

Poultry sector country review



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This review is based on the following report:
The Structure and Importance of the Commercial and Village
based Poultry Systems in the Kingdom of Saudi Arabia

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Foreword

The unprecedented widespread outbreaks of Highly Pathogenic Avian Influenza (HPAI) that occurred in many countries in Asia, Europe and Africa since 2003 have been asking for rapid and active response on a national, regional and international level. The HPAI crisis had to be addressed worldwide at the source, which is the poultry population.

The main danger of this disease, like others, lies in the way in which humans interact with and handle the production, distribution, processing and marketing of live poultry and poultry products. The direct and indirect socio-cultural and economic impacts of disease outbreaks influence policy measures and disturb markets, causing the loss of assets. There are strong negative impacts on the livelihoods of rural communities for all producer groups including small holders. Assessment and guidance on measures along the poultry chain for a safe poultry production is therefore of great importance. Specific consideration should be given to strategies and measures that ensure a sustainable pro poor supporting approach and development.

Better understanding of the specific situations of the different poultry sectors and the related market chains will help to develop appropriate disease control measures and improve biosecurity.

This review is part of a series of Country Reviews that are commissioned by the Animal Production Service (AGAP) of the Food and Agriculture Organization of the United Nations (FAO) for the Socio-Economics, Production & Biodiversity Unit of the Emergency Centre for Transboundary Animal Disease of FAO (ECTAD).

This review is intended as a resource document for those seeking information on the poultry sector at national level. It is not exhaustive. Some topics are only partially covered or not covered at all and the document will be supplemented and updated on an ongoing basis. Contributions and feedback are welcome by the author(s), FAO/AGAP and FAO/ECTAD Socio-Economics, Production & Biodiversity Unit¹.

The original report by Mohamed A. Shuaib was edited by Ms Jenny Schwarz in September 2008 and has been supplemented with data from the FAO statistical database (FAOSTAT), the World Bank and the United Nations Population Division.

¹ For more information visit the FAO website at: www.fao.org/avianflu/en/farmingsystems.html or contact either Philippe Ankers or Olaf Thieme, Animal Production Officers Email: Philippe.Ankers@fao.org and Olaf.Thieme@fao.org Food and Agriculture Organisation, Animal Health and Production, Viale delle Terme di Caracalla, 00153 Rome, Italy

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Acronyms and abbreviations

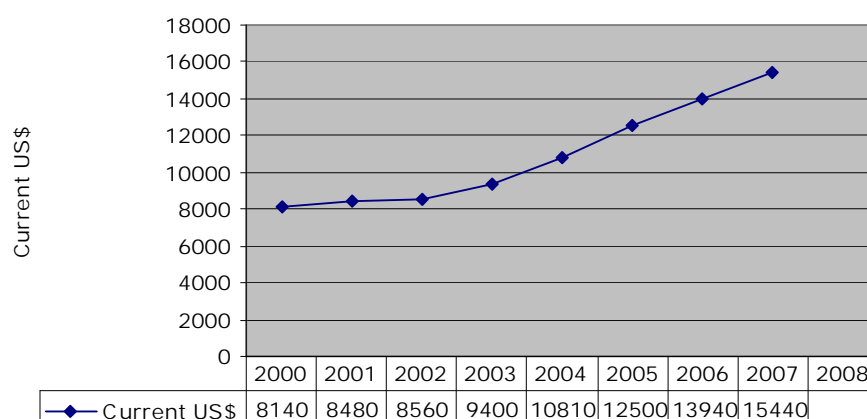
ARD	Department of Animal Resources (Ministry of Agriculture)
BGPS	Broiler grandparent stock
D.O.C.	One Day Old Chick
ECTAD	Emergency Centre for Transboundary Animal Disease
FAO	Food and Agriculture Organization
FCR	Feed Conversion Ratio
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
GNP	Gross National Product
GPSE	Grandparent stock
H	Hijri calendar, Islamic Year
HDI	Human development index
HPAI	High Pathogenic Avian Influenza
K.S.A.	Kingdom of Saudi Arabia
PS	Parent stock
SAR	Saudi Riyal, approx. 1 Saudi Riyal = 0.26682 US Dollar approx. 1 US Dollar = 3.74789 Saudi Riyal

Chapter 1

The country in brief

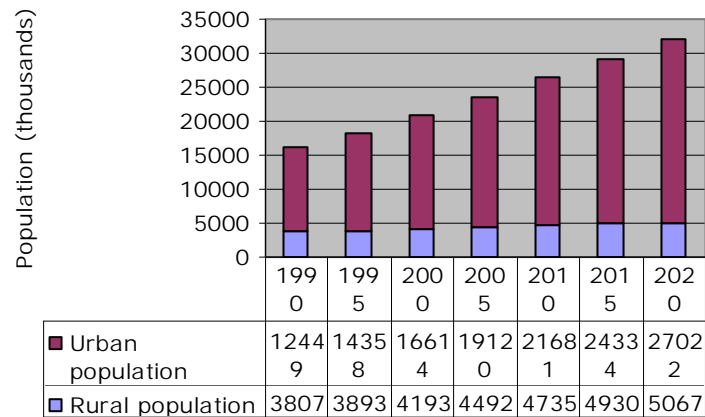
Country:	Kingdom of Saudi Arabia		
Location:	Middle East, bordering the Persian Gulf and the Red Sea, north of Yemen		
Population, total	24,195,950 (2007)	Source:	World Bank, September 2008
Population, growth rate:	2% (2007)	Source:	World Bank, September 2008
Economy group:	High income	Source:	World Bank, September 2008

FIGURE 1: Gross national income (GNI) per capita
(Atlas method, current US\$)



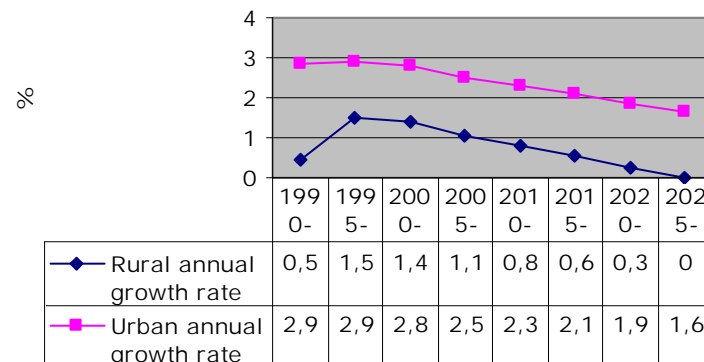
Source: The World Bank Group World Development Indicators, September 2008

FIGURE 2: Demographic profile



Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2006 Revision and World Urbanization Prospects: The 2007 Revision, <http://esa.un.org/unup>, September 2008

FIGURE 3: Annual population growth rates

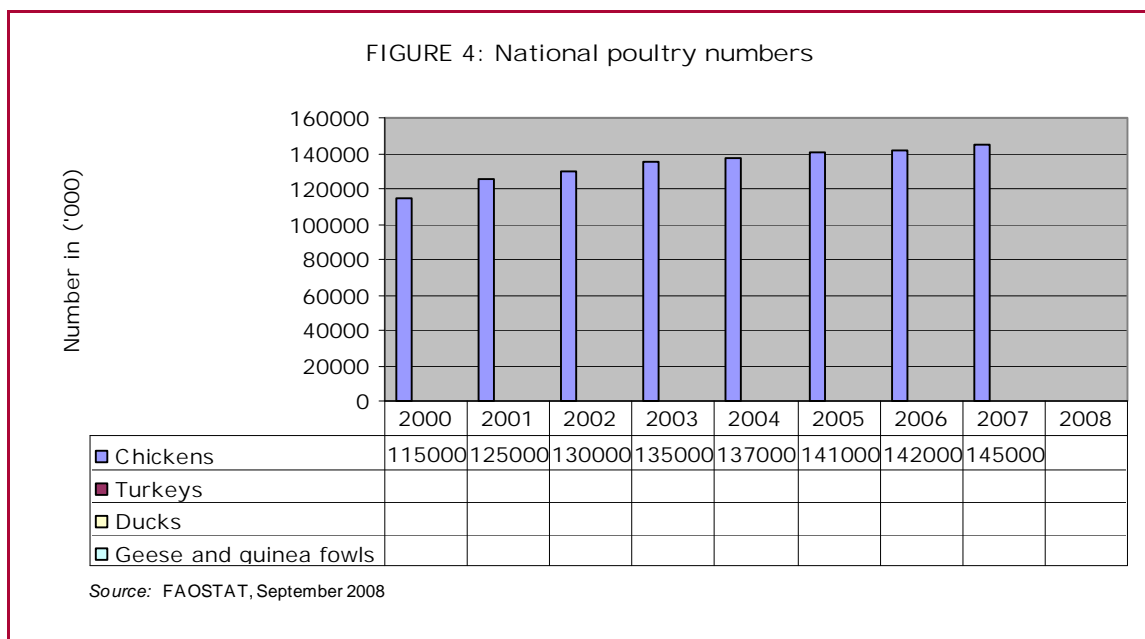


Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2006 Revision and World Urbanization Prospects: The 2007 Revision, <http://esa.un.org/unup>, September 2008

