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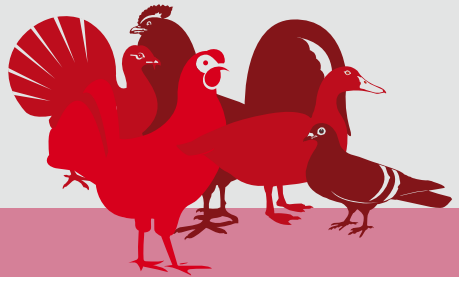
Smallholder Poultry Production

SMALL COMMERCIAL AND FAMILY POULTRY PRODUCTION IN FRANCE: CHARACTERISTICS, AND IMPACT OF HPAI REGULATIONS



SMALL COMMERCIAL AND FAMILY POULTRY PRODUCTION IN FRANCE: CHARACTERISTICS, AND IMPACT OF HPAI REGULATIONS

Eric Fermet-Quinet and Christine Bussière

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Authors

Eric Fermet-Quinet is a veterinarian specialized in international rural development. Since 1986 he has worked as a rural practitioner in France and international consultant for rural development in developing countries in Africa, Latin America, Asia and Europe.

Christine Bussière is an agronomist specialized in agricultural development in particular the valorisation of agricultural products. After two assignments in developing countries she worked as coordinator of a small farmers' organization in France and is now coordinator for a federation of rural municipalities.

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Keywords

Poultry sectors 3 and 4, HPAI regulations, Biosecurity

Contents

Preface

This paper is part of a series that describes the opportunities and limitations of smallholder poultry production. The major structural changes that have occurred in poultry production and marketing in recent decades have lead to a strong and internationally integrated poultry industry. In developing countries, however, the majority of poultry are still kept by smallholders in less intensive systems. The advantages of these systems are the low levels of inputs that they require and the unique products they produce. These systems are practiced by people who have few other options and it is important that they survive as long as they are needed for social reasons, food security and livelihood support.

The paper highlights the important role of smallholder poultry production in France which can be an interesting and alternative model of poultry development in developing countries. The model offers opportunities for lower side-effects of intensification in the poultry industry, provides job opportunities and economic added-value, is protecting bio-diversity and demonstrating that quality and culture are essential parts of human food supply and export. The authors suggest to re-assess the risk of HPAI caused by smallholder poultry production and to adapt official veterinary regulations accordingly.

We hope this paper will provide accurate and useful information to its readers and any feedback is welcome by the author and the Animal Production Service (AGAP)[1] of the Food and Agriculture Organization of the United Nations (FAO).

[1] For more information visit the FAO poultry website at: http://www.fao.org/ag/againfo/home/en/index.htm
or contact: Olaf Thieme – Livestock Development Officer – Email: olaf.thieme@fao.org
Food and Agriculture Organization - Animal Production and Health Division Viale delle Terme di Caracalla 00153 Rome, Italy

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Small commercial and family poultry production in France: characteristics, and impact of HPAI regulations

Eric Fermet-Quinet and Christine Bussière

SUMMARY

France maintains and develops a wide range of poultry production systems, with an important contribution coming from sectors 3 and 4 which contributes to the diversification of revenues, jobs, know-how and genetic resources. Poultry in sector 3 is produced with three official signs of quality: AOC, Red Labels (Label Rouge or LR), and Organic Agriculture (Agriculture Biologique or AB). There are also hundreds of thousands of backyard poultry owners and hobby breeders in France. Based on statistical data and a field survey the characteristics of the different production systems are described and their contribution to production and employement and revenues of farmers elaborated. The impact of regulations for the control of HPAI on these production systems is discussed and suggestions are made for changes.

PHOTO 1
Gauloise Dorée

PHOTO: GAULOISE D'OREE CLUB DE FRANCE

1. INTRODUCTION

France is Europe's foremost poultry producer, and is the world's fifth largest producer of poultry meat, behind the United States of America, China, Brazil and Mexico.

French poultry production statistics include all farms with more than 500 birds or 150m^2 of poultry buildings. There are 24 500 poultry farms (around 20 500 broiler farms and 4 000 layer farms), which represent 7 percent of the 350 000 farms in France (Gallot and Desbois, 2005; Agreste, 2000 agriculture census).

The total number of poultry in France is around 235 000 000, made up of 120 000 000 broilers, 28 000 000 turkeys, 24 000 000 ducks and geese, 10 000 000 guinea fowl, 8 000 000 pigeons and quail, and 45 000 000 layers. (Agreste, 2005, Agreste, 2006a&b). The value of poultry production is €3.8 billion per year (INSEE, 2004). The sector employs 44 000 farmers and 9 700 farm workers (SCEES, 2003), in addition to providing about 55 000 indirect jobs (APVF, 2006).[1]

A strong demand for "traditional typical food products" exists in France. This concept links gastronomic and cultural heritage to particular agricultural practices and to the natural resources of specific areas of origin. France gave birth to the concept of *Appellation d'origine contrôlée* (AOC). To meet the demand for such products, French poultry farmers have had to maintain semi-intensive or extensive poultry production systems. These systems, here referred to as "traditional production", are part of "poultry sector 3" as defined by FAO (commercial small- or medium-scale intensive or semi-intensive) as opposed to the industrial poultry sectors 1 and 2.

France's poultry sector 3 has developed three official signs of quality: AOC, Red Labels (Label Rouge or LR), and Organic Agriculture (Agriculture Biologique or AB). In the French context, even sectors 1 and 2 have had to develop quality standards (i.e. Certificate of Conformity).

There are hundreds of thousands of backyard poultry owners and hobby breeders in France – here referred to as "family production". They are part of "poultry sector 4" as defined by FAO. France is home to a great variety of domestic poultry breeds – a total of 320, out of which 68 are local breeds (FFV, 2007)[2].

So, unlike the majority of developed countries, France maintains and develops a wide range of poultry production systems, with an important contribution coming from sectors 3 and 4. Sectors 3 and 4 contribute to the diversification of revenues, jobs, know-how and genetic resources. However, this reality has been poorly described – there are few statistics on sector 3, and in the case of sector 4 statistics are almost non-existent. In February 2006, highly pathogenic avian influenza (HPAI) hit the heart of the prestigious AOC Bresse, the area with the highest standards of poultry quality, which has worldwide recognition. At that time, the French veterinary services realized how few data were available on sectors 3 and 4. They took drastic regulatory measures. Sector 3 and 4 farmers and consumers realized that these regulations could be very harmful, and felt that they were singled out for attention.

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[1] The references in the latter two sentences of this paragraph refer to the Web sites of the respective organizations (see list of Web sites at the end of this paper), the dates refer to the year of consultation for data.

[2] See list of Web sites at the end of this paper.

This paper summarizes the characteristics of French sectors 3 and 4, describes the impact of the HPAI-related regulations, and proposes possible measures to insure the protection and development of these sectors.

2. METHODS AND CONSTRAINTS

Bibliographical and institutional research

This study drew on data from 340 documents and tables (listed in the bibliography or obtained from the Web sites listed at the end of this chapter) and through meetings with institutional partners – Institut Technique de l'Aviculture (ITAVI), the Departmental Office of Veterinary Services (Direction Départementale des Services Vétérinaires – DDSV), Direction Départementale de l'Agriculture, Association régionale Filière Volailles Rhône Alpes (AFIVOL), trade unions and the Agriculture Chambers of Ain and Gers). Major sources of data were the agriculture census of 2000 (Agreste, 2000, as presented by Gallot, 2006), the 2004 poultry surveys (respectively detailed and sampled in 44 and general and exhaustive in 66 of the 95 departments) and annual statistics provided by the Service Central d'Enquêtes et Etudes Statistiques (SCEES). Differences among the statistics obtained from the various sources occur because of year-to-year variations and different methods of classifying production.

Departmental Office of Veterinary Services data survey

At national level, the Direction Générale de l'Alimentation (DGAL) has an interesting database with the Système d'Information de la Direction Générale de l'Alimentation (SIGAL), but it could not provide specific analysed data about the poultry sector because of lack of time and staff. A census of sector 4 owners and birds by local mayors was compulsory in March 2006. Data were partially transmitted to DDSV, but were not collated at national level. Finally, an electronic-mail questionnaire was sent to each of the 95 DDSV to obtain an estimate of the number of backyard poultry owners, the number of live-poultry markets and the number of on-farm slaughtering sites. Out of 95 DDSV, 21 replied. Only 10 answered with census data, after the DGAL stated that release of such data was not relevant because of lack of accuracy. Despite these administrative constraints, only the precision of the data presented in this paper has been affected, not their relevance or their reliability.

Field survey

A field survey was undertaken over 20 days in two regions (Ain-Bresse and the Southwest). Structured interviews involved producers at ten live-poultry markets, two breeders (owners of breeding farms), two starters (farmers growing chicks up to four weeks of age and selling them to other farmers) and 29 farmers. Many other people (farmers, traders and consumers) were also interviewed informally.

Time allowance for field work was the main constraint. Usually, one formal interview takes two to three hours. People are scattered and are busy working. Time did not allow to conduct a field survey in a third region or more people to interview. Thus, only some points of a very exhaustive questionnaires that was prepared proved to be relevant. If a much longer period of field work using the same questionnaires were undertaken, it would be possible to obtain a much more detailed economic and social analysis.

