



토종닭 농장주 및 가공업자가 바라본 토종닭 산업의 미래 방향

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Future Business Direction of Korean Native Chicken: Farmer and Processor Perspectives

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ABSTRACT The aim of this study was to investigate the difficulties that Korean farmers and processors currently experience with respect to the market for Korean native chicken (KNC). This study also provides suggestions by which they can overcome these difficulties. In all, sixty-nine farmers and sixty-two processors participated in our investigation, which addressed 1) the current difficulties that KNC farmers face, 2) the current importance-satisfaction measures among KNC farmers and processors, and 3) the future direction of the KNC market: farmer and processor opinions. The respondents stated that the limited number of sales stores was the most difficult market condition they faced in raising KNC, followed by feed cost, animal disease, and poor production environment. Regarding issues of importance and satisfaction, origin in raising step and slaughtering in the processing and distribution step were considered the areas most in urgent need of improvement, given farmers' and processors' high levels of dissatisfaction with these. Both the free-range farming system and the concept of animal welfare are growing in importance, given consumers' interests in these areas. As to opinions on the direction of KNC development, menu development was cited as most important, followed by public advertisement, accessibilities, business aid, and breed development. Consequently, the results show that well-organized support from both the government and related industries is needed, as chicken farmers and processors cannot resolve certain limitations inherent in the KNC industry on their own.

(Key words: Korean native chicken, farmer, processor, direction)

INTRODUCTION

As Korean per capita income increases, its per capita consumption of animal products also rapidly increases (MAFRA, 2017a; Nam et al., 2010). In particular, per capita chicken meat consumption was 13.8 kg in 2016—a number twice that seen in 2000 (MAFRA, 2017a). This phenomenon has also been seen in other Asian countries, given that chicken products offer certain advantages relative to other meat products (i.e., lower fat and cholesterol content, easy to handle, and subject to fewer religious barriers) (Jayasena et

al., 2013; Kim et al., 2018a). Thus, there is no doubt that, in the near future, worldwide chicken production and consumption will increase on account of increased demand in Asia, a continent that is increasingly becoming more industrialized (Heinrich Böll Foundation and Friends of the Earth Europe, 2014).

Approximately 90% of chicken consumed in Korea comprises foreign broiler breeds (Jung et al., 2011), with Korean native chicken (KNC) having comparatively lower levels of commercial performance. Therefore, since the 1990s, the National Institute of Animal Science has been developing a

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KNC breeding and raising system (Kim et al., 2010a; 2010b). As a result of the Institute's initiatives, the availability of KNC has increased, and its texture and flavor have improved. KNC offers a "chewiness" that Korean consumers prefer (Jung et al., 2011; Jayasena et al., 2013). Furthermore, it has a strong flavor on account of its large quantities of taste-related compounds (e.g., inosine 5'-monophosphate, glutamic acid, reducing sugar, linoleic acid, arachidonic acid, and docosahexaenoic acid) (Ahn and Park, 2002; Choe et al., 2010; Jayasena et al., 2014). Additionally, relative to commercial broilers, KNC also possesses greater amounts of bioactive compounds (e.g., carnosine, anserine, carnitine, and creatine) (Jin et al., 2017); these factors may also have effects on consumers' buying decisions.

When looking to increase KNC's market share, due consideration should be made for developments in KNC availability, as well as the real-life practical difficulties that farmers and processors experience. However, to date, there has been no report on the current perspectives of KNC farmers and processors in terms of production and/or distribution—perspectives which may very well differ from those of consumers. Therefore, the objective of this study was to investigate the opinions of KNC farmers and processors, as well as the challenges they face, with the endpoint of providing suggestions and possible solutions by which they can overcome the current limitations inherent in the KNC market.

MATERIALS AND METHODS

1. Subjects

We designed and implemented our questionnaire-based investigation through the company Research and Research (Seoul, Korea), and it took place between November 17 and 23, 2014, technically supported by Korean Native Chicken Association. Quota sampling was used to extract subjects based on their occupation and age. A total of 131 individuals (69 farmers and 62 processors) took part in the investigation, which made use of the 95% confidence and 4.48% standard error level. Table 1 provides demographic profile data on the respondents.