Chapter 2

Profile of the poultry sector

2.1 NATIONAL POULTRY FLOCK



2.2 GEOGRAPHICAL DISTRIBUTION OF POULTRY FLOCKS

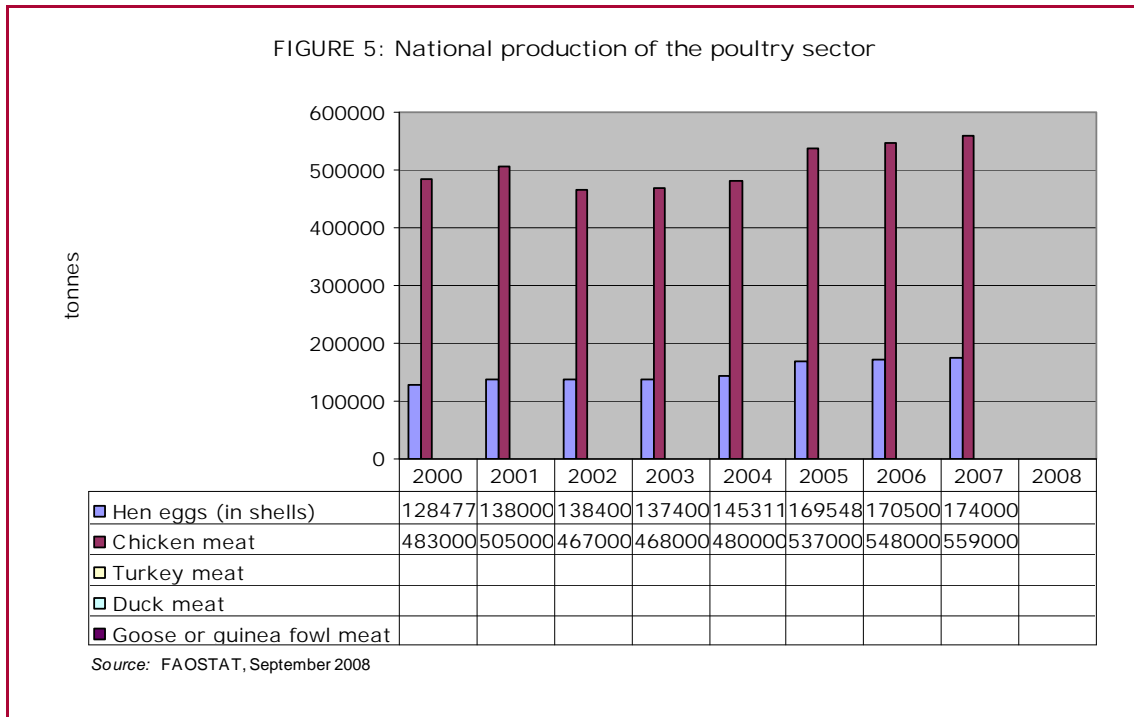
TABLE 1:
Distribution of poultry (in heads)

Regions	2002	2003	2004	2005	2006
Aseer	44,299,935	33,678,639	48,353,709	43,809,838	47,294,520
Baha	1,735,805	8,613,551	8,650,700	5,711,259	6,817,388
Eastern	26,824,746	24,390,814	25,265,312	38,011,151	27,892,470
Hail	11,833,541	10,472,668	14,046,860	22,032,226	19,518,329
Jazan	2,377,070	2,446,690	2,567,994	2,681,748	4,138,891
Jouf	1,324,986	1,462,617	1,320,309	2,791,227	2,183,928
Madina	6,073,501	6,419,096	7,180,204	9,723,885	11,531,350
Makkah	103,343,709	114,464,673	156,589,369	168,690,268	185,874,804
Najran	4,075,052	3,398,600	5,500,679	6,416,343	3,686,737
Northern	708,555	625,568	900,583	900,554	150,070
Qassim	139,790,369	146,104,957	135,846,568	135,754,709	134,679,105
Riyadh	78,255,181	68,115,415	65,556,730	94,283,198	83,320,091
Tabouk	3,955,138	4,220,235	2,998,870	5,175,383	4,788,128
Total	424,597,588	424,413,523	474,777,887	535,981,789	531,875,811

Source: Agriculture Statistical Year Books 2002 – 2006

2.3 PRODUCTION

The poultry production sector in Saudi Arabia has an estimated production value of wholesale price of more than SAR 4.4 billion (11). It therefore ranks probably as second in the Kingdom, with sheep production being the first.



2.4 CONSUMPTION

Poultry meat consumption per capita per year increased from 28.6 kg in the period 1996 - 1998 to reach 37.7 kg in 2000 - 2004. In this latter period, imports mainly from Brazil and France amounted to 364,971 tons while exports reached 17,913 tons leaving a net total supply of 832,725 tons for consumption. The consumption of chicken meat in the Kingdom ranks among the highest in the world and is still slowly increasing (14). Poultry meat is the main meat consumed on a weight basis (12).

Figure 6.a: Consumption of poultry meat

Detailed information has not yet been sourced.

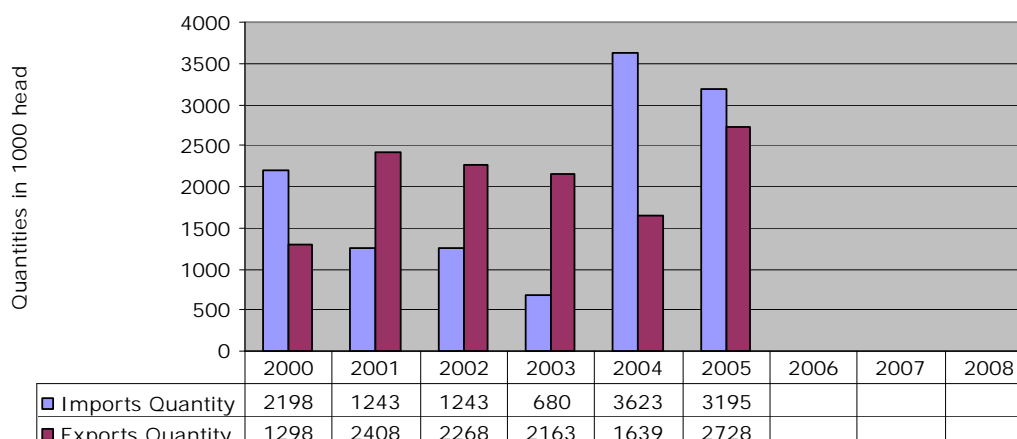
The average annual egg consumption per capita has declined from 6.3 kg in 1976 -1977 to 5.9 kg for the period 2002 - 2004 (13).

Figure 6.b: Consumption of eggs

Detailed information has not yet been sourced.

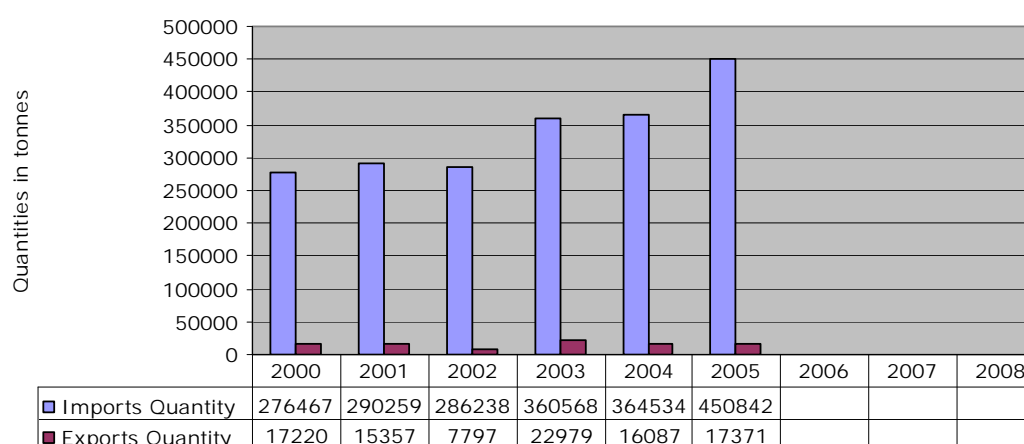
2.5 TRADE

FIGURE 7.a: Import/Export of live chickens (up to 185 g. only)



