FAO ANIMAL PRODUCTION AND HEALTH DIVISION
EMERGENCY CENTRE FOR TRANSBOUNDARY ANIMAL DISEASES
SOCIO ECONOMICS, PRODUCTION AND BIODIVERSITY UNIT

JORDAN

Poultry sector country review

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This review is based on the following report:
Poultry Sector Analysis: Structure & market and importance of commercial poultry production in Jordan, for a better understanding of Avian Influenza challenges

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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
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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 Unit[1].

The original report by M. Ibrahem Abu-Iteleh, Dr. Moh'd Ali Rahahleh, M. Sulaiman Alrkaibat and M. Nabeel Daood was edited by Ms Jenny Schwarz in August 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.

Contents

Acronyms and abbreviations

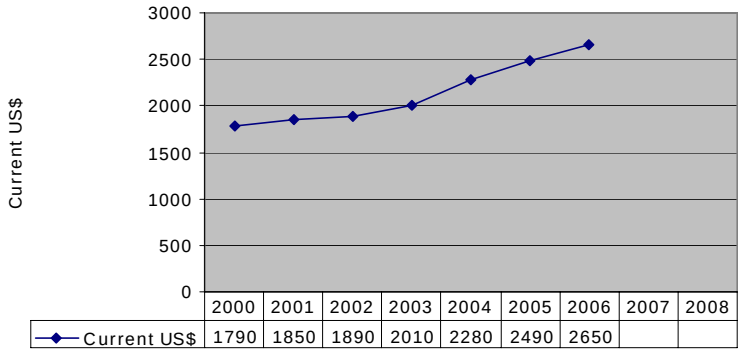
AI	Avian Influenza
FAO	Food and Agriculture Organisation of the United Nations
JD	Jordanian Dinars
MoA	Ministry of Agriculture
OIE	Office International Des Epizooties
RSCN	Royal Society for the Conservation of Nature, Jordan
WHO	World Health Organisation

Chapter 1

The country in brief

Country:	Jordan		
Location:	Middle East, northwest of Saudi Arabia Bordering Iraq, Israel, Saudi Arabia, Syria, West Bank		
Population, total	5,537,600 (2006)	*Source:*	*World Bank, May 2008*
Population, growth rate:	2% (2006)	*Source:*	*World Bank, May 2008*
Economy group:	Lower-middle income	*Source:*	*World Bank, May 2008*

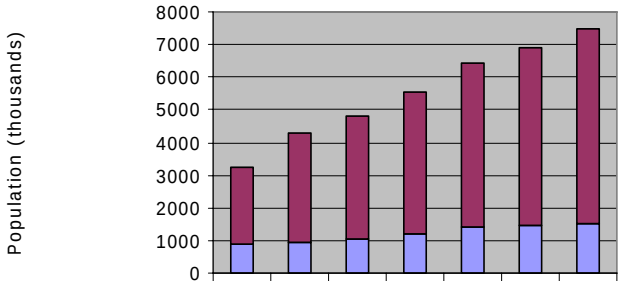
FIGURE 1: **Gross national income (GNI) per capita (Atlas method, current US$)**



	2000	2001	2002	2003	2004	2005	2006	2007	2008
Current US$	1790	1850	1890	2010	2280	2490	2650		

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

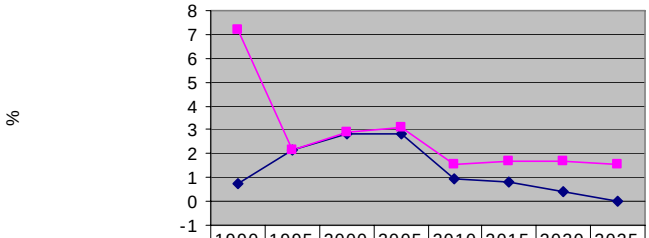
FIGURE 2: **Demographic profile**



	1990	1995	2000	2005	2010	2015	2020
Urban population	2350	3366	3755	4341	5067	5471	5958
Rural population	904	938	1043	1203	1386	1452	1510

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, April 2008

FIGURE 3: **Annual population growth rates**



	1990-1995	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030
Rural annual growth rate	0,75	2,13	2,84	2,83	0,94	0,78	0,44	-0,02
Urban annual growth rate	7,18	2,19	2,9	3,09	1,53	1,71	1,7	1,56

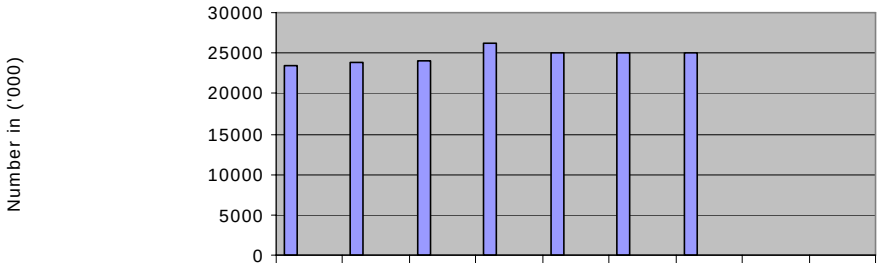
Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2006 Revision and World Urbanization Prospects: The 2007 Revision, http://esa.un.org/unup, April 2008

Chapter 2

Profile of the poultry sector

2.1 NATIONAL POULTRY FLOCK

FIGURE 4. a: **National poultry numbers**



	2000	2001	2002	2003	2004	2005	2006	2007	2008
Chickens	23500	23750	24000	26300	25000	25000	25000		
Turkeys	10	11	11	11	11	11	11		
Ducks	2	2	2	2	2	2	2		
Geese and guinea fowls	0	0	0	0	0	0	0		

Source: FAOSTAT, May 2008

2.2 GEOGRAPHICAL DISTRIBUTION OF POULTRY FLOCKS

TABLE 1:
Distribution of poultry farms in the country

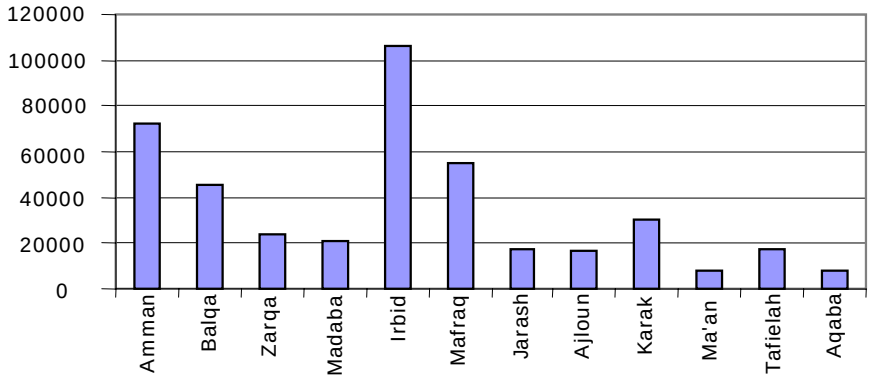
Governorate	Location	Chicken					Ducks	Guinea fowls	Turkey	Pigeons
		Breeding stock	Broiler	Layers	Local					
		Exotic	Exotic	Exotic	Dual purpose	Total	Total	Total	Total	
		Commercial	Commercial	Commercial						
Amman	The capital		47	2	n/a	n/a	n/a	n/a	n/a	n/a
	Wadiessier	1	46	2	n/a	n/a	n/a	n/a	n/a	n/a
	Sahab	1	53	18	n/a	n/a	n/a	n/a	n/a	n/a
	Aljeeza	14	139	49	n/a	n/a	n/a	n/a	n/a	n/a
	Nao'ur	5	44	9	n/a	n/a	n/a	n/a	n/a	n/a
	Almougar	3	89	24	n/a	n/a	n/a	n/a	n/a	n/a
Madaba	Madaba	2	44	10	n/a	n/a	n/a	n/a	n/a	n/a
	Theban	5	72	4	n/a	n/a	n/a	n/a	n/a	n/a
Alzarqa	Alzarqa	22	135	13	n/a	n/a	n/a	n/a	n/a	n/a
Albalqa	alsalt	4	117	17	n/a	n/a	n/a	n/a	n/a	n/a
	South shouneh		27	1	n/a	n/a	n/a	n/a	n/a	n/a
	Mahes & Alfhes		4	-	n/a	n/a	n/a	n/a	n/a	n/a
	Deer Ala		-	-	n/a	n/a	n/a	n/a	n/a	n/a
	Ein Albasha	1	39	4	n/a	n/a	n/a	n/a	n/a	n/a
Irbid	Irbid	9	213	10	n/a	n/a	n/a	n/a	n/a	n/a
	Alramtha	4	81	7	n/a	n/a	n/a	n/a	n/a	n/a
	Bani kenaneh	2	102	4	n/a	n/a	n/a	n/a	n/a	n/a
	Alkourah		73	4	n/a	n/a	n/a	n/a	n/a	n/a
	Almazar Alshemali	1	31	-	n/a	n/a	n/a	n/a	n/a	n/a
	Altaibeh	1	75	5	n/a	n/a	n/a	n/a	n/a	n/a
	Alshouneh Alshemaliah		4	-	n/a	n/a	n/a	n/a	n/a	n/a