3. TYPOLOGY OF POULTRY SECTORS 3 AND 4 IN FRANCE

Poultry-farming tradition and market demand maintain a great diversity of subtypes within sectors 3 and 4 in France. If the subtypes of sector 4 are common to many countries, the diversity of those of sector 3 is specific to France. Some farmers operate small-scale intensive standard poultry production, but the majority of sector 3 farmers undertake traditional poultry farming of one sort or another. They can be classified into 4 subtypes. Three of them use official signs of quality (Red Labels, Organic Agriculture and AOC Bresse); the fourth relies on the direct trust of consumers.

Sector 3: small-scale intensive

This category comprises small-scale farms operating in a similar way to the intensive sector 2, but on a smaller scale. Such farmers are usually linked to farmers' groups or poultry companies. Some official data do not differentiate them from the "farm poultry" (see below), but some others include them in sectors 1 and 2. These farmers do not represent better-quality poultry production, and they appear to be a minority. The study did not investigate this subtype.

Sector 3: "traditional poultry farming"

European Regulation No 1538/91 introduces a first level of distinction between industrial poultry and traditional poultry farming. It establishes minimum standards authorizing the use of the terms "open air" or "free range" to describe poultry production (longer growing periods, minimum open-air space, levels of cereal fed, maximum stocking densities, and the number and size of buildings). The regulations clearly establish such farms as belonging to sector 3 – they are semi-intensive and size limited. However, French consumers (especially the 24 percent living in rural areas or the 50 percent who belong to the upper–middle social classes) have stronger views as to what constitutes a typical traditional poultry product. They require clearer control of quality and geographical origin. Some French farmers have felt that the European regulation is too weak (the farms are still too big and too intensive). Some other farmers felt that the sanitary requirements were not adapted to real traditional poultry farming, and that the label "fermier élevé en plein air/en liberté" (open air or free range) was an abuse of the French meaning of the word "fermier" (traditional small-scale farming).

French poultry farmers have established two alternative strategies to address these concerns and meet market demands: (i) reinforcing the official standards; and (ii) rejecting official standards and strengthening the trust of consumers through direct sales. This has led to great diversity in extensive and semi-intensive commercial poultry production and distribution networks.

It is possible to identify four subtypes within sector 3. Three are officially authorized to be called "volaille **fermière**" ("**farmed** poultry") – Red Labels, organic poultry and AOC Bresse. The final subtype, having no official quality indicator, is called "volailles de ferme" ("farm poultry") by producers, indicating that these poultry are produced on "traditional" farms as opposed to industrial farms.

Red Labels "the French touch on the EU standards"

The Red Label poultry production is a specific French standard, similar to the European Union (EU) standard, but slightly higher (lower stocking density and more open-air space). The French Ministry of Agriculture introduced the Red Label to satisfy the particular French demand for quality and image in traditional poultry products (Ministry of Agriculture Article L 115-22 of the Code de la consommation; Synalaf). Red Label poultry are mainly broilers, but also include layers, guinea-fowl, turkeys and quail.

French demand for quality and tradition is linked to the so called "specificity of origin" (Synalaf Web site; Sylvander, 1995). The Red Labels have diversified their products into 29 "quality groups" using either a brand name or a Protected Geographical Indication (PGI) (Regulation EC 510/2006), each defining specific characteristics of production. Both types indicate "specific origins". For instance "Malvoisine" is a brand name associated with the local Faverolle chicken breed, and "Poulet de Loué" is a PGI associated with the two-hundred year old tradition of backyard poultry breeding in one small village.

These two examples show how an international agro-food company can brand the quality, traditional know-how, and image of a local breed or of a local human community. It highlights the problem of both intellectual (know-how) and natural-resource property.

On the one hand, the production and the distribution networks of the Red Labels are rather similar to the industrial poultry networks. Farmers are not independent and are fully integrated as in sector 1. On the other hand, the Red Labels have established limits to intensive industrial poultry production. Their semi-intensive production methods definitely require them to be considered part of sector 3. They are able to supply the major distribution networks and the collective restaurants with less intensively-produced, better-quality and more traceable poultry products.

Organic poultry farming

Organic poultry farming is based on EU Regulation 2081/91 under the French regulation CC-REPAB-F. The main objective is to restore the link between poultry production and the soil of the farm. The size of organic poultry farms is limited by this link. The majority of such farmers raise around 5 000 birds per year. Others resemble sector 4 production. Both subtypes make direct sales to consumers. A small percentage of organic farms attain the maximum size for this type of production (around 60 000 birds per year) and are organized to supply mass distribution networks.

Compared to the Red Labels, the organic standards require larger open-air areas, lower stocking densities and smaller farms; they are required to produce organic feed partially on site and to reduce the use of fertilizers and drugs. They also promote on-site diversification of other organic animals and crops. There is no regulation imposing the use of specific breeds.

AOC Bresse: the highest standard

AOCs are controlled by the National Institute of Appellation of Origin (www.inao.gouv.fr) and maintain a connection with the geographical origin at all stages of production and processing. AOC Bresse (50 years old in 2007) designates a specific poultry breed (chickens and turkeys) born, grown and processed in the Bresse area (part of Ain, Jura and Saône-et-Loire departments). At all levels, the standards are very high for this extensive commercial system. The poultry must obtain the majority of their protein and vitamin requirements from the soil and grass of the farms. The standards considerably reduce the size of the farms and require a substantial open-air space. These standards make AOC Bresse a very localized production system, only able to supply the highest-class restaurants worldwide and local French gourmet consumption.

"Traditional farm poultry" without an official sign of quality

Many commercial traditional-quality poultry farmers choose to produce without official quality signs because they don't consider them to be a guarantee of high quality. They prefer to promote the quality of their products through direct sales. They have taken a non-official name "volailles de ferme" (farm poultry) to differentiate themselves from the official term "fermier" (farmed poultry). There are few statistics about these farmers, but the field survey and literature review revealed some interesting characteristics. The average size of their farms is between 3 000 and 5 000 poultry produced per year. The growth period is often longer than in other sectors. Various species are raised. Direct sales are important, and processing sometimes takes up a substantial part of the farmer's working time.

FIGURE 1
Map of the AOC Bresse area

Source: INAO Web site (2006).

PHOTO 2
Standard breed Poulet de Bresse

PHOTO: WWW.PUBLIGO.FR

PHOTO 3
Les Glorieuses de Bresse

PHOTO: COPYRIGHT VILLE DE BOURG – S. BUATHIER

PHOTO 4
Quality identification ring

PHOTO 5
Open-air poultry

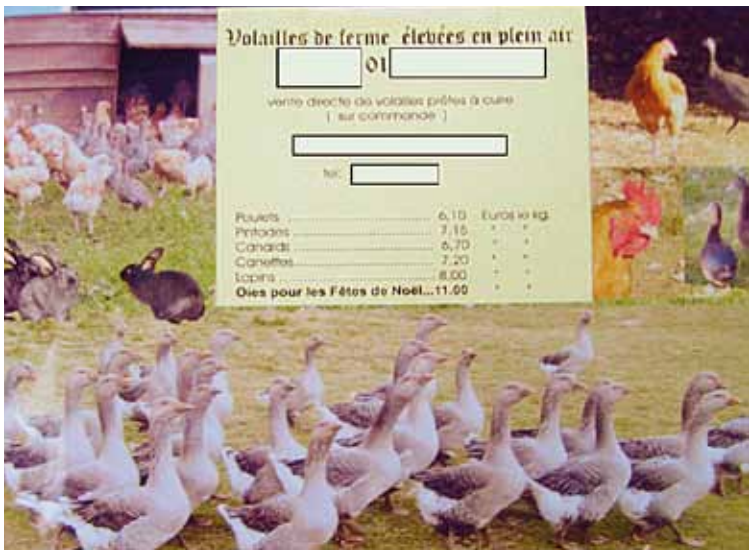


PHOTO: ERIC FERMET-QUINET

All pigeon producers should be considered part of this subtype (all have less than 2 000 pigeons) as should some quail producers (25 percent), because of their small size and the characteristics of their production systems (Itavi, 2007 interview; results of 2004 national poultry survey – not yet published). A substantial number of such farms produce ducks and geese – species for which official standards are less developed than for chickens.

The characteristics of four of the five subtypes of sector 3 in France are summarized in Table 1. Quality improves across the four subtypes, in parallel with increasingly extensive production methods and more importance being given to the relationship between the breed, the territory of origin and the farming methods.

Two alternative ways of supporting these quality standards can be distinguished: strengthening the official standards for production that supplies distribution networks (all Red Label, a minority of AB and some AOC); and promoting direct sales to consumers (majority of AB, some AOC and a majority of "volailles de ferme").

Game-bird farms are not included in the study, but they could be included in sector 3. There are around 20 million game birds reared on such farms (including 15 million pheasants) (FFV Web site, 2007).

Sector 4: family poultry – backyard and hobby breeders

In France, sector 4 comprises backyard poultry kept for home consumption and sale, and of hobby breeding for selection and competition. Ornamental birds are not considered in this study.

Family backyard poultry

Officially, French statistics (Agreste) state that commercial poultry farming starts at 500 birds. However, poultry production is only considered to be "backyard" for 100 birds or fewer. Thus, there is a data gap with regard to farms that keep between 100 and 500 head. From the DDSV survey, it can be estimated that the size of the average backyard poultry flock is between 15 and 20 head.