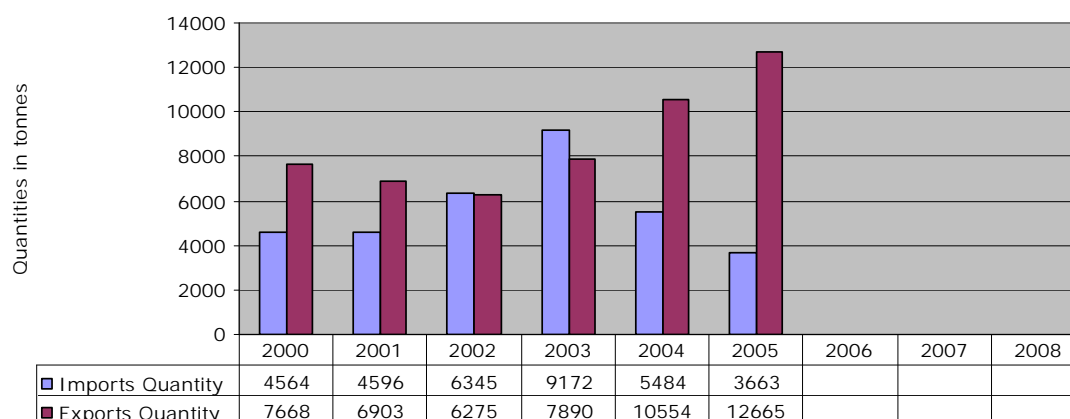
Source: FAOSTAT, September 2008

FIGURE 7.b: Import/Export of chicken meat



Source: FAOSTAT, September 2008

FIGURE 7.c: Import/Export of hen eggs (with shells)



Source: FAOSTAT, September 2008

The consultant provides figures which differ from the ones available from FAOSTAT (table eggs?, hatching eggs?) for the period 2002 to 2006 although information on poultry meat imports are very similar

TABLE 2:
Egg and broiler meat imports to the K.S.A. (in 1000 tons)

Year	2002	2003	2004	2005	2006
Eggs	3.02	3.91	3.21	9.4	25.1
Meat	278	336	348	433	387

Source: Poultry Industry in K.S.A. (2006), Agriculture Statistical Year Book (2007)

Figure 7.d: Import/Export of poultry feed and feed ingredients (maize, soybeans)

Detailed information has not yet been sourced.

2.6 PRICES

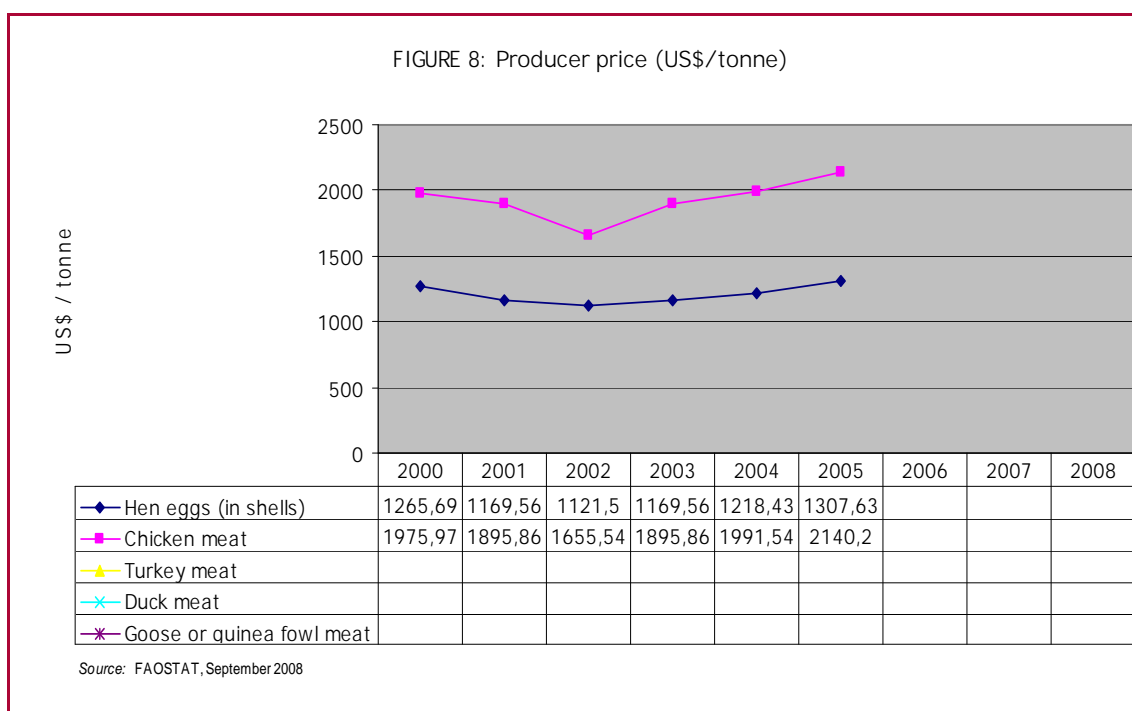


Figure 9 Consumer price (US\$/tonne)

See below for information in SAR/kg

TABLE 3:
Wholesale and Retail Price of Broiler Meat (kg) and Table Eggs (in SAR)
and Price Indices (%)

Year	Item	Wholesale price	Retail price	Difference	Difference (%)	Wholesale price index	Retail price index
2002	Meat	7.0	8.1	1.1	15.7	95.2	95.3
	Eggs	7.3	8.4	1.1	15.1	102.8	98.8
2003	Meat	7.1	8.2	1.1	15.5	96.6	96.5
	Eggs	7.3	8.4	1.1	15.1	102.8	98.8
2004	Meat	7.1	8.2	1.1	15.5	96.6	96.5
	Eggs	7.3	8.4	1.1	15.1	102.8	98.8
2005	Meat	7.2	8.3	1.1	15.3	98	97.6
	Eggs	8.2	9.6	1.4	17.1	115.5	112.9
2006	Meat	7.3	8.6	1.3	17.8	96	101.2
	Eggs	8.2	9.6	1.4	17.1	103	104

Source: Ministry of Agriculture Marketing Department

See Appendix III for detailed information on the evolution of wholesale and retail price of poultry products.

Chapter 3

Poultry production systems

TABLE 4:
FAO classification of poultry production systems

Sectors FAO/definition	Poultry production systems			
	Industrial and integrated	Commercial		Village or backyard
		Bio-security		
		High	Low	
Sector 1	Sector 2	Sector 3	Sector 4	
Biosecurity	High	Mod-High	Low	Low
Market outputs	Export and urban	Urban/rural	Live urban/rural	Rural/urban
Dependence on market for inputs	High	High	High	Low
Dependence on goods roads	High	High	High	Low
Location	Near capital and major cities	Near capital and major cities	Smaller towns and rural areas	Everywhere. Dominates in remote areas
Birds kept	Indoors	Indoors	Indoors/Part-time outdoors	Out most of the day
Shed	Closed	Closed	Closed/Open	Open
Contact with other chickens	None	None	Yes	Yes
Contact with ducks	None	None	Yes	Yes
Contact with other domestic birds	None	None	Yes	Yes
Contact with wildlife	None	None	Yes	Yes
Veterinary service	Own Veterinarian	Pays for veterinary service	Pays for veterinary service	Irregular, depends on govt vet service
Source of medicine and vaccine	Market	Market	Market	Government and market
Source of technical information	Company and associates	Sellers of inputs	Sellers of inputs	Government extension service
Source of finance	Banks and own	Banks and own	Banks and private ²	Private and banks
Breed of poultry	Commercial	Commercial	Commercial	Native
Food security of owner	High	Ok	Ok	From ok to bad

Sector 1: Industrial integrated system with high level of biosecurity and birds/products marketed commercially (e.g. farms that are part of an integrated broiler production enterprise with clearly defined and implemented standard operating procedures for biosecurity).

Sector 2: Commercial poultry production system with moderate to high biosecurity and birds/products usually marketed commercially (e.g. farms with birds kept indoors continuously; strictly preventing contact with other poultry or wildlife).

Sector 3: Commercial poultry production system with low to minimal biosecurity and birds/products entering live bird markets (e.g. a caged layer farm with birds in open sheds; a farm with poultry spending time outside the shed; a farm producing chickens and waterfowl).

Sector 4: Village or backyard production with minimal biosecurity and birds/products consumed locally.

² Money lenders, relatives, friends, etc.

3.1 BACKGROUND INFORMATION

The poultry sector in Saudi Arabia bears the marks of a very rapid development, limited investment and an approach whereby more recent developments and knowledge - especially in the field of animal health – are adopted only very slowly. The liberal market approach which is prevalent has led to significant integration.

Poultry husbandry systems are either intensive (closed) or semi-intensive (open) systems that are commercially based and can best be classified under Sectors 2 and 3 described above. Generally speaking, the poultry industry in Saudi Arabia has access to all the available modern assets and techniques and has to a large extent utilised this access. During the latter half of the seventies and the first of the eighties, a modern poultry industry was set up which aimed at achieving complete self sufficiency for eggs and poultry meat. This development was supported by the government through a system of land grants and starting subsidies as well as subsidies on some imported feedstuffs, cheap electricity and water. Trade in any kind of input relevant to poultry production was welcomed and met with no unnecessary bureaucracy.

