

## Conference Paper

# Transforming Indigenous Chicken into Commercial Business, is it Possible?

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**ORCID**<https://orcid.org/0000-0002-2041-8901>**Abstract.**

Indigenous chicken needs to be preserved, because it has been decreased seriously. Its situation is caused by poor housing and low nutritional feed. Conservation of indigenous chickens is a very important mission for many countries in order to maintain genetic diversity. Indigenous chickens could be preserved by several methods, namely (1) Characterization of indigenous chickens; (2) Identification of special quality of indigenous chickens; (3) Combination between conservation and development of indigenous chickens; (4) Establishing association of indigenous chicken producers; and (5) Building up the distribution channels of indigenous chickens. The indigenous chickens need to be not only preserved but integrated into commercial business too. These two missions have mutual interaction. If the indigenous chicken conservation mission is well performed, it will also be a good addition to commercial business and the trading will in return push the development of indigenous chickens preservation.

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## 1. Introduction

Preservation of indigenous species in general or indigenous chickens in particular is actually became an important mission for many countries because the number of indigenous species had been decreased seriously. At the world level, with the total of 1729 poultry breeds, there are about 1089 breeds have no information, there are about 60 breeds they are totally disappeared, about 368 breeds are in dangerous situation at different risk level and there are only 212 breeds that have no risk [1]. By [2], the indigenous chickens need to be preserved because of their advantages such as: they possess the genes to resist some diseases, to adapt better with environment, to relate the special product quality (rich in anserine (anti-cardiovascular, anti- Parkinson), in carnosine (anti-cardiovascular, anti- diabetes) [3]. L-carnitine in chicken meat could prevent cardiovascular disease and control obesity. Betaine compound in chicken meat

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can protect cells and proteins from environmental stress and prevent chronic diseases in humans [4].

However, the conservation of indigenous chickens is always not very convenient because of their weak competitiveness. That's why many chicken breeds are falling in the dangerous situation or even disappeared. The slow growth, low reproduction, and unsuitable ways of commercialization result in weak competitiveness.

## 2. Indigenous chickens in Vietnam, advantages and limits

In Vietnam, chicken production plays an important role in supplying the animal protein base food and in farmer's economy. The chicken meat represents about 20% of total meat consumed (after pork meat about 70% of total meat consumed). However, the chicken population is increasing very quickly from 218,201,400 (2010) to 382,597,000 heads in 2019 with an annual average growth rate of 5% to more than 10%. In which, the indigenous chickens and hybrid chicken population represented an important proportion of more than 80% in 2019.

Vietnam is considered as one of the countries with an important number of indigenous chickens. Actually, 21 different Vietnamese chicken breeds have been recognized. Indigenous chicken breeds are mainly distributed in the North of Vietnam (76.20%), there are only 9.50% in the Centre and 14.30% in the South. The chicken breeds in the North are Ri Dong Tao, Ho, Mia, Mong, H'mong, Oke, To, Tien Yen, Lien Minh, Tai Do, Loi Trang, Nhieu Ngon (Many spurs chicken), Xuoc, Lac Thuy and Te chickens. In the Centre, there are only 2 breeds, they are Kien chicken and Choi chicken (fighting chicken). There are 3 chicken breeds in the South, they are Tau Vang, Ac and Tre chickens (Figure 1).

The Vietnamese indigenous chickens adapt well with poor conditions of husbandry such as poor housing, and low nutritional feed. Indigenous chickens are mainly free ranged to look for feed and supplied a little bit of feed one or two times daily. Indigenous chickens' products (meat and egg) are well appreciated by consumers.

Because of poor conditions of husbandry, the yield of chicken production is very low and the production cycle is long. The weight of Ri cock is about 2200 to 2300 grams, and 1700 to 1800 grams for hens at 38 weeks of age. The first egg of Ri chickens is 133 days of age and the number of eggs per year is 133 [5]. Dong Tao chickens have very big legs and the weight is 2866 g for cocks and 2407 g for hens at 24 weeks of age. The first egg is 159 days of age and the number of eggs per year is 68.3 [5]. Besides, these chickens have often got diseases because of not applying vaccination.