Species are mixed together, with chickens predominating (more than 80 percent); around 20 percent produce eggs (field interviews). The average for poultry meat is two production cycles per year; some have up to five cycles and others only one (field interviews).

The birds are mainly maintained for home consumption, but they also create supplementary revenue and social relationships. Furthermore, backyard poultry helps to maintain a link between farmers and consumers. There are five to seven times more backyard poultry belonging to non-farmers than to farmers (Agreste, 2005; DDSV survey).

Backyard production is often seasonal – autumn in the south and spring in the north. Few owners do their own breeding; usually, they buy chicks or four-week old chickens from "starters" (specialized breeders or farmers).

Breeding for selection and for competition

This form of poultry breeding is a hobby with real social, environmental and economic importance in France. There are between 40 000 and 60 000 such breeders, protecting the biodiversity of approximately 320 breeds, out of which at least 68 are French (44 chicken, 12 goose, 4 turkey and 8 duck breeds), not including pigeon breeds (FFV Web site, 2007).

Owners belong to associations that protect and promote specific local poultry breeds. There are around 20 000 owners who are members of 200 associations (sources: SCAF, SNC, FCF Web sites). These associations are grouped in the French Federation of Poultry Societies (Société centrale avicole française – SCAF) (http://s.c.a.f.free.fr), which has

TABLE 1
Comparison of the subtypes of French sector 3 chicken production

	"European" open-air poultry	**Red Label**	**Organic Poultry (AB)**	**AOC Bresse**
General objective	Establishment of a European standard	Warranty of superior quality product.	Warranty of respect for the environment and no chemical inputs.	Warranty of geographic origin with special associated characteristics of production and processing
Breed		Low-growth breeds	Low-growth breeds	Specific Bresse breed
General conditions	Buildings with openings and open-air space	Building with openings and open-air space	Buildings with openings and open-air space. Beak and claw removal is forbidden	Buildings with openings and open-air space. Beak and claw removal is forbidden
Number and size of buildings	4 buildings of 400m² maximum	4 buildings of 400m² maximum	4 buildings of 400m² maximum	Maximum 50 m² with more than 50 m between each
Maximum number per lot		4 400	4 000	500
Stocking density per m² of building	12	11	10	10 maximum inside buildings
Open-air space available per head		2 m²	4 m² and less than 170 kg N2/Ha /year.	15m² and maximum 1 500 birds/field
Length of starting period				5 weeks
Length of growing period		42 days	42 days	9 weeks
Length of finishing period				8 days
Sanitary empty period		14 days for buildings and fields	14 days for buildings and 2 months for fields	15 days for buildings and 6 months for fields
Feed		50% cereals before 28 days, 75% after	100% vegetable (90% of raw material coming from AB).	Only cereals and milk coming from the AOC area Complementary feed must be found on the field itself
Age		81 days minimum (average 86 days) Distance to slaughterhouse – less than 2 hours or 200 km.	81 days minimum (average 93 days)	106 days minimum (average 140 days) Slaughtered in AOC area
Limit for human consumption		9 days after slaughter		

PHOTO 6
Club of the French national symbol breed

IMAGE: GAULOISE D'OREE CLUB DE FRANCE

PHOTO 7
Gasconne breed in Gers

PHOTO: CHRISTINE BUSSIERE

connections at international levels (Entente Européenne d'Aviculture et de Cuniculture EEAC, Association Européenne des Volailles Rurale – ERPA). Most are devoted to protecting national poultry breeds (sources: Ministry of Agriculture/OGR, SCAF Web sites). Some are dedicated to specific activities: the owners of "carrier pigeons" number about 22 000 spread across 900 clubs (source: FCF Web site); there are 5 000 owners of fighting cocks (source: CFCN Web site) and around 15 000 owners of "decoy ducks" for hunting (source: DDSV interviews).

4. DATA ON SECTORS 3 AND 4 IN FRANCE

Sector 3 and 4 production

This assessment is based on a comparison of data obtained from various literature sources with those obtained in the field survey.

Location of sector 3 and 4 production

Sectors 3 and 4 are spread throughout all the regions of France, with some particularities (Agreste, 2006a,b,c; Itavi Web site, 2004). Sector 3 represents 76 percent of poultry production in Aquitaine and 63 percent in the Midi-Pyrennées region, with respectively 43 percent and 35 percent of the farm slaughtering points in France. Pays de Loire has the biggest Red Label production. AOC is limited to the Bresse area. "Farm poultry without an official quality sign" are spread everywhere, with a higher density in the Centre region.

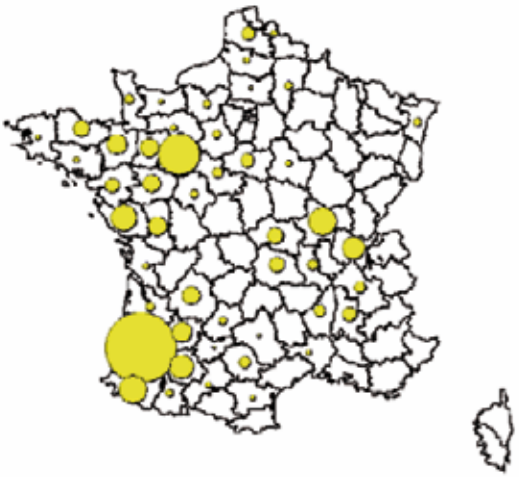
Sector 4 backyard poultry are everywhere. The DDSV survey established that the detailed census conducted in the HPAI-infected area in Ain (Ain DDSV internal document, 2006) can be considered to represent an average for France rather than an exception. The distribution of sector 4 "breeders for selection and competition" depends on the species or breed – local poultry breeds in their home areas (e.g. Gasconne hens in Gascogne), fighting cocks in North region, and decoy ducks mainly in Gironde, Somme and North regions.

Farm sizes in the different sector 3 subtypes

According to the 2004 census (Gallot, 2006), 32 percent of broiler farms and 37 percent of layer farms kept less than 2 000 head. Moreover, 70 percent of both broiler and layer farms had fewer than 10 000 head. Annual poultry-meat production is between 10 000 and 40 000 head in 70 percent of Red Label farms (Synalaf Web site), less than 5 000 in 70 percent of AOC Bresse farms (CIBV Web site) and less than 5 000 head in AB farms (Agence Bio Web site) and "farm poultry" farms (field survey).

Table 2 shows that the size of buildings is related to the subtype. It also shows that the size of buildings in the "farm poultry" subtype has been voluntarily limited by the farmers without any regulation.

FIGURE 2
Sector 3 poultry farm buildings in France (2004)



Source: ITAVI d'après AGRESTE – Enquete aviculture 2004.

TABLE 2
Average building surface area by poultry-sector subtype in France

Type and Sub-type of poultry sector	Building surface area (m^2)
Broiler sectors 1 and 2	828
Broiler sector 3 all types	194 (60% less than 100 m^2; 90% less than 400 m^2)
Layer sectors 1 and 2	1 040
Layer sector 3 all types	642
Sector 3 Red Labels	245
Sector 3 Organic Poultry	141
Sector 3 "farm poultry"	113
Sector 3 AOC Bresse	60

Source: Agreste (2005); Synalaf; CIBV.

Production in the different sector 3 subtypes

Sector 3 represents 19 percent of poultry meat and 12 percent of egg production in France (Agreste, 2005). Many data sources exists (Agreste, Itavi, Synalaf, CIBV, AB, FFV, FIA). However, these data differ because of partial coverage or because of the use of different reference years or different classifications for species, farm size or production subtype. Data also vary substantially as a result of the short production cycle of poultry. As these variations may be very important, the estimates shown in Tables 3, 4 and 5 only indicate general tendencies. The year 2007 will confirm an important drop in production and export, larger in sectors 1 and 2 than in sector 3 (FFV Web site).

Sector 3 appears to represent 55 percent of poultry farms, out of which almost half are Red Label, 6 percent AB and 2 percent AOC Bresse. The number of "farm poultry" farms (without official signs of quality) is probably underestimated in the statistics because farms of 100 to 500 head are not accurately counted. The number of farms falling within this data gap cannot be estimated.

Sector 3 appears to represent 15 percent of national poultry production in terms of the number of birds produced, of which almost two-thirds are Red Label, 30 percent are without official signs of quality, 4 percent are AB and 0.6 percent are AOC Bresse.

Very few data are available regarding the current population of each species and subtype. For some, figures can be calculated based on production data (layers and chickens), but for others field study to asses the number of cycles of production would be needed. Meanwhile, if it is estimated that the growth period for traditional poultry breeds is usually twice as long as that for industrial breeds, the current number of birds in sector 3 would be around 67 million head, or 24.5 percent of the total.

Population, size and production in sector 4

Data on sector 4 are limited, but it was possible to establish estimates by cross-checking information published in the literature with the information from the surveys and field visits.

