chain issues. This research focuses on poultry industry since each product has its own unique supply chain design. Due to the lengthy analysis, this paper only covers the analysis in storage of food supply chain from farm to the customers. In this study, the HTCCP would be identified in order to achieve HTSC.

### 3. Methodology

Since the HTFSC process has received little attention in the food supply chain management literature, the qualitative method in collecting its data is selected. In-depth interviews were deemed appropriate as there was little prior knowledge from which a more structured research instrument could be deduced. Due to large amount of data, this paper reports the storage of the poultry industry, i.e. identifying the HTCCP in the poultry chain. Six interviews were conducted with individuals who were involved directly with the poultry farm in Klang Valley. The interviews consist of the background of the individual, the length of experiences in dealing with the poultry farm and their perceptions towards the HTCCP of the poultry supply chain. The recorded interviews were transcribed verbatim and categorized under conceptual headings. A research framework was developed following the research findings. A summary of the respondents taking part in the study is provided in Table 1.

Table 1: Background of the Informants.

Position	Background	Length of experience in the industry
Veterinarian A	Government Sector	15 years
Food Science Expert A	Government Sector	28 years
Manager A (Poultry Operator )	Private Sector	25 years
Manager B (Poultry Operator )	Private Sector	20 years
Syariah Scholar A	Government Sector	18 years
Syariah Scholar B	Government Sector	25 years

#### 4. Analysis of Findings

Based on the data collected, analysis was conducted based on three stages i.e, preslaughtering, slaughtering and post slaughtering. Five HTCCP have been identified at the storage of the poultry supply chain. The HTCCP were listed and explained as the followings. Figure 2 demonstrates the positions of the HTCCP.

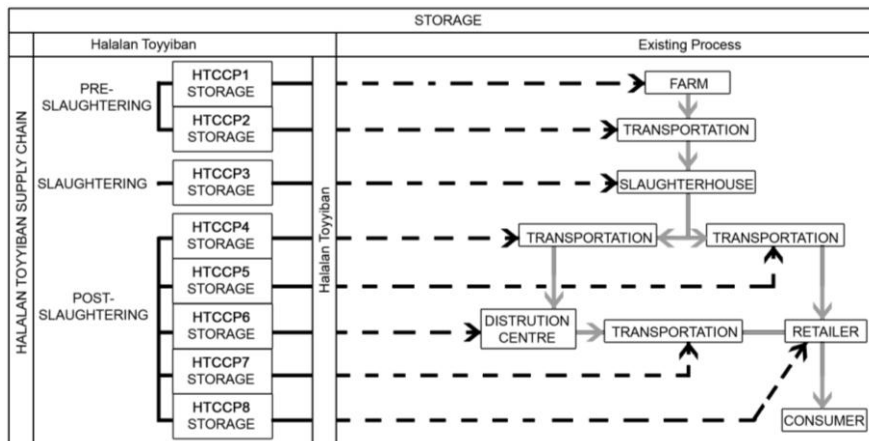


Fig. 2. *Halalan Toyiyban* Critical Control Points in the Storage of the Poultry Industry

Pre-Slaughtering - In pre-slaughtering, there are two critical control points identified.

##### 4.1 Storage (at the farm site) - HTCCP1

The farm site is crucial to ensure the *halalan toyyiban* of poultry supply chain. As for poultry it is important to ensure the of poultry storage. It is a necessary to have a proper and comfortable space for the chicken to move around, either for the small or bog ones. The chicken coops must also be far from any pigs' farm in order to avoid the risk of *halal* contamination. According to a Food Science Expert A “.....*chicken coops must be large and comfortable.... If small, the chicken will face difficulty in moving inside the coops and may fight each other and break their legs. This may affect the quality of the chicken meat*”.

#### 4.2 Storage (transportation) - HTCCP2

Proper storage of the chickens in the transportation vehicle which is the second step is vital in ensuring that the chicken will not be mixed or contaminated with other non-halal or dangerous products, which can have negative impact to the consumers. To safeguard the *halalantoyyiban* poultry delivery, the use of dedicated transportation is recommended by *Syariah* as it reduces the risks of potential contamination.. The concept of segregation could also be used. A *Syariah* ‘scholar A’ stated “.....*dedicated transport is completely reliable ... they’re not mixed with each other,...but in Islam, Allah will not burden you so segregation are allowed*”.