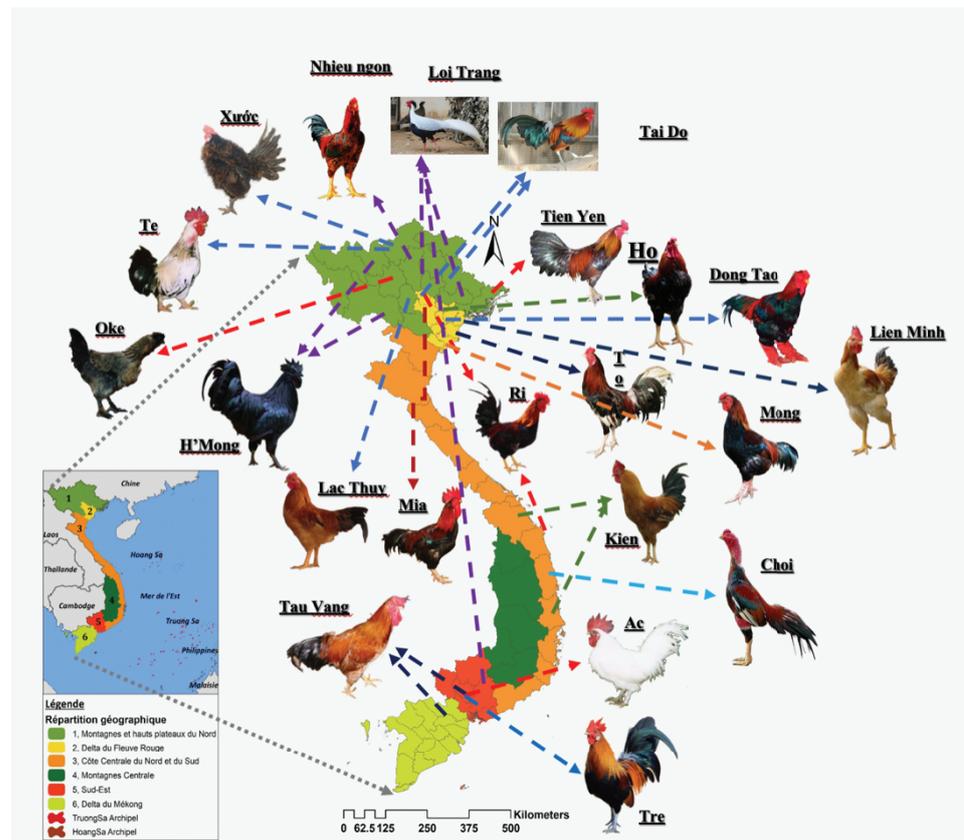


Figure 1: Distribution of indigenous chickens in Vietnam.

The indigenous chickens are normally raised in the households with small size. There were about 20 hens of Dong Tao breed and only 6 hens of Ho breed per household [6] [7]. The small scale of the chicken farms results to low production and inbreeding problems. The low production of the farm also influenced on indigenous chicken commercialization. The consumption channels of indigenous chickens are normally very short and in the local regions (Figure 2 and 3).

Several researches also showed that there are some indigenous chicken breeds are still in dangerous situation with the risks of high consanguine, of crossing with other breeds because of low productivity and limited population and the farming ways. There are a very moderate number of indigenous chicken breeds which have developed in term of sustainable one.

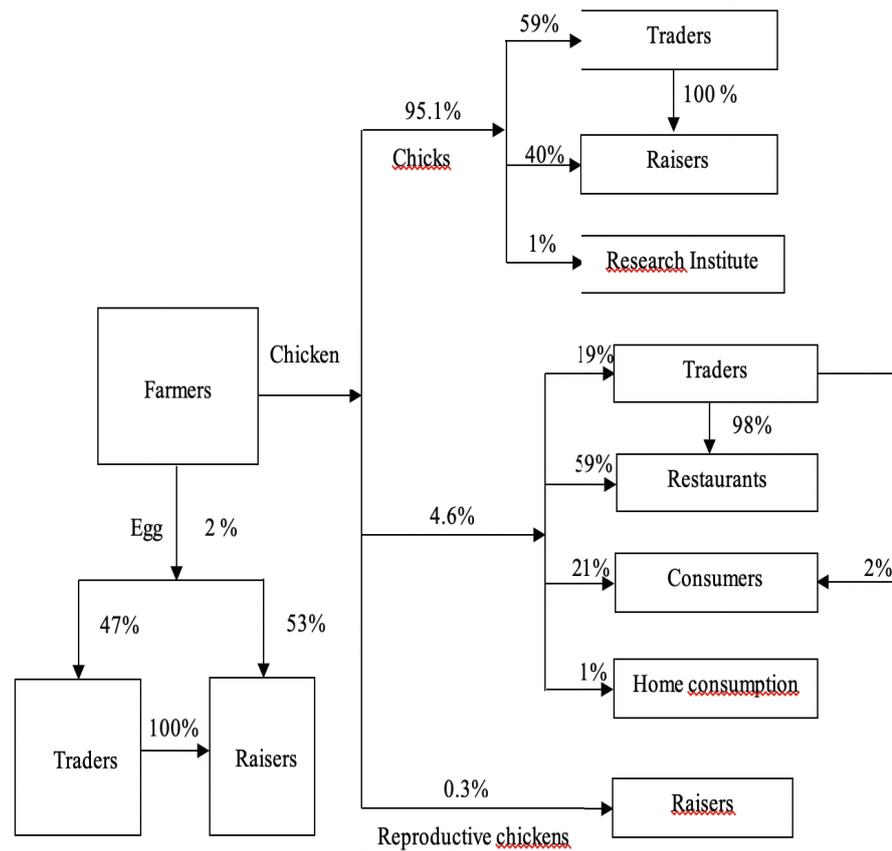


Figure 2: Consumption channels of Dong Tao chicken [6].