TABLE 3
Tentative estimate of number of poultry flocks in France by sector

Numberof poultry flocks	Number of owners or farms	Broilers	Turkeys	Guinea fowl	Ducks and geese	Pigeons	Quail	Layers
Sector 4	*1 000 000*	+++++	+	+	++	+	+	+++
Sector 3	13 750*	8 000	1 400	2 400	*3 000*	*350*	*50*	1 300
AOC Bresse	300	300	40	NA	NA	NA	NA	NA
AB organic	750	240				?		300
Red Labels	6 100	5 060	1 360	2 400	*3 000*	NA	*50*	1 000
WOSQ	6 600	2 400				*350*		
Sectors 1 and 2	*11 250**	5 050	3 500	1 100	*4 000*	NA	*150*	1 200
Breeding farms	1 200							
Total	**24 500***	**13 000**	**4 900**	**3 500**	***7 000***	***350***	***200***	**2 500**

* Column and row totals do not match because of farms producing several poultry species.
Figures derived from Agriculture census 2000; poultry surveys 2004, SCEES Web site, 2006; Itavi Web site, 2007; field survey, and Web sites of AB, CIBV, Synalaf, FFV and FIA.
Figures in italic were calculated. NA = non applicable. WOSQ = without official sign of quality.

TABLE 4
Tentative estimate of poultry population in France by sector

Current population (million head)	Total	Broilers	Turkeys	Guinea fowl	Ducks	Geese	Pigeons	Quail	Layers
Sector 4	*20*								
Sector 3	*67*	*42*							*5*
AOC Bresse		0.5	*0.03*	NA	NA	NA	NA	NA	NA
AB organic		*1.5*							1.6
Red Labels		*25*				NA	NA		*1.2*
WOSQ		*15*							*2.2*
Sectors 1 and 2	*186*	*100*							
Parent stocks	*10*	6	1.5	0.5	1.5	?	?	?	?
Total	***283***	**148**	**28**	**10**	**22.5**	**0.7**	**1.3**	**7.5**	**45**

Figures derived from Agriculture census 2000, poultry surveys 2004; SCEES Web site, 2006; Itavi Web site, 2007; field survey; and Web sites of AB, CIBV, Synalaf, FFV and FIA.
Figures in italic were calculated. NA = non applicable. WOSQ = without official sign of quality.

There are 132 500 backyard flocks belonging to farmers, representing 2 230 000 head of chickens or 1 percent of the current national chicken population (Gallot & Desbois, 2005a&b). Taking into account the minor species (ducks, geese, guinea fowl, quail), which

TABLE 5
Tentative estimate of annual poultry population in France by sector

Annual production (million)	Total poultry (head)	Broilers (head)	Turkeys (head)	Guinea fowl (head)	Ducks (head)	Geese (head)	Pigeons (head)	Quails (head)	Layers (eggs)
Sector 4	*40*								*800*
Sector 3	*165*	126	3	15	*10*	*0.2*	5.5	4	1 400
AOC Bresse	1	1	0.03	NA	NA	NA	NA	NA	NA
AB organic	*7*	5.5	*0.07*	1	?	?	?	?	330
Red Labels	106	94	0.5	8	1	NA	NA	2.5	320
WOSQ	*51*	26	*2.4*	*6*	*9*	*0.2*	5.5	1.5	*750*
Sectors 1 and 2	915	*700*	92	*15*	65	0.8	5.5	36	10 100
Total	**1 120**	**826**	**95**	**30**	**75**	**1**	**5.5**	**40**	**12 300**

Figures derived from Agriculture census 2000, poultry surveys 2004; SCEES 2006 Web site; Itavi Web site, 2007; field survey; and Web sites of AB, CIBV, Synalaf, FFV and FIA.
Figures in italic were calculated. NA = non applicable. WOSQ = without official sign of quality.

TABLE 6
Numbers of associations, breeds, owners and birds in different subtypes of "sector 4 for selection and competition"

Type of breeders	Sources of data*	Number of associations	Number of French breeds	Total number of breeds	Number of owners	Average number per owner (head)	Number (head)
Backyard	DDSVs, FFV	200	68	320	20 000	35	600 000
Carrier pigeons	FCF	900			22 000		2 000 000
Fighting cocks	CFCN	1	2		5 000	10	50 000
Decoy ducks	DGAL, DDSVs				15 000	33	500 000
Total		**>1 000**	**>70**	**>320**	**>60 000**	**30**	**>3 000 000**

* Web sites of the respective organizations.

are usually kept in the backyard, it can be estimated that the total number of backyard poultry belonging to farmers is around 2 500 000. However, the vast majority of backyard poultry does not belong to farmers (field survey).

The DDSV survey established the following averages: 15–20 birds per backyard, 20 backyards per commune. Depending on whether the department is rural or urban, 1–10 percent of households have backyard flocks. On a proportional basis and taking into account that there are 36 000 communes in France, it is possible to estimate that the minimum numbers are 700 000 backyard owners keeping 10 million backyard poultry. However, as a result of

preventive slaughter (and probable hiding) of backyard poultry during the HPAI crisis (field survey, interviews, news broadcasts), the figures were underestimated in the census carried out at that time. As such, backyard poultry could in fact represent around 1 million owners and 20 million poultry (current number). This figure is confirmed by comparing the details of departmental surveys (numbers of farmers compared to numbers of backyard owners). It was also the number estimated by commercial poultry breeders and starters (interviews).

Taking into account the production characteristics outlined above, overall backyard poultry production levels could be as high as 40 million head (3.5 percent of national production) and 800 million eggs per year (6.5 percent of national production).

Data on "breeders for selection and competition" are easier to find (from associations), and are summarized in Table 6.

Marketing the poultry products of sectors 3 and 4

Poultry consumption in France

In 2000, the consumption of poultry meat in France was about 25 kg per inhabitant: home consumption represented 62 percent, restaurants 18 percent and processing 20 percent (source: Agreste Web site). Strong sector 3 and 4 consumption seems particular to France among the developed countries, with the official quality signs accounting for over 20 percent of consumption. France also has the highest rate of organic poultry production in Europe (FIA Web site; Synalav, 2006). The production of "farm poultry" is not included in these statistics. AB egg production increased by 9 percent between 2004 and 2005 (source: Agence Bio Web site).

An assessment of consumption levels for poultry from sectors 3 and 4 in France should take into consideration the average weight of the birds and the import–export balance. Overall, poultry exports account for 38 percent of national production (source: APVF Web site). Imports represent 33 percent of exports (Itavi, Web site). For sector 3, overall exports can be estimated to be around 3 percent (Synalaf Web site). The average weight of traditional breeds is 30 percent higher than industrial breeds – 1.6 kg against 1.2 kg in the case of chickens (field survey, interviews, various Web sites). Sectors 3 and 4 might account for around 32 percent of poultry-meat consumption – 6 percent from sector 4 and 26 percent from sector 3.

Sectors 1,2 and 3 have a positive trade balance of around 500 million eggs (Itavi, 2006). Sectors 3 and 4 represent 18 percent of egg production and might account for around 18 percent of egg consumption – 7 percent from sector 4 and 11 percent from sector 3.

Supply of poultry products to consumers

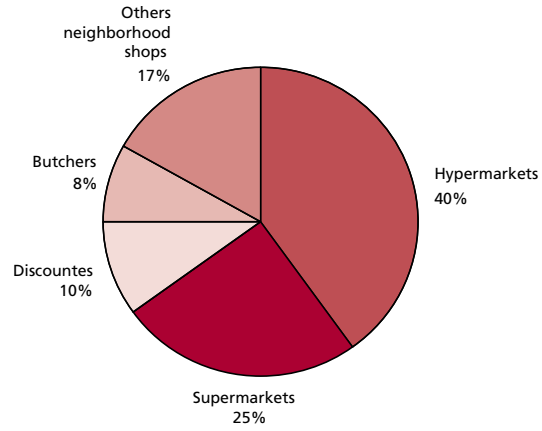
Major distribution networks supply the majority of consumers. These networks meet the growing demand for quality by distinguishing products on the basis of the Red Labels, which account for 30 percent of broiler sales in France. In the major distribution networks, Red Labels represent 60 percent of dressed-chicken sales and 20 percent of cut-part sales (which is 40 percent of total poultry sales) (Synalaf Web site).

As there is a growing demand for quality poultry products as opposed to industrial products, there is also a diversification of poultry supply channels competing with the

major distribution networks. Apart from the Red Labels, sector 3 farmers have developed direct sales through various means – local markets, producers' markets, farmers' shops and on-farm sales.

The number of local weekly markets has decreased in France, but they remain a key outlet for poultry sector 3. They allow for direct sales of dressed poultry, social contact and provide an attraction for tourists. Almost each district (canton) has at least one market day. There are thousands of markets, almost all held on a weekly basis. The producers' markets or shops have been developed by farmers to deliver their products directly to consumers.

FIGURE 3
Consumer supply modalities for poultry and rabbits (2002)



Source : FIA Web site (2006).

PHOTO 8
Red Label and "Jaune de Loué" chickens on sale

PHOTO: ERIC FERMET-QUINET

They are devoted to quality produce and only producers are allowed to sell. Direct sales on farm sites are mostly complementary to market sales.

Live poultry markets for sectors 3 and 4

Starters grow chicks of various species until they are four weeks old. There are some starters in each department, probably around 500 in France (DDSV survey). Some starters are large-scale operations and directly supply birds to Red Label, AB and AOC Bresse sector 3

PHOTO 9
Small live-poultry market in southwest France

PHOTO: CHRISTINE BUSSIERE

PHOTO 10
Live-poultry market in Bourg en Bresse

PHOTO: CHRISTINE BUSSIERE

farms. The majority of starters are small scale and mainly supply "farm poultry" sector 3 and sector 4 through live-poultry markets. Sector 4 and "farm poultry" sector 3 represent, respectively, 30–40 percent and 60 percent of their sales, and 60 percent and 10–15 percent of their clients (interviews with starters).