Table 1. Demographic characteristics of the respondents

Characteristics	Number
Occupation (number)	
Chicken farmers	69
Processors	62
Total	131
Scale of raising chicken (%)	
~300	10.4
1,000~5,000	10.4
5,000~10,000	7.8
10,000~	71.4
Breeds raised (%)	
Korean native chicken	81.7
Korean native chicken and broiler	18.3
Annual sales (in millions won) (%)	
~5	10.8
5~10	5.4
10~20	10.8
20~30	19.4
30~	53.8
Age (%)	
20s~40s	35.9
50s	38.9
60s	25.2
Place of residence (%)	
Seoul	6.1
Gyeonggi · Incheon	18.3
Chungcheong	30.5
Jeolla	36.6
Gyeongsang	8.4
Total	100

2. Questionnaire

The questionnaire was created on the basis of the literature and discussions with experts, to collect information on the opinions of KNC farmers and processors. The questionnaire consisted of three sections: 1) the current difficulties that

KNC farmers face, 2) the current importance - satisfaction measures among KNC farmers and processors, and 3) the future direction of the KNC market: farmer and processor opinions. The items addressed in each section were also selected on the basis of the literature and discussion with experts. For each of sections 1 and 2, the respondents scored each item using a seven-point Likert scale ranging from 1 (Strongly disagree) to 7 (Strongly agree); for section 3, they scored each item using a nine-point Likert scale ranging from 1 (Strongly disagree) to 9 (Strongly agree). The actual questionnaire items were as follows.

- 1) What is the hardest part of raising Korean native chickens?
- 2-1) How important are the following Korean native chicken issues?
- 2-2) Currently, how satisfied are consumers with the following Korean native chicken issues?
- 3) What is needed to revitalize the Korean native chicken market?

3. Statistical Analysis

The collected data were analyzed using SPSS 21.0 for Windows (IBM, Chicago, IL, USA). Based on the average values, for the items listed in Table 3, importance - performance analysis was undertaken to analyze the correlation between importance and satisfaction.

RESULTS AND DISCUSSION

1. The Current Difficulties that KNC Farmers Face

More than 50% of the respondents cited a limited number of sales stores as the greatest difficulty in raising KNC; this was followed by feed cost, animal disease, and poor production environment (Table 2). Most of these challenges can scarcely be overcome by KNC farmers alone, in the absence of outside assistance.

In Korea, approximately 90% of chickens—including KNC—are sold through large distribution companies (KREI, 2013). In other words, the establishment of additional sales stores and outlets could be greatly affected by the current distribution system. For this reason, changes in this area may require government and/or industry intervention that supports

Table 2. The difficulties that chicken farmers (n=69) face in raising Korean native chicken

Items	%
Limited number of sales stores	50.72
Feed cost	24.64
Animal disease	10.15
Poor production environment	10.14
Other	2.90
No answer	1.45
Total	100

the diversification of the chicken meat distribution system. Meanwhile, online sales has been suggested as a means of increasing consumer accessibility to KNC: online sales would allow consumers to purchase KNC directly from farms, while concurrently increasing the reliability of the origin at the raising stage (Table 3). Furthermore, online sales could satisfy consumer demand for lower KNC prices (23.5%, data not shown) by reducing its distribution cost. The distribution cost accounts for approximately 52.1% of KNC's market price (KREI, 2013), with consumers paying an additional 1.6% in expenses per year on account of increased distribution costs. This rising cost, in turn, reduces the income of KNC farms by approximately 0.5% per year (KREI, 2013). Consequently, online sales could be beneficial for consumers and KNC farmers alike. However, it may be difficult for KNC farmers to use an online sales system, as most of them (64.1%) are over 50 years of age (Table 1). Under such circumstances, educational support with regard to setting up and using new systems should be provided.

High feed costs (a challenge cited by 24.64% of farmers) incurred by the longer KNC raising period (relative to that of broilers) has led to ongoing economic losses among KNC farmers (Choe et al., 2010) (Table 2). Moreover, the market price of corn—the main ingredient in animal feed—has been increasing recently (Jung et al., 2012). This may result in an increase in not only feed costs, but also in the market price of livestock products. Consequently, this problem can be resolved either by reducing the KNC raising period and/or using corn substitutes in animal feed. In any case, scientific

Table 3. Levels of importance and satisfaction that farmers and processors assign to various issues when raising, processing, and distributing Korean native chicken

Items	Farmers		Processors	
	Importance (%)	Satisfaction (%)	Importance (%)	Satisfaction (%)
Raising step				
Origin	93.00	83.57	92.47	82.53
HACCP ¹ approval	76.98	74.59	79.57	71.77
Certification of eco-friendliness	74.51	72.05	75.00	65.90
Free-range farming	61.84	67.01	61.83	56.45
Animal welfare	61.98	64.47	64.73	49.58
Market age	71.01	68.44	70.16	52.87
Market weight	72.71	70.37	70.43	54.78
Processing/distribution step				
Safety	81.88	78.08	91.13	76.25
Packaging	73.67	73.14	81.72	73.22
Branding	68.12	70.84	65.32	67.24
Native certification	82.08	75.45	77.96	63.22
Slaughtering	76.81	71.17	74.73	55.60

¹HACCP: Hazard Analysis Critical Control Point system.

research and investment are required.