TABLE 1:
Distribution of poultry farms in the country

Governorate	Location	Chicken				Ducks	Guinea fowls	Turkey	Pigeons
		Breeding stock Exotic Commercial	Broiler Exotic Commercial	Layers Exotic Commercial	Local Dual purpose	Total	Total	Total	Total
	Alwasteih		16	-	n/a	n/a	n/a	n/a	n/a
Jerash	Jerash	12	102	8	n/a	n/a	n/a	n/a	n/a
AlMafraq	AlMafraq	31	314	92	n/a	n/a	n/a	n/a	n/a
	Albadiah Alshemaliah		3	-	n/a	n/a	n/a	n/a	n/a
Ajiloun	Ajloun		84	1	n/a	n/a	n/a	n/a	n/a
Alkerak	Alkerak	1	49	5	n/a	n/a	n/a	n/a	n/a
	Ghour elsafi		2	-	n/a	n/a	n/a	n/a	n/a
	Algasser		34	2	n/a	n/a	n/a	n/a	n/a
	Almaza Aljanoubi		56	-	n/a	n/a	n/a	n/a	n/a
	Aie		31	-	n/a	n/a	n/a	n/a	n/a
Altafilah	Altafilah		33	2	n/a	n/a	n/a	n/a	n/a
Ma'an	Ma'an		14	2	n/a	n/a	n/a	n/a	n/a
Aqaba	Aqaba		29	1	n/a	n/a	n/a	n/a	n/a
	Total	**119**	**2202**	**296**	**n/a**	**0**	**0**	**0**	**0**

See Section 3.3 for distribution of stock farms, hatcheries, layers and broilers farms.

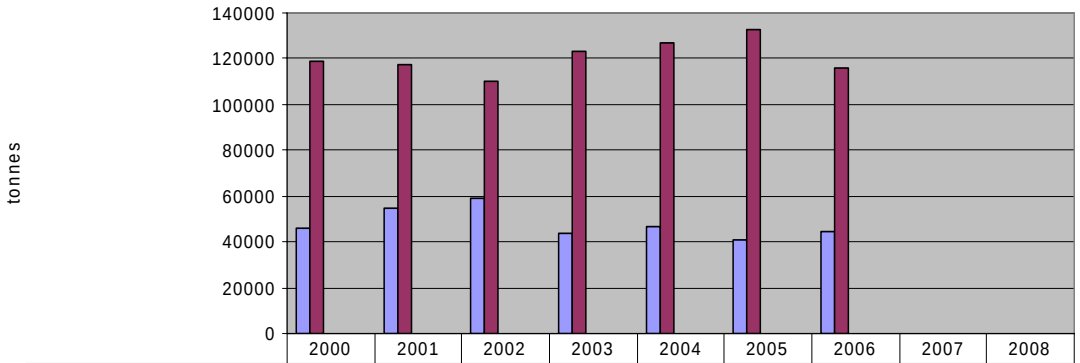
FIGURE 4. b: **Geographical distribution of chickens in village or backyard production systems (1997)**



Data available on the distribution of village chicken (Figure 4.b) dates from 1997 and should be considered as indicative only.

2.3 PRODUCTION

FIGURE 5: **National production in the poultry sector**



	2000	2001	2002	2003	2004	2005	2006	2007	2008
Hen eggs (in shells)	45833	54480	58935	43601	46753	40614	44680		
Chicken meat	118500	117200	110000	123367	126659	132638	115815		
Turkey meat	224	120	140	200	200	240	240		
Duck meat	22	5	39	19	19	19	19		
Goose or guinea fowl meat	0	0	0	0	0	0	0		

Source: FAOSTAT, June 2008

The consultant provides information from other sources with the following data:

TABLE 2:
Production quantity and value (Jordanian Dinars in millions) for 2000-2005

	2000		2001		2002		2003		2004		2005	
Type	**No**	**Value**	**No**	**Value**	**No**	**Value**	**No**	**Value**	**No**	**Value**	**No**	**Value**
Broiler 1000 M.T	130.8	104.6	156.6	127.5	154.9	111.6	169.5	126.9	167.8	135.0	181.1	139.4
Table Eggs No (in millions)	494.4	19.2	554.4	16.0	545.1	20.5	519.2	20.5	557.3	23.1	450.6	21.0
Hatchery Eggs No (in millions)	167.0	20.1	178.5	21.4	175.8	21.1	184.0	20.4	196.8	27.5	204.5	31.0
Chicks No (in millions)	102.5	19.1	109.8	26.0	106.9	23.6	114.6	21.4	112.5	26.5	124.4	31.0
Organic Manure 1000M.T	189.0	1.3	233.4	1.6	219.5	1.7	231.5	1.4	199.0	1.5	195.6	1.3
Industrial Activity		45.3		43.9		40.9		35.8		40.4		29.3
Other		0.5		0.2		0.4		0.1		0.5		0.2
Total poultry product		**210.2**		**236.6**		**219.8**		**226.6**		**254.5**		**253.2**
Total animal product		**335.3**		**368.3**		**361.6**		**381.0**		**423.9**		**453.6**
%		62.7		64.2		60.8		59.5		60.0		55.8

2.4 CONSUMPTION

Figure 6.a and 6.b: Poultry meat (in average calories/capita/day) (in kg/capita/year)

This information has not yet been sourced

The total expenditure on poultry meat amounts to 195.3 million JD, which represents 3.92% of total expenditure. 77.2% of expenditure on poultry meat goes to meat processed by Natafat (informal slaughter facilities), while 19.7% goes to meat slaughtered in slaughter houses. The remaining 2.1% is expended on chicken innards.