The weekly live-poultry markets are key elements of these production systems. They are under the responsibility of the communes and there are no statistics on them. The survey estimates that the average is four to five per department, with some departments having more than 100 (in the southwest). The activity of the live-poultry markets is seasonal (70 percent of the sales take place between March and July). The numbers of birds vary a lot – from hundreds to tens of thousands. It is possible to estimate that there are 1 000 live-poultry markets in France (DSV survey).

The live-poultry markets are an important social meeting point between consumers and poultry owners. Local live-poultry markets also play a role in regional tourism, especially in the southwest of France.

Processing poultry products from sectors 3 and 4

4 100 commercial poultry farms (17 percent) have an individual poultry-slaughtering structure (Itavi, 2004b). These farms are mainly sector 3, but are not Red Label farms, whose products must be slaughtered off the farm. The DDSV suggests that there are around 4 500 individual slaughtering structures in France. The discrepancy between the two figures may be a result of the fact that some "farm poultry" farms have not been included in the national statistics (those keeping between 100 and 500 head) while their individual slaughtering structures are recorded by DDSV.

PHOTO 11
The small slaughtering structure of a "farm poultry" farm

PHOTO: ERIC FERMET-QUINET

TABLE 7
Recorded prices of dressed poultry

	Major distribution				Direct sales		
	Standard	Red Label	AB	AOC	AB	AOC	"Farm poultry"
Price (€/kg)	2.98	5.77	9.67	16.7	7.5	8	6.5
Weight (kg)	1.2	1.6	1.6	1.6	2	2	2
Price (€/unit)	3.58	9.23	14.5	26.65	15	16	13

Source: field survey 2006 in Ain and Gers.

Price to consumers

The field survey results (Table 7) indicate that:

- the price paid by consumers directly reflects the length of growth and the quality of the poultry production;
- farm poultry appears to be very competitive because of direct sales and the absence of standardization; and
- direct sales are more efficient both for consumers and for farmers.

Employment and revenues of farmers

Fifty-three percent of the 24 500 commercial poultry farms in France belong to sector 3; these farms employ more than 25 000 full-time farmers. Seventy-five percent of the workforce in French poultry production is family based. Only 35 percent of poultry farms specialize only in poultry (more than 75 percent of their revenue). Poultry production represents less than 50 percent of the revenue for 80 percent of sector 3 farmers with an official quality sign (Agreste 2005, Itavi, 2004b).

Official data on sector 4 and sector 3 are scarce, except for the Red Labels. The majority of the following data come from the field survey. Taking into account the small number of interviews, these data may not be fully representative, but they show that there are differences among the subtypes of sectors 3 and 4 in terms of revenue.

The Gross Value Added (GVA) has been calculated for each subtype per head and per worker (full time). The histograms (Figures 4 and 5) show that the added values are higher for direct sales and for the most extensive production subtypes. The revenues of sector 4 owners selling poultry products usually vary between some tens and some hundreds euros per year.

The most extensive systems create more job opportunities with equivalent revenues than the intensive systems. The same is true for layers: both GVA and work per layer are 3.6 times higher for AB than for standard production (Itavi, 2006 data). The growth of sector 3 production systems seems less limited by the market demand than by the availability of qualified or motivated human resources. The revenues and the indirect and induced jobs provided by sector 4 have not been assessed in detail, but taking into account the estimated one million owners, 20 million birds and thousands of meetings, they should be quite important. A complementary study would be necessary to estimate the contribution of this sector in terms of indirect and induced jobs and services, food supply, social exchanges, etc in France.

FIGURE 4
Gross value added (€/bird)

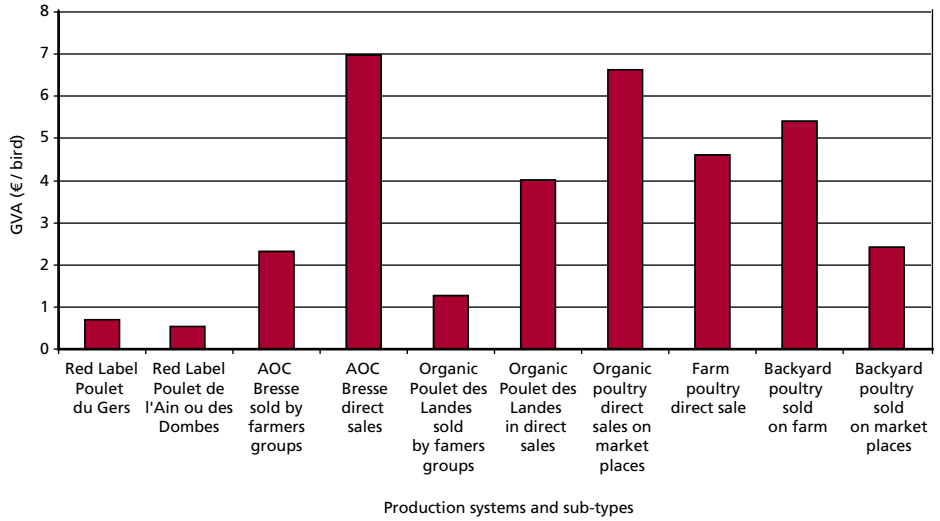
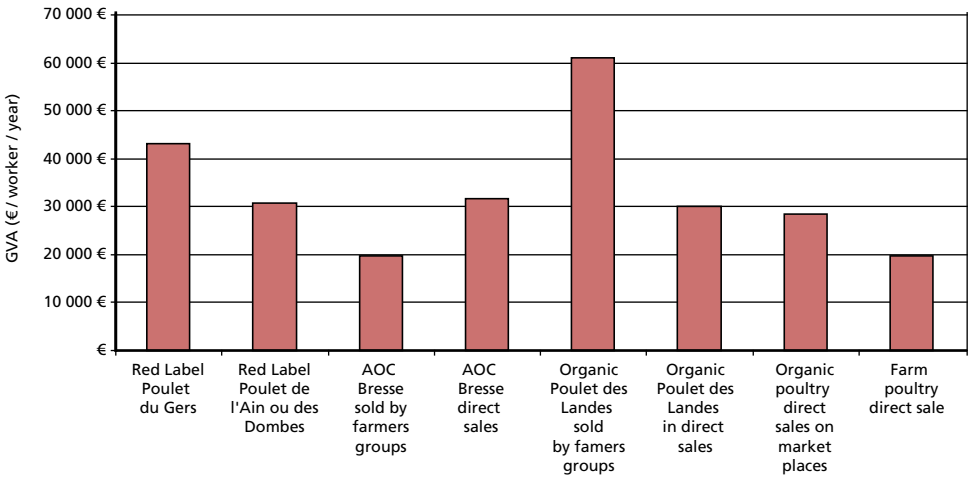


FIGURE 5
Gross value added (€/worker/year)



Conclusions

Sectors 3 and 4 would seem to represent almost a third of poultry meat consumption and a fifth of egg consumption in France. Economically, sector 3 seems to represent 15 percent of birds produced, 19 percent of poultry meat production (26 percent of national consumption) and 11 percent egg production and consumption.

To meet the demand for traditional and quality poultry products, sector 3 has diversified into 4 subtypes.

Each subtype of sector 3 has a particular strength:

- Red Labels have been able to supply the major distribution networks, thus limiting industrial poultry intensification.
- Organic poultry is a growing force – a trend that is unlikely to be undermined unless the organic sector loses the trust of the consumers through the overuse of industrialized production methods (problems of this kind have occurred in Germany).
- AOC Bresse is clearly oriented to meet a specific high standard of national or international demand for traditional poultry. At the same time, its restricted geographical area and small number of producers are a risk to its sustainability.
- "Farm poultry" is developing, based on a growing level of trust among consumers, which is based on direct sales rather than official standards. Its development is vulnerable to the increasing number of compulsory sanitary requirements.

Socially, sector 3 clearly allows for better use of human resources (more revenue per bird, more diverse employment for the farmers, greater diversity and flexibility); it thus creates more job opportunities for farmers, breeders and starters. Approximately 55 percent of poultry farmers are employed in this sector. It is important to state that while there is potential for sector 3 to create jobs and meet growing market demand for quality poultry products, agricultural policy is a key determinant of its development or its destruction.

Sector 4 might represent 3.5 percent of national poultry production (head), 6 percent of poultry meat consumption and 7 percent of egg consumption. Socially, sector 4 generates a higher rate of indirect service jobs per bird (feed, equipment, care, etc.) than other poultry sectors. It represents a strong social link between hundreds of thousands of people and more than 1 000 associations. Sector 4 also sustains 320 poultry breeds, out of which at least 68 are French native. It has, in the past, safeguarded genetic resources that have been used to develop sector 3 (e.g. Bresse and Gasconne).

These findings highlight the economic, social and environmental importance of sectors 3 and 4 in France. An extended socio-economic study could provide deeper and more detailed information.