3.2 SECTOR 1: INDUSTRIAL AND INTEGRATED PRODUCTION

See chapter 3.3

3.3 SECTORS 2 AND 3: OTHER COMMERCIAL PRODUCTION SYSTEMS

3.3.1 Breeding stocks and hatching eggs

From 2002 to 2006 there were four layer parents projects, three in Riyadh and one in the Makkah area, which produced all the day old chicks for layer birds. Production ranged from 464 to 526 million chicks.

Saudi Arabia now has 3 importers with each different strain of broiler grandparent stock (BGPS) with enough capacity to produce all the country's needs in PS thus from now on the government should stimulate the domestic production of broiler day old chicks (D.O.C.) and consequently the establishment of PS farms.

3.3.2 Broiler meat

Broiler production is concentrated on only a few farms with less than 20 companies producing over 80% of all broilers. Table 5 below shows that there were 404 broiler projects in 2006, of which 105 were in the Riyadh region. These produced 77.8 million broilers, followed by the Aseer region with 97 projects and a total production of 46.8 million broilers. The Eastern region contained 49 projects with a production of 26.1 million broilers. Makkah and Qassim regions produced 11 and 32 million broilers respectively. The average project size is largest in the Makkah area (>600,000), in Qassim (>500,000) and much smaller in Riyadh (100,000) and (50,000) in the Eastern area. This is due to the fact that the two largest enterprises, both surpassing 100 million broilers per year, are located in the Makkah and Qassim areas.

The table 5 also shows that broiler meat production in the year 2002 was about 452,000 tons which increased to reach 515,000 tons in 2006. An average number of 5 annual cycles is attainable leading to the current production. As broilers are genetically less heat tolerant than the egg production White Leghorn stock, most meat type birds are kept in closed, cooled houses and only older farms in the desert climate areas still utilize open houses. These farms are not able to produce during the summer months. In the coastal areas in the East and Western parts as well as in the hills of Aseer and Najran, more farms with open systems are found.

TABLE 5:
Broiler Meat Production (in tons) by region

Regions	2002		2003		2004		2005		2006	
	Production	No of projects	Production	No of projects	Production	No of projects	Production	No of projects	Production	No of projects
Aseer	48,408	98	36,636	93	52,689	97	43,321	96	46,862	97
Baha	1,856	7	9,408	7	9,375	7	5,533	8	6,635	8
Eastern	28,004	46	24,936	39	26,525	39	36,284	58	26,188	49
Hail	12,792	2	11,317	2	15,230	2	21,778	6	19,412	6
Jazan	2,611	3	2,687	4	2,821	4	2,673	6	4,128	7
Jouf	1,364	6	1,524	5	1,364	5	2,514	6	2,044	6
Madina	5,970	13	6,432	14	7,186	15	8,987	20	11,004	21
Makkah	110,026	34	122,734	36	168,398	38	164,900	43	181,995	50
Najran	4,477	10	3,733	10	5,899	14	6,260	14	3,480	13
Northern	690	1	633	1	990	1	900	1	150	1
Qassim	151,415	35	158,261	36	147,209	37	133,300	36	132,229	35
Riyadh	81,134	73	70,913	78	67,951	85	89,769	108	77,856	105
Tabouk	4,153	4	4,376	5	3,033	5	4,908	8	3,490	6
Total	452,900	332	453,590	330	508,670	349	521,127	410	515,473	404

Source: Agriculture Statistical Year Books 2002 - 2006

TABLE 6:
Structure of Saudi Arabian Broiler Sector in 2005

Farm size	No of farms	Production of broilers (in millions)	Share of domestic production (%)
Less than 200,000	65	9	1.7
200,000 - 500,000	130	49	9.4
500,000 - 1000,000	125	90	17.3
1000,000 - 5 million	80	198	38
More than 5 millions	10	175	33.6
Total	410	521	100

Source: Reports of ARD

In Saudi Arabia, poultry meat production has three different starting points:

- The import of grandparent stock
- The import of parent stock
- The import of broiler hatching eggs

If broiler chicks are produced from locally produced parent stock and feed is produced from self-imported raw materials, the cost of producing 1.4 kg broiler can be as low as SAR 4.0 (20), with the proportion of chick and feed amounting to 70% of all costs. If the broilers are produced from imported hatching eggs and the feed is bought from a commercial feed-mill, the production cost of a 1.4 kg broiler rises to SAR 5.20, of which 77.5% goes on chick and feed costs.

Housing

The choice between open and closed houses has been an option for most production areas in the Kingdom for approximately 20 years. Before 1980, most poultry houses were not constructed with consideration for correct design and material use. Non-insulated corrugated iron sheet roofs should never be used due to their high radiant heat absorption and consecutive radiation to the birds and asbestos roofs are nowadays abolished due to the health hazard.

In areas where open systems are the only choice, because of high ambient temperatures and humidity (such as Eastern area, Jazan, and Red Sea costal plains), intermittent spray or fog cooling, combined with high velocity air movement at bird level has been proven to produce good results as seen in Al Wezzia farm at Al Hassa, even in the hot months of July and August.

Layers tend to be most economically kept in cages as floor housing encourages the cannibalistic vice some layer strains exhibit. Cage housing in open houses poses problems, the biggest of which is the closeness of birds to each other at temperatures over 30°C. Spray cooling and high air speeds are not detrimental to birds, but to the cages which will corrode completely in less than six years. Thus even in the Eastern region, closed houses with computerised environmental control are found, replacing open sheds in several farms. The results seem to be quite satisfactory even though cooling stops at in-houses humidity levels of 75-80 percent (16). The improved results with closed houses are usually compared to the farm's experience with old open shed systems which were not representative of correct open housing, with fog cooling and sufficient air speed. The difference in investment per square meter in open or closed housing could be estimated at 100%. Due to the lack of proper data on correct open systems, it is impossible to state that closed system is the best choice for each area in the Kingdom. Practice proves that independent advice is necessary and welcome at an early stage of planning. Examples are the Jazan and Jouf areas.

The climate in the Jazan area all but rules out the region for intensive poultry production, although there are some who have tried for reasons other than pure economics. Temperature and humidity are high during most of the year, which calls for open houses. However, for the production of hatching eggs, open houses do not provide the right environment to warrant economical exploitation. Problems arise due to the sandstorm season from March to June.

The climate in Jouf and most of the Northern Frontier is hot and dry with cold nights in the winter season, thus perfectly suitable for broiler production under controlled environment (closed houses); yet the house types in this area are predominantly of the open system. If closed systems are applied, there is a difficulty in balancing ventilation and heating especially in cold nights. As ventilation air is normally entering through the cooling pad system, the cold night air is drawn in too close to the chicken, creating cold patches within the house. The solution to this problem is not to reduce ventilation, which is necessary for oxygen supply and carbon dioxide and moisture removal, but to guide the incoming air in such a way that it is preheated before it reaches the broilers. The most simple way of accomplishing is to close off the lower portion of the cooling pad section with plastic or cardboard and guide the incoming air upwards into the house instead of downwards.

3.3.3 Chicken table eggs

Eggs are produced on about 101 projects, with about 61% of the hens in the regions around Riyadh, Makkah and Qassim. Table 7 shows that egg production has increased from about 2.5 million in 2002 to about 3.2 million in 2006, with slight fluctuations from year to year. Laying hens in the regions of Riyadh and Qassim are mostly housed in cages, placed in environment controlled cooled houses. In the Western region, most hens are kept in open-sided houses, except in some large projects situated close to Jeddah and Makkah. In the Eastern region, the average project size is smallest with traditionally more open than closed houses probably due to the high humidity. Recently some large projects have replaced open houses with closed, cooled ones.

In 2005, out of 104 layer projects, 74 of them followed the closed system and produced 2406 million eggs that accounted for 78.1% of total production. 25 projects adopted the open system and produced 305 million eggs making up 9.9% of the total production. Five projects adopted a combined or intermediate type system, producing 371 million eggs that accounted for 12% of production. No Grandparent stock (GPSE) is kept in Saudi Arabia. Parent stock (PS) is imported by 5 projects, one of which is not itself engaged in commercial egg production.