### 3. How to protect and exploit the indigenous chickens

Conservation of indigenous chickens is a very important mission for many countries in order to keep gens diversity. But how indigenous chickens preserved and exploited is always a big question for each country. Several methods proposed as follows:

#### 3.1. Characterization of indigenous chickens

Characterization of indigenous chickens is very important in order to recognize easily the breed. The chicken breed is easier recognized is more value. In Vietnam, the Dong Tao chickens are very easy to recognize thanks to have very big legs. The H'mong chickens have black feathers, black skin and black bone. That's why they are commercialized easier compare to Ho chickens. Some breeds having no identified characteristics are

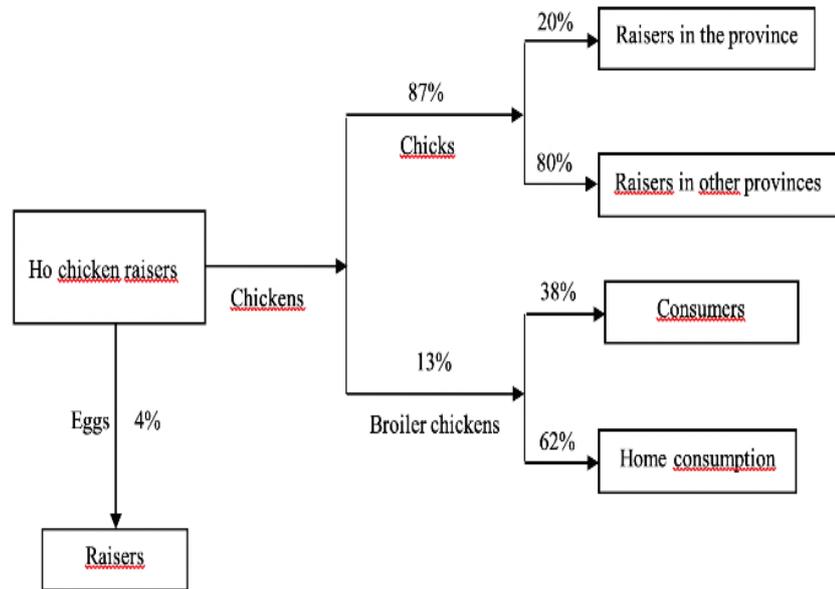


Figure 3: Consumption channels of Ho chicken [7].

traded more difficult because of consumers' doubt. The characterization is first the bio-morphology and other ones such as their performance, products' quality.

After characterizing the indigenous chickens, introduction of these chickens is also important. This could make increasing the chicken production and consumption thanks to know better these chickens.

### 3.2. Identification of special quality of indigenous chickens

The indigenous chickens can have special bioactive compounds such as rich in iron (H'mong chickens), in anserine and carnosine in Korea chickens. These compounds are considered as functional food which are very useful to the human health. Identifying the good compounds or other good product quality in the indigenous chickens is one of the ways to increase their competitiveness because of higher price.

### 3.3. Combination between conservation and development of indigenous chickens

The preservation of indigenous chickens is very important in order to protect gens diversity but it is not always easy because of their limits such as low performance, high

production cost,... That's why the combination between conservation and development of these chickens is one of important solution. Preservation of indigenous chickens aims to produce pure breed but the indigenous chicken population is not very important. Development of indigenous chickens could be realized by improving their performance. The crossing between indigenous breeds and high potential breeds (exotic breeds) is usually a chosen solution. In Vietnam, there are more than 80% of color chickens are indigenous breeds and hybrid ones (crossing between indigenous breeds and exotic ones).

### **3.4. Establishing association of indigenous chicken producers**

The Association of indigenous producers plays important role in preservation and development of indigenous chickens. The association of producers could build up the label and do advertisement about these breeds.

In Vietnam, there are several associations of indigenous chickens such as Dong Tao Chicken producers, Ho Chicken Producers, Mia Chicken Producers. These associations had organized the annual competition of these chickens in order to identify the best chickens and doing advertisement. Thanks to the competitions, the chicken trade is easier.

Besides the association, establishing the chicken cooperative, or indigenous chicken company is also a very good solution to develop as well as commercialization of indigenous chickens. Cooperative of Dong Tao chicken Production and Business plays an important role in development and business this breed. It is in charge to organize technical transfer, to sell about 30% of DOCs and broilers. For the Mia chicken, there is a Poultry Production Enterprise HADICO that possess about 10.000 hens and is in charge of trading about 2 million DOCs yearly. Thanks to the cooperative or company, the indigenous chickens have been commercialized much better with important number.

### **3.5. Building up the distribution channels of indigenous chickens**

As weak competitiveness of indigenous chickens, that's why it need to have special distribution channels especially the channel of indigenous chicken restaurants and conventional shops. Thanks to these restaurant chains and conventional shops, the indigenous chickens would be sold with higher price.

## 4. Conclusions

The indigenous chickens need to be not only preserved but commercial business too. Two these missions have mutual interaction. If the indigenous chicken conservation well done will be a good condition to commercial business and the trading will push well the development of indigenous chickens in term of sustainability. Characterization, identification of special quality, establishment of association and cooperative of producers and building up the special channels of indigenous chickens' distribution are the main activities to protect and develop the indigenous chickens in term of sustainability.

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