### Slaughtering

#### 4.3 Slaughtering - HTCCP3

Once the chickens reach the slaughterhouse, it is important to ensure that the people give appropriate treatment to the animal before slaughtering and final consumption. Therefore, the risk of potential contamination at the storage area must be eliminated so as to ensure *toyyiban* aspects of the chickens. As mentioned by Poultry owner B “.....*right after slaughtering, we put the chickens there (pointing to the specific chilled room).... The plastics curtains in the entrance are to prevent from external temperature go into the room*”. Well maintained environmental temperature could

maintain the quality of the chickens which is essential to the *toyyiban* aspects of the chickens.

#### Post-Slaughtering (After Slaughtering)

*4.4 Storage (From Slaughterhouse to the Distribution Centre- HTCCP4); Storage (From Slaughterhouse to the Retailers– HTCCP5) and Storage (From the Distribution Centre to the Retailer– HTCCP7.*

After the slaughtering process, the chickens must be properly stored even though the chickens are *halal*, but the concept of *toyyiban* must be taken care of. Therefore, cleanliness of the storage area also enhances the chickens' meat quality as well as fulfilling the *toyyiban* aspects. The slaughtered chickens need to be put in a proper storage and packaging to ensure the chickens are not contaminated to risk the consumers. Proper packaging also helps to confirm that the chickens are not only *halal* but also *toyyib*.

*4.5 Storage (Distribution Centre) – HTCCP6 and Storage (Retailer site) HTCCP8*

Finally, once the chickens arrive at the loading bay of the retailers' site, proper storage in the cold and chilled room plays a major role in certifying the chickens are *halalan toyyiban*. The potential risks of halal chickens to be contaminated by non-halal products that will affect the *toyyiban* aspects also need to be considered. In Islam, dedicated storage is fully recommended by *Syariah* Islamic law as to safeguard the *halalan toyyiban* chickens. Indeed, proper handling of chickens by dedicated personnel and material handlings are recommended as urged by *Syariah* Scholar B “.....*oh...it's better and recommended to use specific personnel and trolley to handle the halal chickens. Not to forget the display shelf must be labelled clearly with the word 'halal' and also JAKIM's logo. The display shelf also must be located far from the non-halal area*”.



## 5. Conclusion

The results in this study present a number of findings worthy of discussion. Firstly, the critical component in achieving comprehensive farm-to-fork strategies is through the implementation of a quality assurance scheme. Stakeholders involved in the meat chain can claim and consumers can trust that halal meat fulfils the defined quality requirements. Due to the inability of the consumers to verify the halal meat safety and wholesomeness before, during and after the purchase, it renders the quality to be ambiguous (Schettino et al, 2006). Therefore, storage at the farm could be one of the measures in establishing HTFSC involving livestock.

Proper storage could preserve the quality of the chicken, which can avoid from disease originated from meat products. The strength of fresh meat storage will have significant impact on quality and safety of the meat (Bonne and Verbeke, 2008) and poultry storage. Dedicated transportation for poultry storage is highly recommended as *halalan toyyiban* assurance of the poultry. Nowak et al (2006) admits a fully dedicated logistics services for halal products affluence the HTSC operations. As a result, this study had established that proper storage is important for HTSC. Third, the transportation storage for *halal* chickens during pre-slaughter and post-slaughter phase is needed as to guarantee the *toyyiban* aspects. As for the pre-slaughter phase; animal welfare should be as such to minimize stress during transportation since stress may increase contamination shedding and cross-contamination (Jaafar et al, 2011). For the post-slaughtering phase; proper storage can maintain the quality of chickens through refrigerated transportation, and at the dressing units and outlets is well-developed are adhered to fail-safe procedures (Buncic and Sofos, 2012). Contamination can be controlled through the use of clean and disinfected bird transport containers from the farm to the abattoir (Corný et al, 2002; Heyndrickx et al, 2002; Slader et al, 2002; Tinker, 2005).