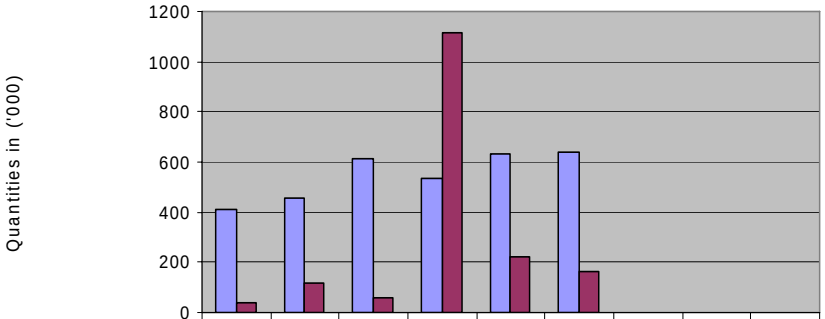
Figure 6.c and 6.d: Eggs (in average calories/capita/day) (in eggs/capita/year)

This information has not yet been sourced

In 2005, the domestic consumption was 785.7 million eggs annually and the average per capita consumption was 157 eggs annually. Household expenditure surveys show that the total value of egg consumption in Jordan amounts to 38.7 million JD, which represents 0.78% of total expenditure.

2.5 TRADE

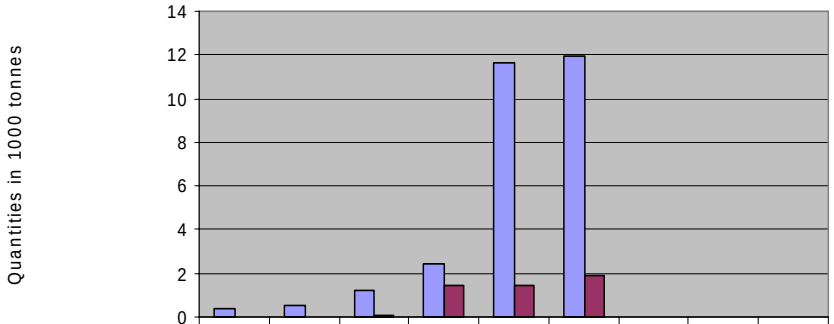
FIGURE 7.a: **Import/Export of live chickens (up to 185 g. only)**



	2000	2001	2002	2003	2004	2005	2006	2007	2008
Imports Quantity	409	456	616	534	633	640			
Exports Quantity	42	117	61	1117	220	164			

Source: FAOSTAT, August 2008

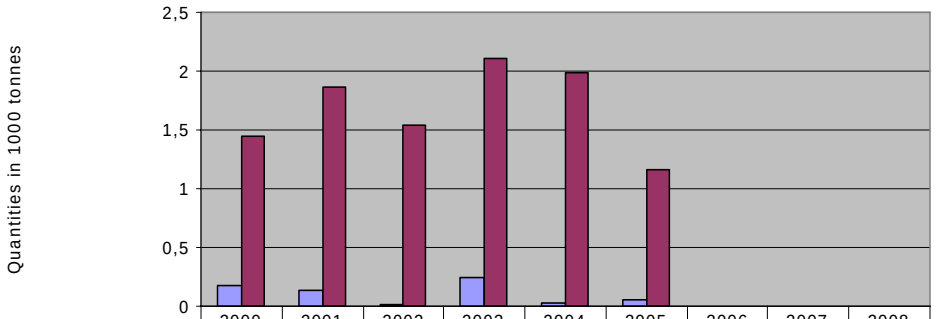
FIGURE 7.b: **Import/Export of chicken meat**



	2000	2001	2002	2003	2004	2005	2006	2007	2008
Imports Quantity	0,36	0,5	1,23	2,44	11,65	11,91			
Exports Quantity	0		0,06	1,45	1,41	1,91			

Source: FAOSTAT, May 2008

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

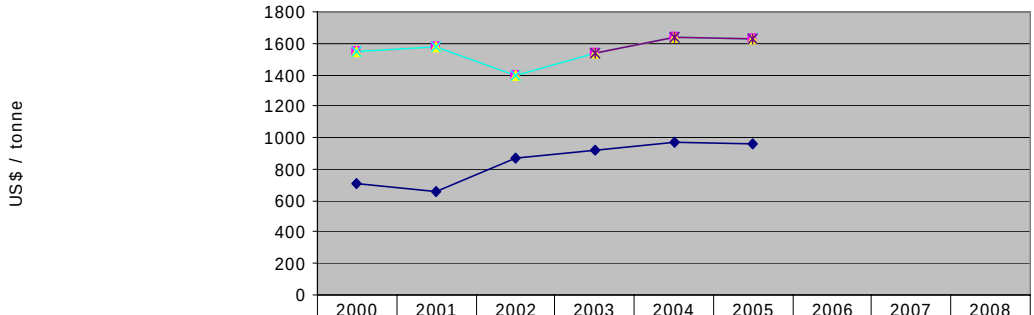


	2000	2001	2002	2003	2004	2005	2006	2007	2008
Imports Quantity	0,18	0,13	0,02	0,24	0,03	0,05			
Exports Quantity	1,44	1,87	1,54	2,11	1,98	1,16			

Source: FAOSTAT, May 2008

2.6 PRICES

FIGURE 8: **Producer price (US$/tonne)**



	2000	2001	2002	2003	2004	2005	2006	2007	2008
Hen eggs (in shells)	705,22	658,69	870,24	916,78	971,65	965,59			
Chicken meat	1545,84	1572,68	1390,69	1541,89	1634,14	1624,12			
Turkey meat	1545,84	1572,68	1390,69	1541,61	1633,71	1623,7			
Duck meat	1545,84	1572,68	1390,69	1541,61	1633,71	1623,7			
Goose or guinea fowl meat				1541,89	1634,14	1624,12			

Source: FAOSTAT, May 2008

Figure 9: Consumer price (US$/tonne)

This information has not yet been sourced.

TABLE 3:
Consumer prices for poultry meat in Jordan (2000-2006) (in files per kilogram) (1000fils = one jd)

						Manual Slaughter		Slaughter house	
Month	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2005**	**2006**
January	1172	1258	1386	1293	1426	1044	1133	1641	1727
February	1208	1231	1364	1311	1407	991	854	1638	1635
March	1324	1241	1322	1348	1453	1096	815	1644	1567
April	1275	1265	1323	1316	1505	1153	873	1693	1449
May	1311	1265	1300	1289	1511	1069	1161	1654	1608
June	1190	1277	1276	1288	1541	926	1072	1634	1677
July	1183	1302	1254	1328	1580	986	943	1622	1654
August	1238	1374	1310	1473	1519	1124	921	1679	1643
September	1201	1385	1330	1393	1376	1081	1116	1691	1682
October	1198	1332	1293	1376	1419	1234	1196	1737	1688
November	1213	1339	1337	1374	1419	1183	1123	1765	1701
December	1290	1407	1326	1382	1419	1147	1226	1730	1727
Average	**1233**	**1306**	**1318**	**1348**	**1465**	**1086**	**1036**	**1677**	**1646**

TABLE 4:
Consumer prices for table eggs in Jordan (2000-2006)
(in files per carton of 30 eggs) (1000fils = one jd)

Month	2000	2001	2002	2003	2004	2005	2006
January	1338	1400	1222	1575	1550	1604	1694
February	1411	1418	1380	1647	1505	1740	1585
March	1448	1441	1356	1603	1294	1865	1475
April	1401	1295	1334	1392	1366	1634	1218
May	1354	1082	1278	1299	1363	1506	1274
June	1384	1088	1233	1303	1509	1413	1368
July	1413	1071	1361	1339	1475	1521	1648
August	1484	1154	1563	1318	1647	1744	1669
September	1618	1195	1646	1307	1663	1691	1684
October	1550	1168	1501	1223	1653	1638	1714
November	1417	1163	1349	1195	1653	1568	1737
December	1440	1116	1393	1208	1653	1579	1867
Average	**1438**	**1216**	**1385**	**1367**	**1527**	**1625**	**1578**