TABLE 7:
Table Eggs (in 1000) produced by specialised projects

Regions	2002		2003		2004		2005		2006	
	No of eggs	No of projects	No of eggs	No of projects	No of eggs	No of projects	No of eggs	No of projects	No of eggs	No of projects
Aseer	81,142	4	100,189	6	120,583	8	111,661	7	95,302	5
Baha	11,000	1	12,000	1	27,950	2	19,200	2	23,950	2
Eastern	294,143	22	250,508	19	229,755	18	349,149	22	324,525	20
Hail	49,702	3	39,288	3	39,460	3	29,451	3	20,000	3
Jazan	-	0	-	0	-	0	-	0	-	0
Jouf	8,180	2	5,544	2	5,544	2	19,396	4	15,560	4
Madina	156,014	7	155,525	7	174,614	7	179,797	8	128,908	6
Makkah	611,500	7	724,782	8	790,545	8	787,070	9	831,371	9
Najran	-	0	-	0	41,803	2	40,846	2	61,995	2
Northern	20,000	1	12,000	1	-	0	-	0	-	0
Qassim	443,676	8	445,792	8	422,339	8	523,291	9	504,537	10
Riyadh	804,559	28	794,060	28	730,920	25	962,648	35	1,095,725	37
Tabouk	36,303	3	57,908	3	58,498	3	60,161	3	58,816	3
Kingdom	2,516,219	86	2,597,596	86	2,642,011	86	3,082,670	104	3,160,689	101

Source: Agriculture Statistical Year Books 2002 – 2006.

TABLE 8:
Structure of Saudi Arabian Egg Production in 2005

Farm size ×1000 hens	No of farms	Annual production (million eggs)	Share of domestic production (%)
Less than 15	54	590	19.1
15 - 50	42	1040	33.7
50 - 1000	3	180	5.9
More than 1000	5	1272	41.3
Total	104	3082	100

Source: Reports of ARD

As layers kept in the Kingdom are almost only white leghorns, the production of eggs has technically been much more successful than broiler production. The recurring problems of over-production accompanied by low prices are much more pronounced in this sector.

3.3.4 Other species

This information has not yet been sourced.

3.4 SECTOR 4: VILLAGE OR BACKYARD PRODUCTION

3.4.1 Chickens

This information has not yet been sourced.

3.4.2 Other species

This information has not yet been sourced.

3.5 POULTRY MARKETING CHAIN ANALYSIS

There are two marketing systems in Saudi Arabia for broiler meat and table eggs (19). The first is a direct transaction between the producer and consumer, with producers themselves acting as retailers for their own products. The second system is contract farming practised in the Western region of the country. The most important feature of this system is that small farms are relieved from the task of marketing, which is done by the contractor. Another benefit for the farmer is that he can produce all-in all-out, thus minimizing the disease risks.

3.5.1 Day-old chicks

Detailed information has not yet been sourced.

3.5.2 Chicken meat

Detailed information has not yet been sourced.

3.5.3 Table eggs

Detailed information has not yet been sourced.

3.5.4 Other species

Detailed information has not yet been sourced.

Chapter 4

Trade, marketing and markets

4.1 DOMESTIC MARKET

The market for poultry meat is dynamic and growing with a diverse demand. Consumer preferences are for whole birds live, frozen or fresh. Domestic meat production is protected by a 20% import duty on frozen broiler meat with a minimum of SAR 1 per kg.

Imported broiler meat by wholesalers is stored in cold stores until it is sold to retailers.

Inter-regional live poultry movement for marketing purposes is prohibited and a contingency plan to combat contagious notifiable diseases has been formulated which is currently in effect.

Table 9: Distribution of markets

Live poultry shops are banned by law.

4.2 IMPORT

In 2005, the estimated number of day old chicks imported to the Kingdom was 946,670. The quantity of eggs and broiler meat imported into the K.S.A are shown in Table 2.

4.3 EXPORT

Total table egg production of the entire GCC excluding Saudi Arabia is about 2.5 million boxes, with 1 box = 360 eggs. This provides a good potential export opportunity for Saudi producers. However, per capita market demand within the GCC remains lowest in Saudi Arabia, with 2.3 eggs per week compared to 4.8 eggs per week in Kuwait (23).

4.4 SLAUGHTERING FACILITIES

In 2006, there were four automatic abattoirs each with a capacity of 18,000 birds per hour. There are currently 37 functioning slaughter houses in the country, with capacity ranging from 150 - 24,900 birds per hour. In the Riyadh area there are 15 functioning abattoirs; 3 are not operating, 7 are licensed but not constructed and 1 is under construction. In the Makkah area there are 3 functioning with a capacity range of 3,000 - 9,000 birds per hour. One abattoir is not operating, 12 are licensed but not constructed and 1 is under construction. In Baha region, 2 slaughter houses are functioning with a capacity range of 1,000 - 3,000 birds per hour. There are four others that are licensed but not constructed. In the Eastern region there are five functioning abattoirs with a capacity range of 350 - 1,175 birds per hour, 3 are under construction and 10 are licensed but not constructed. In the Madinah region there are 3 functioning abattoirs with a capacity range of 1,000 - 4,000 birds per hour. Seven others are not constructed. In the Qassim region there are 7 functioning abattoirs with a capacity range of 3,000 - 24,900 birds per hour. Two are not operating and 2 are under construction. In the Northern Frontier region, there is one abattoir with an unknown capacity and another one which is not operating. In Jouf region there is one abattoir licensed but not constructed. In Hail region, there is one working abattoir with a capacity of 6,000 birds per hour, one under construction and four others are licensed but not constructed. In the Aseer area there is one abattoir under construction and one licensed but not constructed (22).

4.5 POULTRY FEEDS

Poultry feed production is relatively straightforward in Saudi Arabia. The feeds are based on maize and soybean oil-meal, both imported from several source countries. Ready made vitamin and mineral mixes or complete premixes are imported and produced domestically. Subsidies on feedstuffs are still in effect which means producers are not accustomed to paying world market prices for their ingredients.

Chapter 5

Breeds

5.1 EXOTIC BREEDS

Meat type breeds

There are a total of 5,500,544 broiler parent birds in Saudi Arabia, with at least 2,600,000 located in Hail area. These are exclusively of the Ross breed and comprise about 74.07% of the total parents. The Cobb breed forms about 15.6% of the total number of broiler parents. There are 859,040 birds of which 748,800 are in Qassim area while 110,240 are in Riyadh area. The Hybro breed represents 3.6% of the total parents. There are 199,840 birds of this breed in the country. Some 99,340 of them are in Qassim area and 100,000 in Riyadh area. The Hubbard breed represents 2.9% of the total parents. There are about 160,000 birds of this breed in the country. They are located in Riyadh area. The ISA breed represents 6.04% of the total parents. There are 332,120 birds reared in the Riyadh area. The Redproh breed forms 2.91% and there are only 160,000 parents of this breed in the Riyadh area. The Arbo Acres breed represents 21.82% of the total parents. There are 1,200,000 birds in the country present in the Makkah area (Source: Hadco Poultry).

Egg type breeds

There are five egg type commercial breeds of poultry in the country. These are:

- Lohmann LSL: 60,000 parents in Mekkah area
- HyLine: 20,000 parents in Riyadh area
- Hi Sex: 25,000 parents in Riyadh area
- White Shaver: 40,000 parents in Riyadh area
- ISA Brown: 10,000 parents in Riyadh area

Thus there are about 160,000 layer breeder hens in production in Saudi Arabia producing around 15 million D.O.C per year (Source: Sadco poultry).

5.2 LOCAL BREEDS

Local Saudi chicken are a heterogeneous population of birds varying in size, feather, wattle and comb color, characterised by low productivity, small sized eggs and low FCR. A study done at King Faisal University (15) showed the following characteristics:

- Age at 50% production in days = 167. 9
- Percent Fertility of F¹ = 85. 9
- Weight at 16 weeks = 893 gr.
- Average feed consumption per day = 85 gr.
- Feed conversion ratio = 4. 3 kg/kg
- Percent mortality at 16 weeks = 1. 5%
- Average egg weight = 40gr.
- Haugh units = 1. 078
- Protein requirement of 18 % instead of 16%
- Arginine and lysine requirement of 1.5% as opposed to 1.2% for White Leghorn

Much of the output from village or so called local chickens is eaten by the owners and family members.

Chapter 6

Veterinary health, public health, biosecurity measures

6.1 HIGHLY PATHOGENIC AVIAN INFLUENZA

The official regulations and interventions to regulate animal and poultry health are laid out in the ordinance of the animal resources department, which outlines the framework and scope of responsibilities of the ARD towards livestock improvement. There are 58 sections, each dealing with various aspects of livestock public health.

With respect to Highly Pathogenic Avian Influenza (HPAI), a contingency plan that includes the following elements was formulated.