The occurrence of animal disease—especially of avian influenza (AI)—was the third most frequently cited challenge in raising KNC (10.15% of farmers). Whenever an outbreak of AI occurred, all the chickens were stamped out, and consumer purchases of chicken declined considerably (KREI, 2013). As a result, the price of chicken decreased in spite of its small production scale, and farmers sustained critical economic damage. Under such circumstances, efforts for the prevention of animal diseases are needed. Scientific research—such as that on the quality and efficacy of vaccines—should be conducted with support from the government or a private research entity, for example.

Meanwhile, the poor production environment of chicken farms—which could lead directly to the occurrence of animal disease—was another difficulty, cited by 10.14% of farmers (Table 2). However, in the absence of outside support, farmers may find it difficult to improve those production environments, given the incidental costs involved. To alle-

viate this problem, the government, related industries, or both should support reconstruction projects on old farms.

2. The Current Importance - Satisfaction Measures among KNC Farmers and Processors

We investigated the current importance and satisfaction measures of KNC farmers and processors with respect to issues encountered while raising and distributing KNC (Table 3). Based on average values, all issues were scored in terms of these two dimensions, giving rise to four categories—namely, high importance, high satisfaction (HIHS); high importance, low satisfaction (HILS); low importance, high satisfaction (LIHS); and low importance, low satisfaction (LILS) (Fig. 1). These issues were then categorized in terms of these four categories.

In raising KNC, the origin, HACCP approval, and certification of eco-friendliness were categorized as HIHS, while free-range raising, animal welfare, market age, and market weight were categorized as LILS. These categorizations held

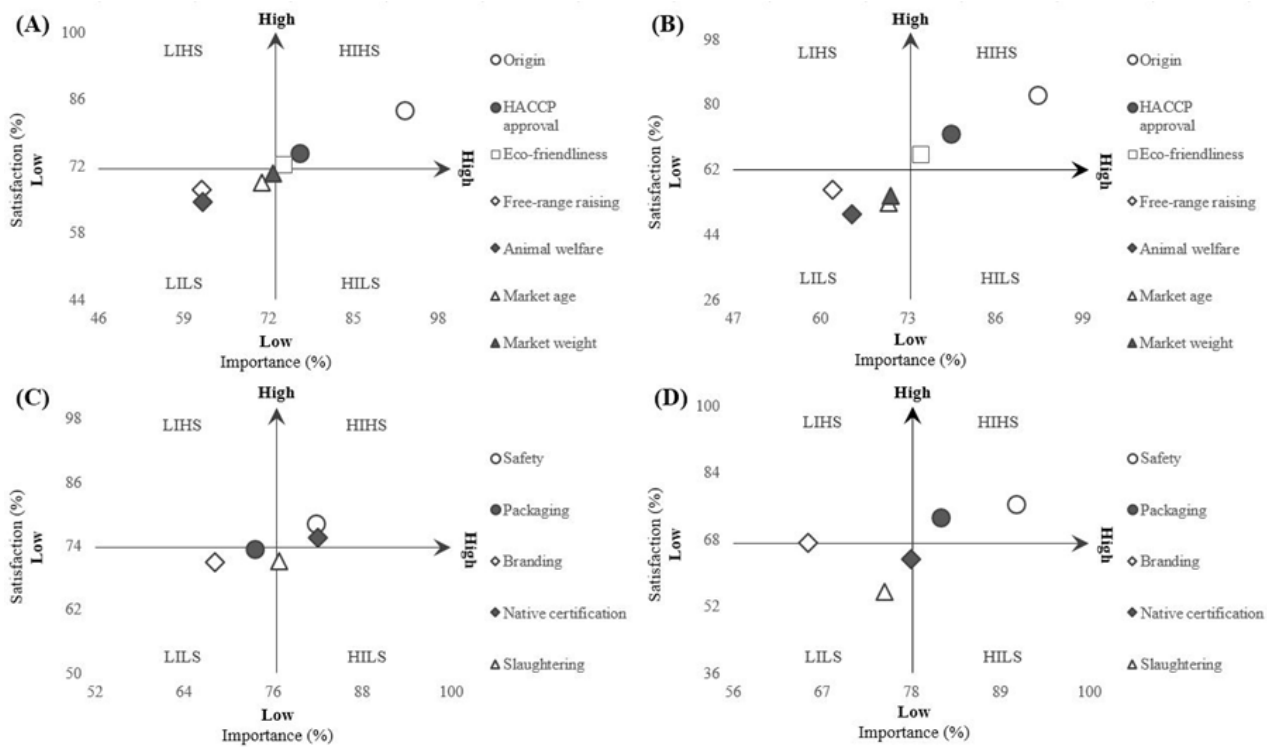


Fig. 1. Classifications along the importance - satisfaction dimensions of certain issues inherent in producing and distributing Korean native chicken.