Chapter 3

Poultry production systems

TABLE 5:
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

Forty five years ago Jordan was completely dependent on the small-scale production of poultry to meet the consumption requirements of chicken meat and table eggs, with a quantity of table eggs being imported to satisfy the market requirements. The commercial poultry industry has undergone a rapid development in recent years as a result of many factors including:

- A shortage in the supply of competitive products (red meat)
- High prices of competitive products compared to the production cost of poultry
- Low level of capital investment required by poultry enterprises compared to other agricultural projects
- Good profits and a quick turnover of capital
- The growing role of companies specialized in importing production inputs and selling them to small farmers
- The role of the government, including access to agricultural credit, extension, health services, rules and production/distribution of multi-purpose chicks during the early seventies
- Favourable climate for low cost poultry production

As a result of this rapid development, poultry production in Jordan achieved a high level of self-sufficiency; however in the early eighties, the market started to suffer from a surplus of poultry products, particularly broiler meat and table eggs. Since Jordanian poultry products were not able to compete in export markets, the government was forced to implement production control programs in order to harmonise local production levels with domestic consumption. By taking advantage of such programs, producers were able to harvest a good profit during the eighties. However, these programs had also negative impacts on the whole sector as poultry farms felt no imperative to keep up with technical developments in the sector.

In order to qualify as a member of the WTO, Jordan applied a restructuring program to the agricultural sector in the nineties. Horizontal and vertical expansion in poultry projects took place and the number and capacity of poultry farms doubled within a period of five years. On becoming a member of the WTO in 2000, Jordanian poultry producers were faced with new challenges. The severe competition of good quality imported poultry products at low prices forced producers to upgrade their farms; new high-tech farms were established and an integrated production system was adopted by the large companies.

TABLE 6:
Development of production & number of poultry farms in Jordan (2000-2005)

Year	2000	2001	2002	2003	2004	2005	Change%
Number Of Broiler Farms	2074	2140	2213	2206	2164	2202	6.2
Capacity (Million birds)	23.88	24.21	29.2	29.14	26.04	27.53	15.3
Meat production (1000 Ton)	134.28	145.26	175.2	175	140.64	148.6	10.7
Number Of Layers Farms	272	293	293	291	291	293	7.7
Capacity (Million Birds)	5.09	6.38	6.73	6.6	6.6	7.58	48.9
Capacity (Million Eggs)	916.2	1148.4	1211.4	1187.4	1266.2	1364.8	49.0
Actual Production (Million Eggs)	752	908.2	924.7	879.8	1191.7	785.7	4.5
Hatchery Number	39	44	47	49	49	41	5.1
Production Capacity of Hatcheries	268.6	264.12	277.6	292.01	285.26	341.58	27.2
No of Farms of mothers of broiler	98	102	113	104	103	117	19.4
Production Capacity	309.8	300.11	354.7	365.5	392	379.18	22.4
Actual Production	2753.6	2666.5	3151	3241	3484.1	3369.8	22.4

3.2 SECTOR 1: INDUSTRIAL AND INTEGRATED PRODUCTION

After Jordan became a WTO member and was faced with severe competition from imported poultry products, large producers were forced to establish integrated production systems with a sophisticated modern farms and marketing facilities. In the field of broiler meat production, these companies have their own breeding farms, hatcheries, broilers farms, feed factories, slaughter houses and marketing facilities. This system of production represents around 35% of the broiler market.

Regarding egg production, large companies have started to establish sophisticated modern farms with their own marketing facilities. However, investments in this field are still in their early stages and it does not represent more than 10% of the table egg market.

The following features characterise this form of production:

- Housing – concrete structure closed houses with a double layer insulated metal sheets roofs
- Ventilation & cooling – artificial through water pads\negative pressure system
- Heating – diesel\electric hot air jets
- Lighting – electrical
- Feeding – automatic feeders
- Water supply – automatic nipple drinkers
- Eggs collection – automatic egg collection and grading in the caged layers farms
- Feed source – feed factories in bulk
- Management – specialized agri–engineer or vet
- Labor – unskilled foreign labour
- Production period – selling broilers at 36 – 40 days of age while keeping layers for 52 weeks in production
- Marketing – through slaughterhouses for broilers while eggs are marketed directly to the retailers by a marketing system owned by the same company

3.3 SECTORS 2 AND 3: OTHER COMMERCIAL PRODUCTION SYSTEMS

Traditional commercial broilers and egg production farms

The following features characterise this form of production in Jordan:

- Housing – open-sided concrete buildings with metallic sheets roof which could be insulated
- Ventilation – natural
- Lighting – electrical or by using butane gas pulps
- Heating – butane gas canopy brooders.
- Feeding – v shape trough or barrel manual feeders, in some cases automatic feeders are used
- Water supply – automatic trough drinkers
- Eggs collection – manual from wall mounted metallic nests
- Feed – prepared in the farm using a small vertical mill and mixer, in some cases feed supplied by feed factories
- Management – done by the owner who is not necessarily specialized
- Labor – unskilled foreign labour
- Production period – selling the broilers at 40 – 45 days age while keeping the layers for 20 wks rearing and 60 wks in production

- Marketing – most of the produced broilers are marketed by middle men through small slaughtering facilities; some are marketed through modern slaughter houses. Eggs are marketed almost completely by middle men.

3.3.1 Breeding stocks and hatching eggs

The number of operating hatcheries in Jordan increased from 39 in 2000 to 49 in 2004. The production of eggs for hatching amounted to 1554.5 million eggs; 18.2 million eggs were exported, and 137.25 million eggs were used for hatching, producing 101.75 million day old chicks in 2005. The number of licensed layer mothers' farms is 4, with a production capacity of 9.6 million birds per year, producing 3.3 million birds in 2005.

TABLE 7:
Mother farms operating (2005)

Governorate	Region	Number	Capacity (1000 birds)	Capacity (Million Eggs/ year)	Number	Capacity (1000 birds)	Capacity (Million Eggs/ year)
Amman	Sahab	1	53	5.96	-	-	-
	Nao'ur	5	205	23.1	-	-	-
	Aljeeza	13	429.86	48.36	1	41	3.69
	Wadiessier	1	23.44	2.64	-	-	-
	Almougar	3	459	5.57	-	-	-
	Total	**23**	**760.8**	85.6	**1**	**41**	**3.69**
Madaba	Madaba	2	91	10.24	-	-	-
	Theban	5	165.7	18.64	-	-	-
	total	**7**	**256.7**	**28.88**	**-**	**-**	**-**
Alzarqa	Alzarqa	21	734.8	82.7	1	70	4.48
	Total	**21**	**734.8**	**82.7**	**1**	**70**	**4.48**
Irbid	Irbid	9	128.66	14.5	-	-	-
	Altaibeh	1	13.5	1.52	-	-	-
	Bani kenaneh	2	81	9.11	-	-	-
	Alramtha	4	163.5	18.4	-	-	-
	Almazar Alshemali	1	58	6.53	-	-	-
	Total	**17**	**444.66**	**50**	**-**	**-**	**-**
Jarash	Jarash	12	267.8	30.13	-	-	-
	Total	**12**	**267.8**	**30.13**	**-**	**-**	**-**
Albalqa	Alsalt	4	115.7	13.02	-	-	-
	Ein Albasha	1	21	2.36	-	-	-
	Total	**5**	**136.7**	**15.38**	**-**	**-**	**-**
Alkarak	Alkarak	1	69.5	7.92	-	-	-
	Total	**1**	**69.5**	**7.92**	**-**	**-**	**-**
Almafraq	Almafraq	29	662.85	74.57	2	38.3	2.45
	Total	**29**	**662.85**	**74.57**	**2**	**38.3**	**2.45**
TOTAL		**117**	**3369.81**	**379.18**	**4**	**149**	**10.62**