Preventive measures

1. Ban imports of birds, eggs and feed from infected countries
2. Persons from infected countries to be prohibited from contact with poultry
3. Prevent contact between poultry and feral birds
4. Prohibit rearing of more than one species of birds in the farm
5. Examine of imported horses for Avian Influenza
6. Public education on containment measures

Early warning measures

1. Immediate reporting of suspected cases to the nearest branch of Ministry of Agriculture
2. Application of quarantine measures
3. Collection of laboratory samples

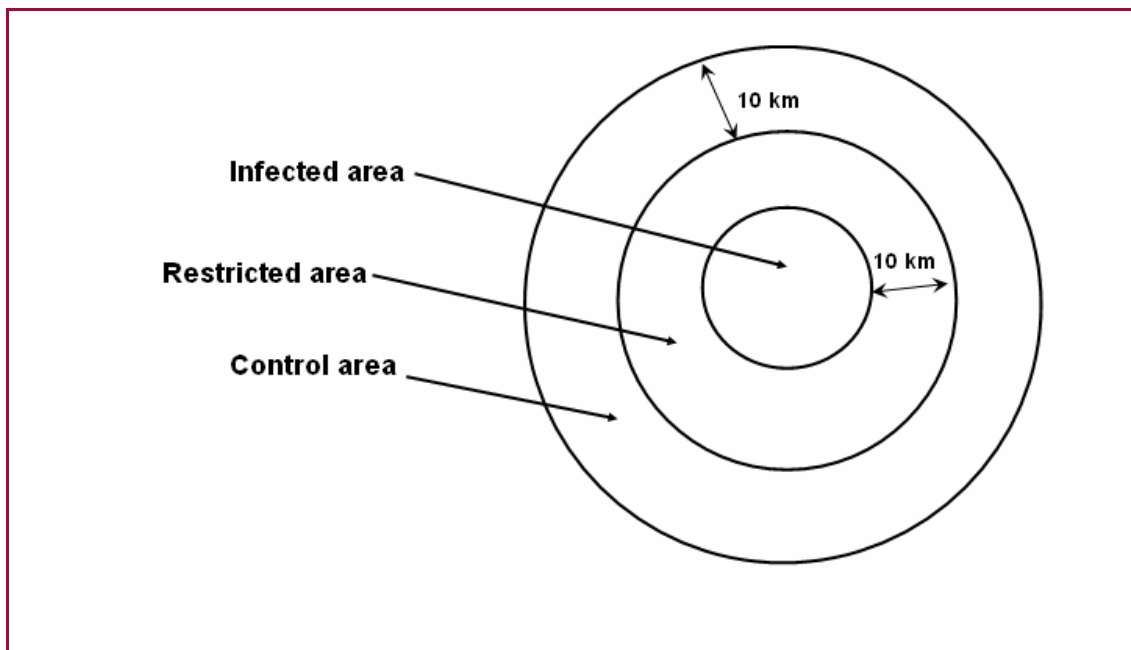
When HPAI is confirmed

1. Prompt depopulation of birds in the infected area
2. Identify the restricted area (10 kilometre radius)
3. Set a control area of 20 kilometre radius around the infected area

Infected area

In the infected area the following measures should be taken:

1. Destruction of all birds on the affected premises
2. Destruction of eggs, feed, fertilisers, litter either by incineration or deep burial
3. Disinfection of premises
4. The farm should be closed for 2 months before re-population
5. Restriction on personnel movement
6. Vehicles should be disinfected before leaving the farm
7. All farms within a radius of 1 kilometre should be considered as infected
8. Strict biosecurity measures to be applied



The restricted area

1. Declare the area restricted
2. Continuous examination of flocks within this area
3. Restriction of bird movement from and to the area
4. Prohibition of release of the manure and feed from the area (feed is allowed in)
5. Restriction of movement of unauthorised vehicles
6. Burial or incineration of any dead birds in the area
7. Healthy broiler birds to be allowed to the nearest abattoir
8. Hatcheries in the area should be permitted to accept eggs after 21 days following the last case
9. These measures should continue for 6 months before the area is declared free.

The control area

1. Surveillance of farms within the area.
2. Restriction of bird movement out and into the area without permit
3. Application of bio-security measures to all farms in the area
4. Birds from restricted areas can be slaughtered
5. Hatcheries can function normally
6. The area is declared free 6 months from the last case.
7. Live poultry markets in the restricted area should be closed.
8. Payment of indemnities to affected farms
9. Farmers not abiding with the above regulations are liable to penalties stated in the animal diseases ordinance section 52

6.2 OTHER MAJOR POULTRY DISEASES

For regularly updated information on the status of notifiable and other transboundary poultry diseases, please refer to:

The FAO Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases available at www.fao.org/aq/againfo/programmes/en/empres/home.asp

The OIE World Animal Health Information Database (WAHID) available at www.oie.int

More information has not yet been sourced.

6.3 BIOSECURITY MEASURES

This information has not yet been sourced.

Chapter 7

Current policies, legal framework

This information has not yet been sourced.

Chapter 8

Analysis

8.1 CURRENT STRENGTHS AND WEAKNESSES OF THE POULTRY SECTOR

Monitoring of the sector

After supporting the intensive poultry industry to reach its current size, it seems strange that the development of government services to support, monitor and control the performance of the industry has lagged behind. The larger integrated operations have responded to this by creating their own diagnostic and chemistry laboratories, their own waste disposal or recycling units and marketing and logistic support systems. Smaller integrated operations and independent farms depend on public veterinary laboratories and quality control laboratories and lack proper communal waste disposal systems, advisory services and market information systems. The monitoring of the dynamics of the poultry industry is very definitely a task of the government, if only to find out if and how certain subsidies are being used and if they are at all effective. The resulting data could be recycled to the industry at regular intervals and serve as marketing information. To accomplish this, the government needs to collect, process and combine all relevant statistics and manipulate the industry with the available subsidies if developments do not follow predictions or expectations. Currently there exists no clear path of communication between the government and all sections of the industry, except by individual letters to companies. Furthermore, the collection of numerical statistics from the poultry industry is not satisfactory. The publication of production results is delayed and there is no proper way to predict or forecast production for the immediate future. The industry has not reacted to this lack of market information and suffers consequently from recurring overproduction periods.

The Department of Animal Resources (ARD) in the Ministry of Agriculture is the most logical unit for preparation of national policy regarding animal production and therefore should have continuous access to all information that is relevant. The continuous monitoring of the poultry industry's potential and actual productivity should be one of the foremost tasks of ARD's poultry section. This should eventually result in regular market information leaflets for the farmers and a more up to date and reliable performance image of the industry for policy makers. To be able to collect production data more economically and more frequently by way of sampling monthly, a database should be set up which includes all production units in the country.

Disease prevention and management

Disease prevention management on farms is not uniform. This is probably due to the Ministry of Agriculture taking a policy of minimal organisational interference with private enterprise. The individual farm enterprises do not tend to cooperate, but prefer to assign and employ their own veterinary staff, often even as farm manager.

A very diverse sanitation, vaccination and medication system is prevalent, aided by a rather dispersed import trade in drugs and vaccines. While presently some integrated enterprises have their own diagnostic laboratories - which often may not meet all needs - most medium sized farms and practically all small specialised ones depend on public services for diagnosis, vaccines and medications which tend to be provided free of charge by the Ministry of Agriculture branches.

The diagnostic services of these branches and their supply of vaccines are not sufficient. In many cases they have to rely on the Central Diagnostic Laboratory or National Agricultural Research Center in Riyadh or one of the university veterinary faculties. Thus the provisions for animal health by no means meet the criteria outlined in the FAO's veterinary public health functions and organisations guidelines (17).

The current situation regarding animal health calls for public investment in both legislative and organisational manpower and the improvement of regional and national veterinary services. This means that the stream of subsidies flowing directly to private enterprises should be bent towards the public services.

Another pronounced characteristic of poultry farming in the Kingdom is the non-existence of regional or national coordination in vaccination programmes, the use of vaccine types and medication policies of individual farms. Almost every large farm has its own veterinarian, prescribing his own preferred medication and vaccines without any overall coordination or mutual consulting advice. Some farms over-vaccinate while others do not vaccinate at all. Thus both types of farms in the same region represent a significant risk for local poultry production.

Recently, legislation to regulate animal health matters has been formulated. These include rules for conditioned transport limitation, isolation of farms and regions, destruction of dead and contaminated livestock and decontamination of farms under official supervision. It also contains sections covering the obligatory notification of contagious diseases and reimbursement of farmers for losses due to destruction of their stock.

Waste management

Waste management on poultry farms in general is still in its infancy in Saudi Arabia. The rapid growth of the industry, the abundance of land and the shortage of water are the main determining factors of this situation. The fact that poultry offal, manure and processing factory waste can be dumped in the desert without a permit is extremely risky. It is interesting to note that very large integrated operations have in the main adopted the European strategies for their own security, thus also protecting their direct environment.

Subsidies

The status of the industry is such that starting subsidies on variable cost items (eg soya bean and corn) are no longer necessary. Consumers are in a position to meet an increase in meat and egg prices, which are currently among the lowest in the world. The expansion of existing farms should be left to the individual economic strength and technical ability of enterprises that wish to do so, with due regard for their impact on environmental resources.