The design and implementation of full backward and forward traceable supply chains from farm to end-user has become an important part of the overall food quality assurance system so that the consumer demands for consistent supply of top quality, safe and nutritious foods could be met. Thus, the ability to rebuild public confidence in the food chain could be achieved (Oliver, Jayarao and Almeida, 2005) so as to provide not only quality chickens to the consumers but *halalan toyyiban* chickens that meet HTSC standard. Consequently, the HTCCP identified in this study can be used as guidance for HTFSC implementation in the poultry industry as well as food supply chain in the same criteria. Area of storage in this study is only a part of the HTSC; further research could be embarked in these areas.

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### References

- Bonne, K. and W. Verbeke, (2008). *Religious values informing halal meat production and the control and delivery of halal credence quality*. Agriculture and Human Values, 25(1): p. 35-47.
- Buncic, S. and J. Sofos, (2012). *Interventions to control Salmonella contamination during poultry, cattle and pig slaughter*. Food Research International, 45(2): p. 641-655.
- Center., T.P.R. (2011). *The Future of the Global Muslim Population- Projections for 2010-2030*, in *Pew Research Center's Forum on Religion and Public Life* : Washington D.C.

- Corry, J., et al., (2002). *Sources of Salmonella on broiler carcasses during transportation and processing: modes of contamination and methods of control*. Journal of applied microbiology, **92**(3): p. 424-432.
- Heyndrickx, D.V. et al. (2002). *Routes for Salmonella contamination of poultry meat: Epidemiological study from hatchery to slaughterhouse*. Epidemiology and Infection, **129**: p. 253-265.
- Jaafar, H.S., et al. (2011). *Innovation in logistics services–halal logistics*. in *The 16th International Symposium on Logistics*. Berlin.
- Nowak, B., et al. (2006). *Trends in the production and storage of fresh meat–the holistic approach to bacteriological meat quality*. International journal of food science & technology, **41**(3): p. 303-310.
- Omar, E.N. and H.S. Jaafar, (2011). *Halal supply chain in the food industry-A Conceptual Model*. in *IEEE Symposium on Business, Engineering and Industrial Applications*. Langkawi, Malaysia: IEEE.
- Riaz, M. (2004). *The value of Halal food production-Mian N. Riaz and Muhammad M. Chaudry define what Halal and kosher foods are, describe why they are not the same thing, and what is required of processors and*. Inform-International News on Fats Oils and Related Materials, **15**(11): p. 698-701.
- Schettino, D.d.N., et al. (2006). *Efeito do período de jejum pré-abate sobre o rendimento de carcaça de frango de corte; Effect of pre-laughter fasting periods on the carcass yielding of commercial broilers*. Arq. bras. med. vet. zootec, **58**(5): p. 918-924.
- Southern, K., et al. (2006). *Conditions of transfer and quality of food*. Revue scientifique et technique (International Office of Epizootics), **25**(2): p. 675.
- Slader, J., et al. (2002). *Impact of transport crate reuse and of catching and processing on Campylobacter and Salmonella contamination of broiler chickens*. Applied and environmental microbiology, **68**(2): p. 713-719.
- Tinker, D., et al., *Catching, transporting and lairage of live poultry*. Food safety control in the poultry industry, 2005: p. 153-173.
- Oliver, S., B. Jayarao, and R. Almeida, (2005). *Foodborne pathogens in milk and the dairy farm environment: food safety and public health implications*. Foodborne Pathogens & Disease, **2**(2): p. 115-129.
- World Halal Forum, (2012) [cited 11<sup>th</sup> September, 2012].
- GlobalHalalMarket, (2011) <http://www.daganghalal.com/HalalInfo/WorldOfHalal.aspx>.
- World of Halal, (2012) [cited 31<sup>st</sup> August, 2012] <http://www.daganghalal.com/HalalInfo/HalalInfo.aspx>
- Yousef, D.K. (2010). *UAE: Halal food numbers look tasty*. Size of global Muslim population creates significant customer base. Available from: <http://gulfnews.com/business/general/halal-food-numbers-look-tasty-1.679007>.