TABLE 8:
Number of Hatcheries (2005)

Governorate	Region	Number	Production Capacity (Million check / year)
Amman	The Capital	3	54.68
	Naou'r	3	40.45
	Aljeeza	4	45.16
	Total	**10**	**140.29**
Al zarqa	Alzarqa	10	59.4
	Total	**10**	**59.4**
Irbid	Irbid	2	4.73
	Bani Kenaneh	6	10.93
	Alkoureh	-	-
	Alramtha	3	7.38
	Almazar Alshemali	1	6.33
	Total	**10**	**29.37**
Jarash	Jarash	1	2.97
	Total	**1**	**2.97**
Albalqa	Ein Albasha	2	11.81
	Total	**2**	**11.81**
Alkarak	Alkarak	1	55.28
	Total	**1**	**42.28**
Al Mafraq	Al Mafraq	9	42.46
	Total	**9**	**46.42**
TOTAL		**41**	**341.58**

3.3.2 Broiler meat

The figure below reflects the distribution of broiler farms in Jordan according to governorates for 2005. The highest proportion of broiler farms is in Irbid, (24.2%) followed by Amman, and AlMafrq with 17.3% and 15.2% respectively.

TABLE 9:
Distribution of broiler farms; number, capacity and production according to Governorates

Governorate	Region	Licensed Farms		Non Licensed Farms		Total		
		Nb	Capacity (1000 birds)	Nb	Capacity (1000 birds)	Nb	Capacity (1000 birds)	Production capacity (1000 tons of meat)
Amman	The capital	25	382.6	22	257.4	47	640	3.46
	Wadiessier	45	592.78	1	4.4	46	597.18	3.22
	Sahab	33	407.25	20	232	53	639.25	3.45
	Aljeeza	137	2177.54	2	8	139	611.13	11.8
	Nao'ur	32	455.73	12	155.4	44	611.13	3.3
	Almougar	54	730.85	35	507.9	89	1238.75	6.69
	Total	**326**	**4746.75**	**92**	**1165.1**	**418**	**5911.85**	**31.92**
Madaba	Madaba	44	770.6	-	-	44	770.6	4.16
	Theban	71	810	1	6	72	816	4.41
	Total	**115**	**1580.6**	**1**	**6**	**116**	**1586.6**	**8.57**
Alzarqa	Alzarqa	135	2658.55	-	-	135	2658.55	14.36
	Total	**135**	**2658.55**	**-**	**-**	**135**	**2658.55**	**14.36**
Albalqa	alsalt	117	1709.5	-	-	117	1709.5	9.23
	South shouneh	27	360	-	-	27	360	1.94
	Mahes & Alfhes	3	22.5	1	11	4	33.5	0.18
	Deer Ala	-	-	-	-	-	-	-
	Ein Albasha	34	553.3	5	140	39	693.3	3.74
	Total	**181**	**2645.3**	**6**	**151**	**187**	**2796.3**	**15.1**
Irbid	Irbid	201	1508181	12	38	213	1546.18	8.35
	Alramtha	60	746.8	21	154.5	81	901.3	4.87
	Bani kenaneh	34	277	68	555	102	832	4.5
	Alkourah	66	510.24	7	40.5	73	550.74	2.97
	Almazar Alshemali	20	141.18	11	46.25	31	187.43	1
	Altaibeh	63	542	12	60.1	75	602.1	3.25
	Alshouneh Alshemaliah	3	76	1	5	4	81	0.44
	Alwasteih	9	94.85	7	86.2	16	181.05	0.89
	Total	**456**	**3896.25**	**139**	**985.55**	**595**	**4881.8**	**26.36**
Jerash	Jerash	102	839.7	-	-	102	839.7	4.53
	Total	**102**	**839.7**	**-**	**-**	**102**	**839.7**	**4.53**
AlMafraq	AlMafraq	282	3854.63	32	132.5	314	3987.13	21.53
	Albadiah Alshemaliah	3	343	-	-	3	434	2.34
	Total	**285**	**4288.63**	**32**	**12.5**	**317**	**4421.13**	**23.87**
Ajloun	Ajloun	73	545.5	11	61	84	606.5	3.3
	Total	**73**	**545.5**	**11**	**61**	**84**	**1505.5**	**3.3**

TABLE 9:
Distribution of broiler farms; number, capacity and production according to Governorates

Governorate	Region	Licensed Farms		Non Licensed Farms		Total		
		Nb	Capacity (1000 birds)	Nb	Capacity (1000 birds)	Nb	Capacity (1000 birds)	Production capacity (1000 tons of meat)
Alkerak	Alkerak	48	1495.5	1	10	49	1505.5	8.13
	Ghour elsafi	2	20	-	-	2	20	0.11
	Algasser	33	508.56	1	30	34	538.56	2.91
	Almaza Aljanoubi	34	300855	22	95.93	56	396.78	2.14
	Aie	31	280.73	-	-	31	280.73	1.51
	Total	**148**	**2605.65**	**24**	**135.93**	**172**	**2741.57**	**14.8**
Altafilah	Altafilah	30	372.3	3	19.5	33	391.8	2.12
	Total	**30**	**372.3**	**3**	**19.5**	**33**	**391.8**	**2.12**
Ma'an	Ma'an	11	148	3	25	14	173	0.93
	Total	11	148	3	25	14	173	0.93
Aqaba	Aqaba	19	425.12	10	92	29	517.12	2.8
	Total	**19**	**425.12**	**10**	**92**	**29**	**517.12**	**2.8**
TOTAL		**1881**	**24752.35**	**321**	**2777358**	**2202**	**27.52**	**148.6**

3.3.3 Hen table eggs

In 2005, layer farms in Jordan numbered 293 with a total capacity of 7.6 million birds and a production capacity of 1364.8 million eggs annually. The actual production of table eggs in Jordan in 2005 was around 785.7 million eggs, 98% produced from layer farms while the rest were produced from mothers of broilers and layers unsuitable for hatching. Although the number of layers farms is stable for the period 2001-2005 (around 293), the production capacity varies from 1148.4 million to 1364.8 million eggs for the same period. The actual production varies from 908.2 million eggs to 1191.7 million eggs per year from 2001 - 4 and in 2005, production declines to reach 785.7 million eggs.