Evidence indicates that risk analysis of poultry sectors 3 and 4 should be holistic and practical. Risk analysis should not be restricted to theoretical sanitary risks and administrative standards established for industrial poultry sectors. Sanitary risk analysis should aim to provide a realistic assessment of the risks associated with production subtypes that have few exchanges, short marketing channels, low stocking density and scattered production. Social, economic and ecological risks should be balanced when establishing standards or regulations so as to avoid the destruction of sectors 3 and 4 or adverse effects in terms of disease dissemination (non-compliance or dissimulation).

5. IMPACT OF AVIAN INFLUENZA REGULATIONS ON SECTORS 3 AND 4

Evolution of the avian influenza regulations in France

From February 2004 to October 2005, France established a surveillance system and forbade imports of poultry and poultry meat from Asia and from HPAI-infected countries elsewhere. In October 2005, after HPAI was detected in Europe, France made indoor feeding and watering obligatory for all poultry in the 95 departments. After the confirmation of a human case in Turkey in January 2006,

FIGURE 6
The 58 "at risk" departments in January 2006

Source: Agriculture Chamber of Ain 01.

58 departments were classified as "at risk". In 21 "at risk" departments, specific measures were imposed up to May 2006. Among backyard farmers (less than 100 head) poultry were confined without exception and live-bird markets were forbidden.

On 14 February 2006, a first case of H5N1 was confirmed in wild ducks in Dombes (Ain). The measures taken in the "at risk" departments were generalized throughout France, and zoo birds were vaccinated. Derogations varied depending on the departments. On 23 February, a case was suspected in a sector 2 turkey farm. The case was confirmed on 24 February and was followed by the immediate destruction of all 11 000 turkeys. On 24 February, mayors were required to undertake a census of all poultry owners, and vaccination was made compulsory in Landes, Vendée and Loire Atlantique for open-air ducks and geese (for which confinement was not possible).

In February and March 2006 areas of protection (3 km radius and 21 days) and surveillance (7 km radius and 31 days) were set up, and sanitary measures were progressively established. With several new cases of H5N1 infection being detected in wild birds in different locations, the areas subject to controls and the measures applied, were often changed and reinforced – causing confusion among farmers and consumers. There were periods during which bans were imposed on bird movements, poultry meat and egg sales and hunting, sometimes in overlapping areas. These measures were difficult to understand and to comply with. In theory, there were means to obtain derogations and permits, but this was almost impossible in practice. Information flow was weak and farmers could not make any forecasts with regard to their production.

In March 2006, more than 160 communes in Ain were in the surveillance area (more than 2 000 km^2) and 70 were in the protection area (more than 1 000 km^2). The majority of the 300 poultry farmers of Ain were affected, including AOC Bresse farmers (whose organization didn't even request an exception to confinement). Slaughtering in individual

structures was forbidden. A voluntary plan of slaughtering and compensation was offered by the state to the 170 farmers located in the protection area (1 000 000 birds), but nothing was offered to those in the surveillance area who had almost the same measures imposed on them. Only 34 farmers, a majority of them from sectors 1 and 2 and the Red Labels, accepted this plan (380 000 birds, of which 150 000 belonged to one producer). No alternative was established for those who suffered economic losses and refused to destroy their healthy flocks.

During April 2006 the affected areas progressively decreased and all measures ended in May, with the exception of 33 communes of the Dombes (wetland area of Ain) where the last measures of surveillance ended in July. The live-poultry markets in Ain were closed for eight months.

Impact of regulations on sectors 3 and 4

The following paragraphs describe the impact of the various HPAI control measures. This description is the based on the analysis of the interviews conducted with producers during the field survey. The information from the survey was not sufficient to derive an accurate estimate of the fall in demand for poultry products. From the interviews it became clear that the Red Labels had suffered losses equivalent to those suffered by sectors 1 and 2 and the biggest AB sold by the major distribution networks. AOC Bresse lost between 40 and 60 percent of its production during four months. The farmers operating on direct sales ("farm poultry" and majority of AB) suffered less because their clients tried to support them; some went directly to buy at the farm. The sector 4 owners did not suffer economically, but rather socially.

Farmers and owners were unable to resume activity immediately after the regulations were lifted – basically because of the lack of hatching eggs, day-old chicks and "started" four week-old poultry. The same regulations had applied to the local suppliers and they had stopped or decreased their activity.

Confinement

Confinement of traditional poultry breeds is difficult in sector 3. Except for the birds kept on the few intensive small-scale farms, the poultry kept in sector 3 have not been bred to tolerate high stocking densities, and they become aggressive with each other if they are confined. Problems were exacerbated by the fact that the birds were enclosed during the spring, a time when the lengthening period of daylight increases sexual activity and gives rise to aggressive behaviour. These problems particularly affected AOC Bresse, whose farmers suffered heavy losses (there were cases with 90 percent mortality, 60 percent injuries and a three-week increase in the growing period). To minimize such losses, many farmers were obliged to reduce the stocking density inside the buildings by half.

Owners of sector 4 poultry regarded confinement as impossible, and contrary to their production system. Many decided to slaughter, some confined birds in unused buildings or hid them from public view. Opposition to these measures varied greatly from department to department. There was little opposition in Ain where police forces were very active and denouncement was feared. There was much more opposition in Gers.

Confinement has a high impact on sectors 3 and 4: it is completely in conflict with production systems that are based on open-air growth. By March 2007, it seemed that theses

sectors had more or less recovered their levels of activity. However, prolongation or renewal of such measure could definitely be harmful.

Control of poultry movement

Poultry movement was controlled for several weeks, or even months, in the surveillance and protection areas in the Dombes. As they were all from the same department, local breeders and starters could not supply local farmers or owners, and many of them had to stop their activity. When the measures ended, there was a shortage of chicks and "started poultry", and sector 3 farmers could only restart their production after a delay of some weeks.

Prohibition of the sale of poultry products

Farmers in the protection areas were forbidden to sell poultry products. As well as the loss of production, this prohibition started to undermine consumers' trust in the safety of directly-sold poultry products. Confusion increased about the possibility of an HPAI pandemic. Farmers who were selling poultry on the market were questioned. Because of the slow flow of information, some didn't really know whether their area was affected or not.

Prohibition of the use of on-farm slaughtering structures

Poultry slaughter was permitted only in accredited slaughterhouses with a preliminary sanitary visit to the farm. This was rarely possible because few owners of loco-regional slaughtering points and very few veterinarians were available. Moreover, this measure could have increased the sanitary risk arising from the transportation of live poultry. The prohibition of the use of sector 3 farm slaughtering points, thus, made slaughter almost impossible for sector 3 farmers.

Prohibition of live-poultry markets and competitions

In Ain, the prohibition of live-poultry markets for eight months was extremely harmful for sector 4 and the starters. The sector 4 backyard owners could not renew their stock in spring. Many starters had difficulties resuming activity, even outside Ain.

In Gers, where prohibition was less strictly enforced, its effects were obviously less serious, and despite confinement the owners were more easily able to resume their activity. The prohibition of competition was difficult for the competitive breeders, as competitions are the basis of their social networks and their breeding activity. It seems that their passion for their activity permitted them to survive the difficult period, but renewing such measures could be very harmful for biodiversity.

Vaccination against avian influenza in Landes

Vaccination was authorized in February 2006 for the free-range ducks and geese of the wetland areas of Landes, Vendée and Loire Atlantique. Only the Landes farmers decided to vaccinate; the other regions refused, fearing a ban on the part of importing countries. Difficulties occurred during implementation and many of the farmers' and veterinarians' questions remained officially unanswered. Finally, around 500 000 ducks on 150 farms were vaccinated. Sector 3 farmers making direct sales refused vaccination because their clients refused to eat vaccinated birds. Sector 4 owners were not authorized to vaccinate; for them confinement was compulsory without exception.

The consequences of vaccination were negative for the farmers who accepted it. The importers refused their products; the impact is still being felt – one year later importers and consumers still check whether or not the products are coming from a vaccinated farm. The Landes farmers do not wish to repeat the experience.

It is interesting to note that the behaviour of local consumers, even those used to direct sales, has been influenced by the behaviour of importing countries with respect to vaccination. A ban on the import of vaccinated poultry is understandable for epidemiological reasons, but the risk associated with consuming processed products from vaccinated poultry is non existent.

The ban on vaccination in sector 4 was established mainly for logistical and financial reasons. It had two opposing effects. On one hand it encouraged the feeling that vaccinations were unsafe and the image of "cleaner and safer" sector 4 poultry products. On the other hand, it was harmful to sector 4 because of the effects of compulsory confinement.

Budgetary support and compensation

Only sampling for veterinary diagnosis was subsidized equally for all poultry owners. Budgetary support or compensation measures were established for delayed sales or for voluntary culling. However, all sector 4 farms (less than 100 poultry) were excluded from any other financial support or compensation. Furthermore, in the protection areas of Ain, compensation was apparently allocated only to poultry farmers with more than 200m^2 of building and more than 1 000 chickens or turkeys, 500 guinea fowl or pigeons, 200 ducks or 20 geese. Finally, compensation measures were so complicated that only producers from sectors 1 and 2 and Red Labels applied for the "voluntary culling" compensation.