(A) farmers in the raising step; (B) processors in the raising step; (C) farmers in the distribution step; (D) processors in the distribution step. HIHS: high importance, high satisfaction; HILS: high importance, low satisfaction; LIHS: low importance, high satisfaction; LILS: low importance, low satisfaction.

regardless of respondents' occupation (Figs. 1(A) and 1(B)). On the other hand, in distributing KNC, classifications were found to differ between farmers and processors, except for items pertaining to safety (HIHS) (Figs. 1(C) and 1(D)). For farmers, native certification was an HIHS item, whereas packaging and branding were LILS items; slaughtering, on the other hand, was HILS. For processors, packaging and branding were HIHS and LIHS items, respectively, and native certification and slaughtering were both LILS items. Although farmers and processors participate in both raising and distribution, they have different roles and levels of awareness in each of these steps. Additionally, each issue differentially relates to the steps that lead up to KNC sale. For example, native certification relates to KNC origin in the raising step, while both packaging and branding closely relate to product guarantees in the processing and distribution step. Therefore, differences in importance and satisfaction may originate from different levels of recognition between the two

occupational groupings.

Items within the HIHS and LIHS categories need to maintain their current conditions, as they currently satisfy respondents with respect to the importance they place on raising and distributing KNC. In contrast, items within the HILS category require urgent improvement. For example, slaughtering should be conducted with government permission, given the need to adhere to the particulars of the Livestock Products Sanitary Control Act of Korea (MFDS, 2018). KNC derived from illegal slaughtering has been found in numerous local restaurants, and this illegal activity could spread animal disease and lead to outbreaks of food poisoning (APQA, 2008; MAFRA, 2017b). It is therefore essential that the government tighten its supervision and regulation of slaughtering. Those items within the LILS category are not currently considered as "serious" as those in the other categories; nonetheless, some LILS items could potentially forecast increases in KNC consumption. In particular, free-

range farming and animal welfare are issues growing in importance among consumers, who are generally taking a greater interest in the issues of animal welfare and public health (Font-i-Furnols and Guerrero, 2014). However, on a farm, animal welfare relates directly to efficiency and production (McInerney, 2004); for this reason, it would be difficult to immediately apply the concept of animal welfare to farm-site operations. Therefore, again, the government and/or related industries should help promote animal welfare on farms, by providing encouragement and assistance. In addition, important animal welfare concepts in the context of Korea should be established after thorough investigation and critical discussion.

3. The Future Direction of the KNC Market: Farmer and Processor Opinions

In terms of growing the KNC market, 60.87% of farmers and 59.68% of processors considered menu development the most important item; this was followed by public advertisements (27.54% and 27.42%), accessibility (7.25% and 6.45%), business aid (2.89% and 4.84%), and breed development (1.45% and 1.61%) (Table 4).

There are only few cooking methods for which KNC is appropriate, given its flavor and texture characteristics; generally, KNC is most appropriate for stew cuisine (Han et al., 1996; Jayasena et al., 2013) such as *Baeksuk*, *Samgye-tang*, or *Dakbokumtang*. Therefore, new menu development—especially that which targets younger generations—is needed,

Table 4. Farmers' and processors' opinions regarding where efforts to promote the Korean native chicken market should be directed

Items	Occupation	
	Farmers (%)	Processors (%)
Menu development	60.87	59.68
Public advertisement	27.54	27.42
Accessibility	7.25	6.45
Business aid	2.89	4.84
Breed development	1.45	1.61
Total	100	100

and it will require collaboration between professional menu development institutes and experts who possess comprehensive knowledge of KNC and its advantages, and who also understand how important the promotion and diversification of chicken consumption are to the industry. In this respect, recent studies on foreign certification systems (Kim et al., 2018b) and KNC recipe-development trials (Kim, 2018), as well as similar future research, offer some promise.

Additionally, Troy and Kerry (2010) point out that public advertisements will help pique the interest of consumers. 27.5% of consumers agreed to the necessity of public advertisements in developing the KNC industry and in facilitating and promoting KNC market accessibility (data not shown). This finding aligns with the results of the current study from farmers and processors. Consequently, the government and related industries should plan, either separately or in collaboration, to undertake effective and continuous public relations strategies with regard to KNC.

CONCLUSION

By investigating the limitations and goals inherent in raising and producing KNC—which are known by considering data on farmers' and processors' viewpoints—it is clear that KNC development requires organized support from the government and related industries. In addition, all parties that have a stake in the KNC market should direct efforts toward the issues of animal welfare and public health, to differentiate KNC from commercial broilers.

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