TABLE 10:
Number and distribution of layer farms operating in 2005

Governorate	Region	Number	Capacity (1000 birds)	Production capacity (million eggs)
Amman	The capital	2	35.41	6.37
	Wadiessier	2	26.33	4.74
	Sahab	18	284.90	51.28
	Aljeeza	49	1483.57	267.04
	Nao'ur	9	175.05	31.51
	Almougar	24	290.325	52.26
	Total	**104**	**2295.59**	**413.20**
Madaba	Madaba	10	141.58	25.53
	Theban	4	43.75	7.88
	Total	**14**	**185.6**	**33.41**
Alzarqa	Alzarqa	13	614.8	110.66
	Total	**13**	**614.8**	**110.66**
Albalqa	Alsalt	17	457.9	82.42
	Mahes & Alfhes	1	38.50	6.93
	South shouneh	-	-	-
	Deer Ala	-	-	-

TABLE 10:
Number and distribution of layer farms operating in 2005

Governorate	Region	Number	Capacity (1000 birds)	Production capacity (million eggs)
	Ein Albasha	4	157.98	28.44
	Total	**22**	**654.38**	**117.790**
Irbid	Irbid	10	268.39	48.31
	Alramtha	7	130.3	23.45
	Bani kenaneh	4	68	12.24
	Alkourah	4	269.5	48.51
	Almazar Alshemali	-	-	-
	Altaibeh	5	434.470	78.20
	Alshouneh Alshemaliah	-	-	-
	Total	**30**	**1170.66**	**210.72**
Jerash	Jerash	8	181.1	32.6
	Total	8	181.6	32.6
AlMafraq	AlMafraq	92	2086.4	375.55
	Albadiah Alshemaliah	-	-	-
	Total	**92**	**2086.4**	**375.55**
Ajloun	Ajloun	1	11.5	2.1
	Total	**1**	**11.5**	**2.1**
Alkerak	Alkerak	5	95.5	17.2
	Ghour elsafi	-	-	-
	Algasser	2	53	9.54
	Almaza Aljanoubi	-	-	-
	Aie	-	-	-
	Total	**7**	**148.5**	**26.73**
Altafilah	Altafilah	2	31	5.5
	Total	2	31	5.5
Ma'an	Ma'an	2	198	35.64
	Total	**2**	**198**	**35.64**
Aqaba	Aqaba	1	5	0.9
	Total	**1**	**5**	**0.9**
TOTAL		**293**	**758253**	**1364.8**

3.3.4 Other species

There are 6 ostrich farms; two farms located in Amman governorate and one in Balqa, Madaba, Karak, and Ma'an governorates. The largest one is located in Karak with a capacity of two thousand of birds, while those located in Balqa and Ma'an have a capacity of 500 and 300 birds respectively. The capacity of other farms ranges between 50-80 birds. There is one quail farm located in Jarash governorate.

TABLE 11:
Ostrich, Ferry and Turkey farms in Jordan (2005)

Region		Ostrich Farms		Turkey Farms		Ferry Farms	
		Number	Capacity	Number	Capacity	Number	Capacity
Amman	Sahab	1	60	-	-	-	-
	Aljeezeh	-	-	-	-	-	-
	Almouqer	1	-	-	-	-	-
	Total		**140 (?)**	**-**	**-**	**-**	**-**
Albalqa	Alsalt	1	500	-	-	-	-
Madaba	Madaba	1	50				
Jarash	Jarash	-	-	-	-	1	2160000
Alkarak	Alkarak	1	2000	-		-	-
Ma'an	Ma'an	1	300	-	-	-	-
TOTAL		**6**	**2990**			**1**	**2160000**

3.4 SECTOR 4: VILLAGE OR BACKYARD PRODUCTION

3.4.1 Chickens

The main purpose of domestic bird-keeping is home consumption; Anas Abdelqader et al (2005) indicate that "Local chickens play an important role as a source of high quality protein for poor rural people. Primary functions of local chicken were egg production for home consumption (65% of households), followed by generating cash income (35 %)".

Domestic birds in Jordan are kept in back yards; they move around the home in free areas where they are exposed to wild birds. Their feeding system depends mostly on some grains or food leftovers and water is provided in open dishes outside their pens. This increases the risk of wild birds sharing their feed. The pens are normally closed tightly only during the night to avoid predators.

The level of health and veterinary care of the domestic chicken is restricted by the economic level of households. However, in most cases the domestic chicken does not receive any vaccinations, and medicines are provided only when there is a health problem. The medicines might vary from traditional medicines to modern antibiotics prescribed by veterinarians.

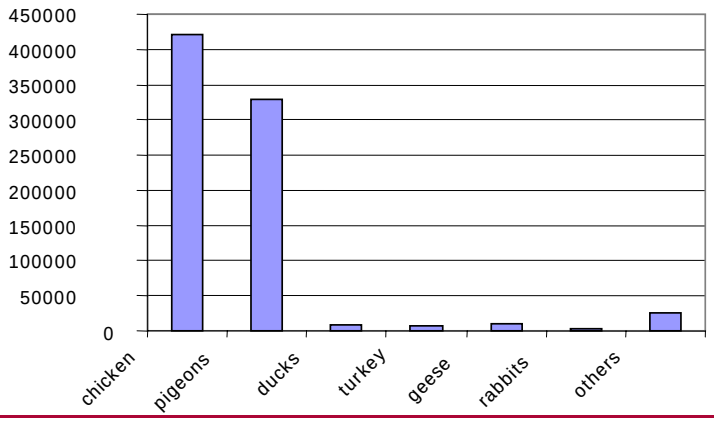
Anas Abdelqader et al (2005) indicate that "The most frequent outbreak of diseases, as perceived by the surveyed households, was in the order of occurrence: Newcastle Disease (51 %), Infectious Bronchitis (21 %), Fowl Typhoid (18 %) and other diseases (10 %)".

So far there is no complete survey or technical study for this type of production all over the country, a technical study carried out in 2005 was limited to the northern part of the country.

3.4.2 Ducks

Other domestic birds kept in Jordan are pigeons, ducks and turkey. According to the 1997 agriculture census, the chicken is the main bird kept for home consumption and the pigeon is the second. The following chart illustrates the composition of domestic birds and small animals in Jordan according to the 1997 agricultural census.

FIGURE 10: **Distribution of short cycle species in village poultry production systems (1997)**



3.5 POULTRY VALUE CHAIN ANALYSIS

3.5.1 Day-old chicks

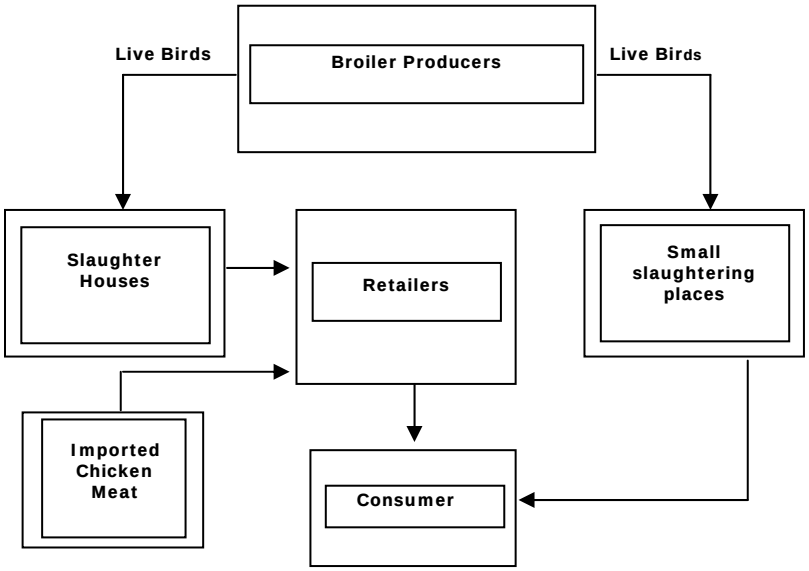
This information has not yet been sourced.

3.5.2 Chicken meat

Marketing of domestic birds and their products is usually done through direct selling from producer to consumers, sometimes on the roadside or in local shops. Shopkeepers in villages and rural areas are sometimes involved as middlemen. Although some products are transferred to urban areas, this depends mainly on finding a strong link and mutual trust between the producers and the consumers. Some trials were carried out by NGOs to market rural products in urban areas but the success of these initiatives is yet to be evaluated. Prices of domestic birds and their products tend to be higher than similar products of commercial sector.