Conclusions

Sanitary measures were efficient and stopped the spread of the disease. But the concerns of sector 3 and 4 stakeholders were not really taken into consideration. They were considered de facto more "at risk", without real knowledge of their specific characteristics and diversity. Some measures even appeared to be discriminatory. Finally, it can be concluded that all these measures would be very harmful for sectors 3 and 4 if they had to be maintained for a longer period or renewed seasonally.

6. DEVELOPMENT OF SECTORS 3 AND 4 IN FRANCE IN THE HPAI CONTEXT

The 2006 HPAI episode in France was very difficult for sectors 3 and 4. As HPAI remains a worldwide threat, the development of sectors 3 and 4 in France is at risk if their specific needs are not taken into consideration in the formulation of HPAI-related policies.

Four steps need to be considered to minimize the risk and, thus, to protect and develop these sectors:

- development of positive information about sectors 3 and 4;
- reassessment of the sanitary risk associated with sectors 3 and 4;
- adaptation of HPAI-related sanitary regulations and protective measures for sector 3 and 4; and
- establishment of enabling development policies for sectors 3 and 4 by the agriculture authorities.

Developing positive information about sector 3 and 4

There is a great gap between the real importance of sectors 3 and 4 in France and the perceptions prevalent in agriculture institutions. For many consumers, farmers and citizens, sectors 3 and 4 represent an important economic and social activity. More importantly, sectors 3 and 4 represent an example of a credible alternative to industrial agriculture, providing quality, traceability, renewal of contact with producers, and respect for the environment and animal welfare. From the social perspective, it is clearly recognized as a symbol of typical French values – recognizing cultural diversity, and escaping uniformity and globalization (opinions expressed during field interviews).

For the majority of the institutional agricultural authorities (interviews), sector 3 represents, at best, a diversification strategy for the industrial poultry sector (Red Labels) or a niche market (AB and AOC Bresse). Sector 3 "without official quality sign" and sector 4 were almost completely ignored before the HPAI outbreaks, and are now considered to be a major problem in the context of HPAI control.

To reconcile opinions, it is necessary to draw attention to some (roughly estimated) statistics. In France, poultry sectors 3 and 4 represent approximately:

- a third of current poultry population and a fifth of the birds produced;
- a quarter of poultry meat production and a fifth of egg production; and
- a third of poultry meat consumption and a fifth of egg consumption.

Almost half of this is accounted for by the Red Labels (more than 10 percent of national poultry production). The diversification provided by sectors 3 and 4 protects the French consumption market from foreign imports, on the basis of better-quality products, fewer environmental side-effects and better employment rates.

Demand for organic poultry (AB) is steadily increasing, with France experiencing greater growth than other European countries. But it has no special French character and its reputation could be damaged by too much industrialization and uniformity. For this reason, AB has begun to create links with the Red Labels.

AOC Bresse is a very high standard that gives France its worldwide reputation for excellence in traditional poultry production. The system cannot be extended very much because of its particularity, but better promotion and protection could be established to increase its esteem.

The "farm poultry" subtype of sector 3 is growing, but remains undervalued. This system produces better quality (opinions expressed by consumers interviewed during field surveys) poultry than the Red Labels, without the costly official standard restrictions of AB and AOC. It is mainly devoted to supplying local markets through direct sales.

One million families (2.5 million people) own more than 20 million sector 4 poultry. This represents around 6 percent of French poultry-meat consumption and 7 percent of egg consumption. Backyard and hobby breeders also guarantee the unique biodiversity of 65 French poultry breeds and more than 250 world breeds. They represent hundreds of associations, and thousands of meetings every year. The real economic importance (food, revenue and induced jobs), the deep social links (meetings, markets and competitions) and the major contribution of sector 4 to biodiversity should no longer be ignored. In the light of these figures, the agricultural authorities need to change their outlook about the importance of sector 3 and 4 at all economic, social and environmental levels.

It was very clear from the survey that the authorities had a strong negative image of sector 4: they considered it to be a problem and a useless unproductive hobby. In fact, they knew very little about it, and their references were classically administrative and oriented towards "industrial biosecurity". Many veterinary staff advocate a more pragmatic and realistic approach where smallholders are concerned (interviews conducted during the field survey).

Change would be easier if farmers and owners were organized, which is the case for labels AB and AOC, but not for the "farm poultry" subtype of sector 3 or for the backyard owners of sector 4. A first step would be to include them in the statistics and to recognize their economic value (diversification and employment), social value (employment, social links, cultural and culinary significance) and their environmental value (biodiversity, by-products such as feathers, multifunctionality and low levels of pollution).

Reassessment of the sanitary risk associated with sectors 3 and 4

The risk of contamination by wild birds has been highlighted as a major concern for sectors 3 and 4. However, the risk is mainly limited to outdoor watering and feeding of poultry alongside wild birds during the cold season, rather than being associated with open-air poultry farming *per se.* Aquatic wild birds tend not to come close to human households in rural areas.

The risk of HPAI spreading in sectors 3 and 4 has been considered to be high because of a lack of so-called biosecurity measures. However, it should be recognized that the disease spreads either through exchanges between poultry or between humans. In France, sector 3 and sector 4 poultry holdings are scattered and there are few interactions between them. Moreover, the limited number of poultry per farm would hinder the spread of the disease in the event of an outbreak. Should a flock become infected, there is a good chance that the disease would be contained on the farm as a result of the vigilance of the farmers or owners (if well informed) and the small numbers of birds.

The risk of spreading disease into sectors 1 and 2 via contamination of sectors 3 and 4 by wild birds has been mentioned as a threat by international experts (interviews and meetings). In France, the contact between these sectors is rare, except in the case of Red Label production. This situation is quite different in countries where all sectors (especially sectors 1 and 2) have poor biosecurity and are mixed together, which leads to an almost enzootic HPAI situation (e.g. Viet Nam, Egypt or Nigeria).

It has also been considered that an uncontrolled marketing system – both in live-poultry and consumer markets – contributes to the risk of disseminating the disease. However, little attention has been given to the fact that these markets are delivering almost exclusively to local farmers and consumers. Usually, sector 3 and 4 breeders, farmers and consumers buy and sell within their local department. Very few live-poultry markets supply farmers in other departments.

Except for the Red Labels and some of the biggest organic farms, the majority of sector 3 farms produce around 5 000 head per year, are scattered in rural areas, slaughter birds on the farm, sell in local markets or from the farm, and are supplied by local breeders. The few sector 3 farmers who deliver their products to national or international markets, have the highest quality standards in the poultry sector (AOC Bresse, fattening ducks and geese).

All these facts are even more evident in sector 4, where the huge majority of poultry is consumed at home, with the rest being sold from the farm.

Risk analysis has to be reassessed. The risk of contamination and spread of HPAI is much lower in sectors 3 and 4 in France than has been assumed. The biosecurity of sectors 3 and 4 does not rely on the measures applicable in sectors 1 and 2, but on lower density, smaller flock sizes, fewer areas of exchange, more quality control and more human resources.

Adaptation of sanitary regulations and protective measures for sectors 3 and 4 in France

As described above, the sanitary regulations in France were established on the basis of a biased risk assessment of poultry sectors 3 and 4. This led to incredible difficulties for sector 3 and 4 producers – the measures were clearly detrimental and discriminatory. Appropriate HPAI-related sanitary regulations could, however, be developed for these sectors. The following paragraphs outline some of the steps that could be taken.

Confinement

Confinement is the most detrimental measure for sector 3 and 4: in the short term it leads to massive losses; and if imposed for a lengthy period it would lead to the destruction of these production systems. Confinement should be abandoned as a universal measure.

Contamination by wild birds would need either close contact with poultry or transmission via faeces. Both are avoidable if feeding and watering are not done in the open air. Sheltering feed and water supplies and protecting water surfaces are quite effective means to avoid contamination.

Confinement might be applicable in exceptional situations for a short period of time – in contaminated areas or when protection of watering areas is impossible and infection of wild birds is strongly suspected.

Control of poultry movement and live-poultry markets

A complete and lengthy ban on the movement of poultry and on live-poultry markets would kill the development of sector 3 and 4. It is not acceptable as a routine, primary or universal regulation. Once again, risk analysis could be refined. It can easily be understood that movement and sales of live poultry from farmer to farmer should be banned during an outbreak, as should poultry exhibitions – because they involve too many people coming from long distances. It is in the overall interest of these farmers and owners to avoid the spread of the disease.

It should also be borne in mind that the risk of "local breeders" ("starters") spreading the disease to the flocks kept by local sector 3 and sector 4 farmers is low. These "starters" should be identified and controlled and then authorized to supply their sector 3 clients. The "starters" should also be authorized to supply sector 4 through controlled live-poultry markets. A set of regulations regarding identification, transport, storage and sales could be established. Regulations should be carefully timed – taking account of the evolution of the epizootic – and be as limited as possible in time and space.

Prohibition of the sale of poultry products and of farm slaughtering

The prohibition of the sale of poultry products is a threat to poultry consumption. It contradicts the reassuring message that "poultry consumption is not risky". The prohibition of the use of farm slaughtering structures and the designation of specific accredited points for slaughtering is also problematic – it increases the risk of contamination through the movement of live poultry and of workers who handle poultry.

Instead of a ban, slaughtering at farm level should be authorized with relevant information to farmers about necropsy and about protective measures to be used during slaughtering, defeathering, evisceration, etc.