Management

As there are insufficient Saudi nationals to take on the technical management of farms, most farms hire expatriate personnel for the supervision of all farm tasks. As farm managers are recruited from a large number of countries and educational backgrounds, the result is a severe lack of uniform farm management philosophy. Moreover, these managers lack regular refreshment of their knowledge. This is one of the most serious defects in the poultry sector infrastructure in Saudi Arabia. It leads to a general incoherence and continuous dependence of individual farms on diverse international know-how. The general lack of communication within the sector, between the sector and the Ministry of Agriculture and more generally on an international platform, is believed to be one of the main reasons behind the continuing lack of interest in professional poultry careers in the K.S.A. Farms need to be regularly informed about government policy and the government needs to know the prevalent and persistent problems of most farms to be able to formulate good policies. One of the cheapest and most effective ways to accomplish this mutual communication is by regular meetings of representatives from all sides.

Strengths

The technical capacity for broiler and egg production is good, with subsidy policies playing a significant role in this. The availability of land and cheap capital are still favourable to the sector and the geographic infrastructure is good, with three or four large consumer concentrations easily accessible by road and air. Raw material can be imported freely at reasonably import duty levels.

8.2 PROSPECTS OF THE POULTRY SECTOR OVER THE NEXT FIVE YEARS

See above

Annex I

Who is who (contact list)

This information has not yet been sourced.

Annex II

List of major projects – poultry sector

This information has not yet been sourced.

Annex III

Monthly retail/wholesale prices for poultry/products

Calculation of the indices of locally produced broiler meat and table eggs in the K.S.A. over the five year period were done based on 1999 prices as the starting year according to Laspeyre's formula the Central Department of Statistics used to calculate the whole sale price index. The formula is as shown below:

$$I_t = \frac{\sum_{i=1}^n W_{oi} \frac{P_{ti}}{P_{oi}}}{\sum_{i=1}^n W_{oi} \frac{P_{t-li}}{P_{oi}}} \times I_{t-1}$$

Where:

I_t = index at time period, t

W_0 = weight at base period, 0

P_t = prices at time period, t

T= time period beginning from 0, ---, N

P_{t-1} = prices at time period, t-1

I = items from 1, ---, n.

P_0 = prices at base period, 0

I = index at time period, t-1

The wholesale price index is a measure of average price changes for goods and services in the primary markets of Saudi Arabia. The index measures on "pure" price change i.e. the changes resulting from the rise and fall of prices only. The index measures wholesale price changes throughout the Kingdom of Saudi Arabia (see Table 9).

TABLE 9:
Wholesale and Retail Price (SAR) of Broiler Meat (kg) and Table Eggs and Price Indices

Year	Item	Wholesale price	Retail price	Difference	Difference (%)	Wholesale price index	Retail price index
2002	Meat	7.0	8.1	1.1	15.7	95.2	95.3
	Eggs	7.3	8.4	1.1	15.1	102.8	98.8
2003	Meat	7.1	8.2	1.1	15.5	96.6	96.5
	Eggs	7.3	8.4	1.1	15.1	102.8	98.8
2004	Meat	7.1	8.2	1.1	15.5	96.6	96.5
	Eggs	7.3	8.4	1.1	15.1	102.8	98.8
2005	Meat	7.2	8.3	1.1	15.3	98	97.6
	Eggs	8.2	9.6	1.4	17.1	115.5	112.9
2006	Meat	7.3	8.6	1.3	17.8	96	101.2
	Eggs	8.2	9.6	1.4	17.1	103	104

Source: Ministry of Agriculture Marketing Department

It is the aim of the Ministry of Agriculture to make agricultural activities sustainable in the K.S.A. Agricultural product prices form one of the elements upon which investment decisions in agriculture are made.

Agricultural products wholesale and retail prices of the year 1999 form the base data to which prices of the following years were compared. Tables 10 to 21 show the wholesale and retail prices for broiler meat and table eggs for the years from 2002 to 2006 as well as for selected cities. The differences in wholesale and retail prices as well as the indices are shown in Table 9. In 2002 and 2003 there was the smallest difference in prices between wholesale and retail with respect to table eggs which was 15.1%. In 2004, wholesale and retail prices dropped by about 3.5% as compared to 1999 prices. The table egg prices increased by 3% but retail prices dropped by 1%. In 2005, wholesale and retail prices dropped by 3% and 2% respectively, but wholesale prices of table eggs were up by 3% and retail prices dropped by about 1%.

In 2006, wholesale prices of broiler meat dropped by about 4% while retail prices rose by about 1% as compared to 1999 prices. Wholesale and retail prices of table eggs rose by 3% and 4% respectively. The retailers share amounted to 18% of what the consumer paid for broiler meat and table eggs. A drop in wholesale price indices of broiler meat is noticed while there was rise in wholesale price indices of table eggs. The smallest price difference was 15.1% for table eggs.

TABLE 10:
Average Monthly Retail Prices of Broiler Meat and Table Eggs in 2002 (SAR per Kilogram)

Item	Source	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg. price
Broiler	Local	8	8.3	8	8.1	8.3	8.2	8.2	8	7.9	8	8.1	7.9	8.1
	Import	8.7	9.1	8.5	8.3	8.3	8.1	6.5	8.1	8	8.1	8.4	8.6	8.2
Large eggs (tray**)	Local	9.5	9.7	9.6	9.5	9.6	9.7	9.5	9.5	9.4	10.1	9.7	9.8	9.6
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*
Medium eggs (tray**)	Local	8.4	8.6	8.5	8.6	8.5	8.5	8.3	8.4	8.2	8.7	8.5	8.6	8.5
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*
Small eggs (tray**)	Local	7.2	7	7.1	7.4	7.4	7.4	7.1	7	6.5	7.5	7.3	7.1	7.2
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*

* = No data available

** Tray with 30 eggs

Source: Ministry of Agriculture, Agriculture Marketing Development

TABLE 11:
Average Monthly Wholesale Prices of Broiler Meat and Table Eggs in 2002 (SAR per Kilogram)

Item	Source	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg. price
Broiler	Local	6.9	7.1	7	7.1	7.3	7.2	7.1	7	6.9	6.9	7	6.9	7
	Import	7	7.3	6.8	10.9	7.1	6.9	5.5	6.8	6.8	6.9	7.1	7.2	7.2
Large eggs (tray**)	Local	8.3	8.4	8.6	8.3	8.4	8.5	8.2	8.3	8.2	8.8	8.5	8.6	8.4
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*
Medium eggs (tray**)	Local	7.3	7.5	7.4	7.4	7.4	7.5	7	7.1	6.9	7.5	7.4	7.5	7.3
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*
Small eggs (tray**)	Local	6	6.1	6	6.3	6.3	6.3	5.9	5.9	5.5	6.3	6.2	6.1	6.1
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*

* = No data available

** Tray with 30 eggs

Source: Ministry of Agriculture, Agriculture Marketing Development

TABLE 12:
Average Monthly Retail Prices of Broiler Meat and Table Eggs in 2003 (SAR per Kilogram)

Item	Source	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg. price
Broiler	Local	8.3	8.2	8.1	8.1	8.3	8.2	8.2	8	7.9	8.6	7.9	8	8.2
	Import	8.2	8.8	8.3	8.3	8.3	8.1	8	8.1	8	8.1	8.3	8	8.2
Large eggs (tray**)	Local	9.7	9.8	9.6	9.5	9.8	9.7	9.5	9.5	9.4	9.5	9.6	9.6	9.6
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*
Medium eggs (tray**)	Local	8.7	8.5	8.4	8.6	8.5	8.5	8.3	8.4	8.2	8.7	8.7	8.6	8.5
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*
Small eggs (tray**)	Local	7.6	7.2	7	7.4	7.4	7.4	7.1	7	6.5	7.2	7.2	7.3	7.2
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*

* = No data available

** Tray with 30 eggs

Source: Ministry of Agriculture, Agriculture Marketing Development

TABLE 13:
Average Monthly Wholesale Prices of Broiler Meat and Table Eggs in 2003 (SAR per Kilogram)

Item	Source	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg. price
Broiler	Local	7.2	7.2	7.1	7.1	7.3	7.2	7.1	7	6.9	7.5	6.8	7	7.1
	Import	7	7.6	7.3	10.9	7.1	6.9	6.5	6.8	6.8	6.5	7	6.9	7.3
Large eggs (tray**)	Local	8.6	8.6	8.4	8.3	8.3	8.5	8.2	8.3	8.2	8.3	8.4	8.5	8.4
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*
Medium eggs (tray**)	Local	7.6	7.5	7.3	7.4	7.4	7.5	7	7.1	6.9	7.4	7.2	7.5	7.3
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*
Small eggs (tray**)	Local	6.5	6.2	5.9	6.3	6.3	6.3	5.9	5.9	5.5	6	6.2	6.3	6.1
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*