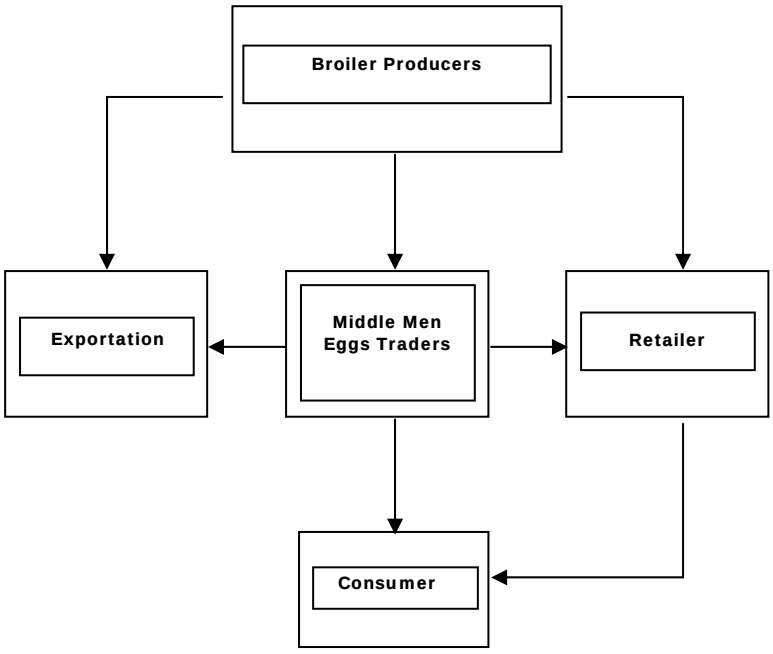
For commercial production, the marketing systems are more complex. For small producers on commercial farms the system depends on direct sale to a middleman who is able to market the whole flock within a short period of time, typically 1- 3 days. In this case the marketed product is live chicken and the destination of the product is the small slaughtering houses that can be found across Jordan. For the integrated closed system the final product is chicken meat either frozen or chilled. The middle men in this case are the department stores and large shops that directly sell to the consumers. The following charts illustrated the marketing system for both poultry meat and table eggs.

FIGURE 11: **Marketing Structure for broilers & meat**



3.5.3 Table eggs

FIGURE 12: **Marketing structure of table eggs**



The main players in marketing poultry meat are the distributors who buy the chickens from the producers and sell them to the retailers and the slaughterhouses. It is estimated that more than 50% of the total sold meat comes from slaughterhouses. Thus, distributors are the main actor in the poultry meat chain. The main market players in marketing eggs are the distributors (middle men) who buy the table eggs from the producers and sell them to the retailers.

3.5.4 Other species

This information has not yet been sourced.

Chapter 4

Trade, marketing and markets

4.1 DOMESTIC MARKET

This information has not yet been sourced.

Table 11: Distribution of markets

This information has not yet been sourced.

4.2 IMPORT

This information has not yet been sourced.

4.3 EXPORT

During 2004, Jordan exported 220,000 live chickens valued at $809,000 and 4,000 live turkeys valued at $194,000, representing less than one percent of world exports. Jordan also exported 1,408 mt of chicken meat valued at almost $2.5 million, 1,976 mt of turkey meat valued at nearly $5.7 million, as well as small amounts of duck and turkey meat.

TABLE 12:
Exports of live poultry and poultry products, Jordan (2003 and 2004)

	2003		2004		% of World in 2004	
	Quantity (1,000 head)	Value (1,000$)	Quantity (1,000 head)	Value (1,000$)	Quantity	Value
Live Poultry						
Chickens	1117	1991	220	809	<1	<1
Ducks	4	26	0	0	<1	<1
Turkeys	3	68	4	194	<1	<1
Poultry Products						
Chicken Meat	1,449	1,425	1,408	2,474	<1	<1
Duck Meat	26	132	67	153	<1	<1
Turkey Meat	49	69	296	990	<1	<1
Canned Chicken Meat	224	307	286	564	<1	<1
Hen Eggs	2,115	6,080	1,976	5,683	<1	<1
Liquid Hen Eggs	0	0	4	6	<1	<1

Source: United Nations FAO, Global Trade Atlas

4.4 SLAUGHTERING FACILITIES

There are two methods of slaughtering and processing poultry in Jordan; the informal facility termed Natafat and slaughterhouses. The Natafat are individually-owned firms which use primitive and manual plucking methods. These Natafat are allowed in all governorates except Amman.

There are 7 slaughterhouses with a total capacity of 21.5 thousand birds per hour. These slaughterhouses are distributed in Amman, Zarka, Karak and Aqaba governorates. The largest slaughterhouse is in Karak and is owned by the National Company for Poultry with a

capacity of 6000 birds per hour and the smallest one is in Amman / Sahab with a capacity of 1000 birds per hour.

Integrated farms depend on production units adjacent to their processing units so the transportation is over limited distances. The chicken are collected in cages (with 17 birds in each cage) and transported to the processing unit. Distances from smaller commercial farms to processing units are much longer. Cages and trucks are used and the transportation process usually takes place during the night as it is easier to collect the birds in the dark. Domestic production transportation varies according to the region and there are no identical measures that can be described here.

TABLE 13:
Slaughter houses in Jordan (2005)

Number	Slaughter House	Location	Capacity birds/hour
1	Amman Municipality Slaughter house	Amman	2500
2	Aldlail Slaughter	Aldlail	4000
3	National Poultry Company Slaughter house	Qatraneh	6000
4	Altahouneh Slaughter	Altafeh	3000
5	Tamam Slaughter	Alzarqa	3000
6	Danish Company Slaughter	Sahab	1000
7	Alamel Slaughter	Quaireh	1500
Total			**21500**

4.5 POULTRY FEEDS

This information has not yet been sourced.

Chapter 5

Breeds

5.1 EXOTIC BREEDS

Of the total number of mothers of layer birds on Jordanian farms, the Haysesex breed comprise 40% of the total, followed by Babkok (32.7%). The remaining are Lohman and Haylayan breeds with a percentages of 18.7% and 10.7% respectively. The total number of mothers of broiler amount to 1.6 million birds in 2005. The main breeds are Hybrid and Lohman (38.1% and 30.3% respectively) followed by Roos (24.3%). The remaining 7.3% are Hybrio, Cob and Araoekrs.

5.2 LOCAL BREEDS

There is no information on breeds of other species raised in home husbandry, such as pigeon, ducks, and geese. General speaking they are from local breeds.

Chapter 6

Veterinary health, public health, biosecurity measures

6.1 HIGHLY PATHOGENIC AVIAN INFLUENZA

On March 23, 2006, Jordan reported an outbreak of highly pathogenic avian influenza (HPAI) virus, type H5N1, in poultry. This was the first confirmed occurrence of HPAI in Jordan. Several of Jordan's neighbouring countries also announced outbreaks of H5N1 virus in poultry. Iraq and Egypt both reported outbreaks in February 2006 and Israel reported an outbreak on March 18 2006. Jordan began intensified monitoring and inspections after Israel's reported outbreak.

The outbreak was located in Kofranja, Ajloun governorate, in the northwest region of Jordan and occurred in backyard turkeys and chickens. Clinical cases were present and 8,000 birds were considered susceptible. Stamping out, quarantine, movement controls, screening, zoning and disinfection were undertaken. A survey was planned for a 10 km radius and vaccination and dipping and spraying were also conducted.

At the time of the severe outbreak of AI in Jordan and other neighbouring countries many producers (mainly broiler producers) - who lacked experience in dealing with a disease of this kind - ceased operations on their farms to avoid infection and losses. As a result, there was a surplus in day-old chicks and hatching eggs which led to a severe drop in prices for these products.