Instead of a ban, sales of slaughtered poultry from the surveillance area should be authorized with some protective measures during transport (clean cool boxes). A ban of "on-farm" sales in the protection areas should only be necessary as a means to restrict human movement in a contaminated area and must be explained as such.

Vaccination against avian influenza

The side-effects of vaccination are mainly a result of confusion between epidemiological risk and food-safety risk. Consumers should be clearly informed that consuming vaccinated poultry presents no risk. Clear information should be given to farmers about the advantages of vaccination and on its negative implications for exports. They should also be given information about culling in the event of an outbreak or the suspicion of an outbreak.

Vaccination, if authorized in a given area, should be permitted for all poultry without discrimination – specifically including sector 4. In the event of an outbreak, the vaccination of local poultry breeds should be a priority in order to protect biodiversity; this has been proposed by many owners' associations (e.g. FFV).

Such measures could lead to better relationships between the poultry owners and the public veterinary administration, with mandated private veterinarians functioning as a link to the municipal authorities.

Compensation

The compensation measures implemented during the HPAI outbreak were clearly discriminatory against small-scale sector 3 and 4 farmers. Moreover, it did not take into consideration the losses experienced by farmers in the surveillance zones, the losses experienced by starters, or the lost production caused by a lack of chicks and started chickens after the lifting of the bans.

All poultry owners affected should be sure that their losses will be compensated without discrimination. This is a key prerequisite for an accurate census in an area where an outbreak is suspected. It also encourages the authorities to carefully monitor their regulations and to take account of the public funds they will spend. It must be recalled that compensation for the destruction of private property or assets for the general good is enforced by the French Citizen and Human Rights Declaration.

New set of regulations in 2007

Despite the side-effects of the regulations established in 2006, very little consideration has been given to sectors 3 and 4 in the regulations being prepared for 2007. It has not been

possible to obtain official information, but it appears that the agriculture authorities were still trying to enforce biosecurity only in an industrial manner (e.g. through the improvement of buildings).

Furthermore, the so-called "sanitary package" based on new European Union (EU) food-safety regulations, if applied in the same technocratic way, would dramatically increase the compulsory investment in farm-slaughtering sites. The direct consequence will be the closure of the smallest poultry farms and difficulties for the marketing circuit of quality sector 3 poultry. Supposedly a means to promote food safety and to allow these slaughtering structures to become part of the major distribution networks, the regulations will impose useless restrictions on farmers, few of whom desire to enter the major distribution networks, preferring direct sales. What are the food-safety problems or epidemics that warrant these measures? On what has the need to improve food-safety measures at farm level been based? It does not appear that they are justified by facts or complaints, but they are rather driven by an industrial and technocratic way of thinking.

In July 2007, after the contamination of wild birds in Moselle, the measures still do not take the reality of sectors 3 and 4 sufficiently into consideration. The confinement of poultry has been implemented across the whole territory except for "open air" systems (subject to a monthly sanitary visit); sector 4 poultry are still required to be confined and live-bird markets and competitions are prohibited. The measures could have been more limited in time and space, rather than extended to the whole territory. As a consequence, many French poultry owners now refuse to confine their birds, a practice that they consider useless and unfair. The growing concerns of sectors 3 and 4 farmers are expressed by new international poultry coordination (ERPA, EEAC) and producers' associations.

All these new regulations should be reconsidered in the light of a real analysis of risk and overall biosecurity. Moreover, information and consultation with consumers and sector 3 and 4 farmers is still inadequate, sometimes even non-existent. If sectors 3 and 4, are not given due consideration, there is a risk that the efficiency of the regulations will be reduced and that there will be problems with compliance.

7. CONCLUSION

The HPAI crisis in France emphasized the importance of sectors 3 and 4, which account roughly for a third of the current poultry population, a fifth of poultry production, a third of poultry-meat consumption and a fifth of egg consumption. Before the outbreak, the 1 million owners and 20 million poultry of sector 4 were, at best, ignored. During the outbreak, farmers and owners felt that there was ignorance and discrimination on the part of the agricultural authorities, who did not recognize the importance of sectors 3 and 4. This feeling was reinforced by the lack of accurate and up-to-date information. The representatives of sector 3 kept quiet until the farmers' voices became loud. The regulations were clearly detrimental to sectors 3 and 4. The pressure from the industrial poultry sector was clear. At one point "spontaneous" interviews showed consumers saying "before HPAI I bought organic poultry, now I want safe industrial poultry products". At the same time, some "poultry specialists" stated that "we hope that now people will understand how good the industrial poultry is and how outdated traditional production has become."

The 2006 episode led to a strong division between the agricultural authorities and the rural communities. One million owners who were sure of the quality of their poultry – obviously neither sick, contaminated nor threatening – made millions of French people aware. Traditional poultry is entrenched in French culture.

The control measures imposed in July 2007, after the contamination of wild birds in Moselle, indicate that the reality of sectors 3 and 4 is still not adequately taken into consideration.

To be positive, it can be said that the strength of the regulations has enabled France to avoid the spread of HPAI and has contributed to the protection of all poultry sectors. One year after the outbreak, it appears that Sectors 3 and 4 recovered quite quickly, with the exception of some "starters" who have abandoned their activity. However, if such regulations were to be applied regularly on a long-term basis because of yearly epizootic events, they would drastically harm sectors 3 and 4.

The new "sanitary package" of EU regulations is a further threat. If enforced, it would impose additional restrictions on the existing 4 500 on-farm slaughtering structures, and would be detrimental to all sector 3 farmers who make direct sales.

Comprehensive information about the economic, environmental, social and cultural importance of French sectors 3 and 4 should be obtained. This information can only come from farmers' and owners' associations, but could be supported by public policy. It should both reach the public and influence the agricultural authorities and technicians. It can be assumed that there is a positive link between the importance, the diversity and the quality of traditional poultry production and the international development of the French poultry industry. The French poultry industry has been built on this reputation and still uses it to protect the internal market and develop exports (Web sites of Synalaf, FFV, CIVB).

Risk must be reassessed. It should consider the overall context of sectors 3 and 4 and not be seen only through the angle of industrial biosecurity. Risk to sectors 3 and 4 from HPAI is much lower than previously estimated. Risk to food safety is almost non-existent and cannot justify the new regulations imposed on farm slaughtering through the pretext of the EU "sanitary package". Finally, the HPAI-related regulations and protective measures could be adapted, refined and made non-discriminatory. The French veterinary services rely on a good network of private veterinarians, who may be linked to communal authorities and poultry associations. Such involvement could be promoted.

French sector 4 protects biodiversity, produces quality products and creates small income for one million families. French sector 3 shows that traditional poultry can reach the highest international quality standards (AOC Bresse), be competitive in the major distribution networks (Red Labels), promote sustainable local development and job opportunities ("farm poultry") and utilize biodiversity.

France also shows that sectors 3 and 4 can be an interesting and alternative model of poultry development even for a developed country, limiting the side-effects of intensification in the poultry industry, providing more job opportunities and economic added-value, and clearly demonstrating that quality and culture are an essential part of human food supply.

All these facts are relevant to poultry development in many developing countries, as agriculture authorities still often think that traditional poultry is old fashioned, unsustain-

able, unable to feed cities, or a threat for industrial poultry sectors. By publicising the fact that a highly developed country raises large numbers of traditional poultry, FAO will hopefully contribute to making policy-makers better informed.

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Club Français des Combattants du Nord: http://perso.orange.fr/gallodrome/club.htm

Agence Française d'Agriculture Biologique: www.agencebio.fr

LIST OF ACRONYMS AND GLOSSARY

AFFSA: Agence Française de Sécurité Sanitaire
AOC: Appellation d'origine contrôlée (Product of Certified Origin)
AFIVOL: Association régionale Filière Volailles Rhône Alpes
APVF: Association de Promotion de la Volaille Française
AVEC: Agriculteurs en Vente Collective
AVIGERS: Association Avicole du Gers (label rouge)
CIVB: Comité Interprofessionnel de la Volaille de Bresse
CFCN: Club Français des Combattants du Nord
DGAL: Direction Générale de l'Alimentation
DDSV: Direction Départementale des Services Vétérinaires
EEAC: Entente Européenne d'Aviculture et de Cuniculture
ERPA: Association Européenne des Volailles Rurale
FCF: Fédération Colombophile Française
FIA: Fédération des Industriels de l'Aviculture.
FFV: Fédération Française de la Volaille
GVA: gross value added
INAO: Institut National des Appellations d'Origine
INRA: Institut National de la Recherche Agronomique
INSEE: Institut National de Statistiques et Etudes Economiques
ITAVI: Institut Technique de l'Aviculture

MA: Ministère de l'Agriculture
OFIVAL: Office Interprofessionnel des Viandes et de l'Elevage
PGI: Protected Geographical Indication
SCAF: Société centrale avicole française
SCEES: Service Central d'Enquêtes et Etudes Statistiques
SNC: Société Nationale de Colombiculture
SYNALAF: Syndicat National des Labels Avicoles Français

"fermier": official European label for poultry production systems that accept some limits to intensification so as to be similar to traditional poultry production.
"poulet fermier": see fermier
"starters": specialized breeders providing four-week old young poultry to farmers
"volaille de ferme": name given by poultry farmers who have no official signs of quality, but consider that they are producing and marketing poultry in the real traditional way.
"volaille fermière": see "fermier"