* = No data available

** Tray with 30 eggs

Source: Ministry of Agriculture, Agriculture Marketing Development

TABLE 14:
Average Monthly Retail Prices of Broiler Meat and Table Eggs in 2004 (SAR per Kilogram)

Item	Source	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg. price
Broiler	Local	7.9	8	8.1	8.1	8.3	8.1	8	8.5	7.9	8.3	8.7	8.2	8.2
	Import	8.7	7.8	7.7	8.3	8.3	8.2	8.5	7.9	8.5	7.3	8.7	8.9	8.2
Large eggs (tray**)	Local	10.1	9.8	9.9	9.6	9.6	9.6	9.4	9.6	9.4	9.7	9.7	9.8	9.7
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*
Medium eggs (tray**)	Local	8.4	8.4	8.7	8.5	8.5	8.5	8.3	8.5	8.2	8	8.5	8.6	8.4
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*
Small eggs (tray**)	Local	7.1	7.2	7.4	7.4	7.4	7.4	7.1	7.1	6.5	6.7	7.3	7.1	7.2
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*

* = No data available

** Tray with 30 eggs

Source: Ministry of Agriculture, Agriculture Marketing Development

TABLE 15:
Average Monthly Wholesale Prices of Broiler Meat and Table Eggs in 2004 (SAR per Kilogram)

Item	Source	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg. price
Broiler	Local	6.9	7	7.2	7.1	7.3	7.1	6.9	7.2	6.9	7.2	7	6.9	7.1
	Import	7	6.8	6.8	7.4	7.1	6.9	6.7	6.8	6.7	6	6.4	6.8	6.8
Large eggs (tray**)	Local	9	8.2	8.5	8.4	8.4	8.4	8.2	8.3	8.3	8.7	8.1	8.7	8.4
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*
Medium eggs (tray**)	Local	7.5	7.2	7.3	7.5	7.4	7.4	7	7.1	6.9	7.1	7.2	7.5	7.3
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*
Small eggs (tray**)	Local	6.5	6.2	6.3	6.3	6.3	6.3	5.9	6	5.5	5.7	6.2	6.1	6.1
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*

* = No data available

** Tray with 30 eggs

Source: Ministry of Agriculture, Agriculture Marketing Development

TABLE 16:
Average Monthly Retail Prices of Broiler Meat and Table Eggs in 2005 (SAR per Kilogram)

Item	Source	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg. price
Broiler	Local	8.2	8.3	8	8.2	8.4	8.4	8.3	8.5	8	8.3	8.9	8.4	8.3
	Import	8.7	7.9	7.7	7.8	8.4	8.2	8.5	8	8.5	7.3	8.7	8.8	8.2
Large eggs (tray**)	Local	9.8	9.7	9.9	9.5	9.7	9.5	9.5	9.7	9.4	9.7	9.6	9.7	9.6
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*
Medium eggs (tray**)	Local	8.3	8.4	8.7	8.7	8.6	8.5	8.6	8.6	8.2	8.4	8.3	8.4	8.4
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*
Small eggs (tray**)	Local	7.1	7.1	7.3	7.1	7.5	7.3	7.4	7.1	6.5	6.7	7.3	7.1	7.1
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*

* = No data available

** Tray with 30 eggs

Source: Ministry of Agriculture, Agriculture Marketing Development

TABLE 17:
Average Monthly Wholesale Prices of Broiler Meat and Table Eggs in 2005 (SAR per Kilogram)

Item	Source	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg. price
Broiler	Local	7.1	7.3	7.2	7	7.3	7.3	7.6	7.2	6.9	7	7.2	7	7.2
	Import	6.8	7	6.8	6.6	6.8	7	6.8	6.8	6.7	6.2	6.4	6.3	6.7
Large eggs (tray**)	Local	8.6	8.2	8.3	8.2	8.2	8	8	8.3	8.3	8	8.1	8	8.2
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*
Medium eggs (tray**)	Local	7.2	7	7.2	7.2	7.1	7.1	7	7.1	6.9	7	7.2	7	7.1
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*
Small eggs (tray**)	Local	6.2	6	6.3	6	6	5.9	6	6	5.5	5.6	5.8	5.7	5.9
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*

* = No data available

** Tray with 30 eggs

Source: Ministry of Agriculture, Agriculture Marketing Development

TABLE 18:
Average Monthly Retail Prices of Broiler Meat and Table Eggs in 2006 (SAR per Kilogram)

Item	Source	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg. price
Broiler	Local	8.2	8.3	8	8.7	8.7	8.8	8.8	8.7	8.5	8.7	8.9	8.4	8.6
	Import	8.7	7.9	7.7	7.8	8.5	8.2	8.6	8.1	8.5	7.3	8.7	8.8	8.2
Large eggs (tray**)	Local	9.8	9.7	9.9	9.5	9.5	9.6	9.5	9.7	9.5	9.6	9.6	9.7	9.6
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*
Medium eggs (tray**)	Local	8.3	8.4	8.7	8.3	8.4	8.6	8.6	8.5	8.5	8.4	8.3	8.4	8.4
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*
Small eggs (tray**)	Local	7.1	7.1	7.3	7.2	7.3	6.8	7.4	7.2	6.7	7.1	7.3	7.1	7.1
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*

* = No data available

** Tray with 30 eggs

Source: Ministry of Agriculture, Agriculture Marketing Development

TABLE 19:
Average Monthly Wholesale Prices of Broiler Meat and Table Eggs in 2006 (SAR per Kilogram)

Item	Source	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg. price
Broiler	Local	7.1	7.3	7.2	7.4	7.5	7.5	7.8	7.4	7.4	7	7.2	7	7.3
	Import	6.8	7	6.8	6.6	6.7	7	6.9	7	6.7	6.2	6.4	6.3	6.7
Large eggs (tray**)	Local	8.6	8.2	8.3	8.1	8	8.2	8.2	8.2	8.3	8	8.1	8	8.2
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*
Medium eggs (tray**)	Local	7.2	7.3	7.2	7.1	7.1	7.4	7.1	7.2	7.1	7	7.2	7	7.1
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*
Small eggs (tray**)	Local	6.2	6	6.3	6	6	5.7	6	6	5.7	5.6	5.8	5.7	5.9
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*

* = No data available

** Tray with 30 eggs

Source: Ministry of Agriculture, Agriculture Marketing Development

TABLE 20:
Average Monthly Retail Prices of Table Eggs and Broiler Meat in 2006 in SAR

Item	Source	Riyadh	Makkah	Madina	Qassim	Aseer	Hail	Tabouk	Jazan	Najran	Baha	Jouf	Eastern	Northern
Broiler	Local	8	8.3	9	7.1	8.3	9	8.1	8.1	8.4	8.3	8.7	8.4	8.2
	Import	7.9	8.2	8.4	7.9	7.9	8.4	7.8	8.1	7.8	8	8	8	8.1
Large eggs (tray**)	Local	9	9.4	9.3	9.4	9.6	10	9.5	9.7	9.8	9.4	9.5	9.5	9.4
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*
Medium eggs (tray**)	Local	8	7.8	8.1	8	8	8.5	7.9	8.4	8.2	8.3	8	8.1	8.2
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*
Small eggs (tray**)	Local	5	5.6	5.4	5.3	5.5	6	5.7	5.7	5.9	5.8	5.5	5.7	5.7
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*

* = No data available

** Tray with 30 eggs

Source: Ministry of Agriculture, Agriculture Marketing Development

TABLE 21:
Average Monthly Wholesale Prices of Table Eggs and Broiler Meat in 2006 in SAR

Item	Source	Riyadh	Makkah	Madina	Qassim	Aseer	Hail	Tabouk	Jazan	Najran	Baha	Jouf	Eastern	Northern
Broiler	Local	7.8	7.5	7.7	7.5	7.9	8.8	8.1	8.1	8.2	7.9	8.1	8.3	7.7
	Import	6.9	7.3	6.7	7.3	6.5	7.5	7	7.5	7.4	7	7.8	7.2	7.8
Large eggs (tray**)	Local	7.8	7.5	7.7	7.5	7.9	8.8	8.1	8.1	8.2	7.9	8.1	8.3	7.7
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*
Medium eggs (tray**)	Local	6.8	6.5	6.6	1.4	6.7	7.5	6.8	7	7	6.7	7	6.8	6.7
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*
Small eggs (tray**)	Local	3.3	3.8	3.8	3.1	3.7	4.5	4.3	3.2	3.4	4.1	3.3	3.9	4
	Import	*	*	*	*	*	*	*	*	*	*	*	*	*

* = No data available

** Tray with 30 eggs

Source: Ministry of Agriculture, Agriculture Marketing Development

Annex IV

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Annex V

Maps

No maps available.