The intensive education programs relating to AI carried out by different bodies such as WHO and the Jordanian Ministry of Health were exaggerated and had a negative effect on consumption; the consumption of broiler meat and table eggs dropped to around 30% of normal market consumption. The decrease in demand meant that many farms were unable to operate at an economic level. Throughout 2006 the market recovered gradually as consumption returned to normal levels while production continued to be below normal which caused a large increase in selling prices.

At the end of 2006 a new outbreak of AI took place in some of neighbouring countries but these had no noticeable effect on consumption or production.

The Government of Jordan has prepared a contingency plan to deal with any outbreak of Avian Influenza. The plan defines the role of each ministry or other related public or private bodies in the case of any outbreak.

The plan includes establishing a ministerial committee headed by the Minister of Health and including the Minister of Agriculture. The committee will be able to mobilise sufficient resources and initiate the required instructions to control the situation in the sector and minimise the expected impact of any outbreak.

Ministry of Agriculture Action Plan

Building on the Government Contingency Plan, the Ministry of Agriculture - in collaboration with other concerned ministries and agencies - has prepared an action plan to combat and control the disease

The plan defines the specific role that every organization should take in the case of an outbreak. It also defines the department and person responsible for each emergency measure.

- When an outbreak occurs, establish an operations room in the Ministry and organize a field work schedule. The room will be linked to the Armed Forces and National Security Operations Rooms.

- Order the field directorates in the different Governorates to:
  - daily monitor poultry farms and send any data about suspected disease and arrange for sampling and testing in the central labs in the ministry
  - enhance the monitoring and inspection in Ornamental shops and zoos
- Ensure continuity in monitoring the health status and sampling on poultry farms, particularly in those located close to the immigrant bird line
- Establish a joint committee between the Ministry of Agriculture and RSCN to monitor immigrant birds and test a sample of the dead birds
- Ban the imports of birds from infected countries
- Ban the imports of ornamental birds, pigeons and water birds
- Suspend the imports from some countries to avoid any risk
- Ask local Governors and Health and Agriculture regional directors to fully integrate their work
- Ask Veterinary and Engineer Associations to notify their members to notify the Ministry in the case of any suspected case
- Train vets and other specialists to deal with AI
- Provide private and public sector specialists with suitable materials to deal with any cases that arise
- Directly contact vet companies to provide antibiotics and vaccines as soon as any outbreak happens
- Maintain continuous contact with neighbouring governments to monitor the situation of the epidemic
- Isolate infected regions and prevent the movement of birds, machineries and people within these regions
- Vaccinate the surrounding farms
- Healthy culling from infected flocks
- Ban the trade of any products from infected farms
- Ensure proper disposal of dead birds including burying and burning
- Compile a list of workers on the infected farms
- Seek the help of international organizations WHO, FAO, and OIE
- Provide media coverage
  - Extension messages in newspapers
  - Extension messages through broadcast and T.V
  - Publish an extension leaflet and distribute to relevant people
  - Specify one media spokesman and announce his name to the media

TABLE 14:
Ministry of Agriculture Action Plan

Items	Activities	Implementation agency	Duration	Tools of implementations
Alert system of A.I	Monitoring the poultry farms	Vet. Department; Animal Production Department; Field directorates		Prepare list of farmers at governorates level Provide transportation means
	Monitoring the immigrated birds			Define the locations of immigrated birds and take samples to be tested (in collaboration with RCN) Intensify control on the surrounding poultry farms
	Monitoring the imported birds and their products	Vet. Dept.		Ban the import of wild birds, .. , from all countries Ban the import of poultry and its products from the infected countries
	Follow up the global status of A.I	Vet. Dept. Quarantine division		Follow up through different media means especially WHO reports
	Controlling the ?? and Zoos	MoA, field directorates		Regular field visits Sampling and testing
Managerial Plan	Establishing an operation room	MoA ornamental		A committee should established in MoA to start work as soon as any outbreak occurs; a plan for 24 hour work should be prepared and distributed to be followed in the case of an outbreak
	Sharing the official related documents	MoA		Make sure the field directorates are well aware of the required procedures (monitoring and sampling) Inform the private sector through Veterinary and Agriculture Engineers Associations
	Training related people	Lab. Dept. Vet. Dept.	Within 3 weeks	Meet with specialists in field directorates Select the staff and trained them in central labs. Conduct field training in the governorates Conduct training for a group of specialists in international labs
	Provide the official vets. and agr. Engineers with required materials to deal with any outbreak	Vet. And Lab. Depts. Field directorates	As soon as possible	Form a committee from Vet. and Lab. Depts. to define the specifications for the required materials and equipments
	Provide the vets. working in poultry field with the A.I vaccines	The Minister of Agriculture	As soon as possible	Writing to the Minister of Health to provide the vaccines
	Continuous contacting with neighboring countries	The Gen. Sec. Consultant Vet. Director Lab. Director	Within two weeks	Technical meetings and phone calls
	Specify a mechanism to provide vaccines in case of any outbreak	Vet. and lab. Depts.	According to condition of company and as soon as possible	Contact the companies that produced the vaccines and contract to supply the vaccine in case of outbreak
Media and Extension	Extension messages in the newspapers	MoA Poultry health division Central labs division Poultry division	Within a week on a weekly basis until the end of the Winter	Ask the specialists to write down extension messages to be published in cooperation with Extension Dept.

TABLE 14:
Ministry of Agriculture Action Plan

Items	Activities	Implementation agency	Duration	Tools of implementations
	Extension Messages through the broadcast and T.V	MoA Poultry health division Central labs division Poultry division	Started week a go and will continue	Instructions for the specialists to participate in these activities were given
	Publish an Extension leaflet and distribute among concerned people	Poultry health division Central labs division	Within two Weeks	Asking the Vet. And Lab. Depts. to produce the leaflet in cooperation with the Extension Dept.
	Specify one Media Spokesman	MoA	Direct	Specify the Deputy Gen. Sec. for Animal Administration to be the spokesman
	Isolating the infected regions and prevent the movement of birds, machineries and people with in these regions	The established committees in the governorates	When outbreak happens	According to the view of the regional committee view
	Healthy culling from infected flocks and all the residuals	MoA MoE MoM Gov. committees	When outbreak happens	Burning the birds Use of limestone bury
	Sanitation	MoA MoM Gov. committees	When outbreak happens	Use of available spraying machines in MoA and MoM
	Vaccinating the surrounded farms	MoA Private sector	When outbreak happens	Purchasing the requited vaccines and equipments and sending them to infected regions
	Listing the workers in the infected farms	MoA MoH	When outbreak happens	Sending them to nearest hospital
	Seeking the help of international organizations	MoA MoH	When outbreak happens	WHO, FAO, and OIE AOAD

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/ag/againfo/programmes/en/empres/home.asp

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

This information has not yet been sourced.

6.3 BIOSECURITY MEASURES

This information has not yet been sourced.

Chapter 7

Current policies, legal framework

The agricultural national strategy 2002-2010 under the sub-sector of the Livestock and Rangeland Sub-sector, stated the following objectives and implementation strategies concerning the poultry sub-sector:

- Objective 11: Support Livestock Breeders' Organizations and Encourage the Establishment of Councils or Specialized Breeders Associations for Production and Marketing of Produce and Provision of Support Services. This is achieved by establishing specialized breeders associations or councils for the production and marketing of poultry meat and table eggs.
- Objective 12: Protect Local Products from Illegal Competition in Accordance with the Provisions of Free Trade Agreements. This is achieved by providing all required staff, laboratories and administrative units for the effective protection of local products from unfair competition according to WTO agreements, namely arrangements for protection from damage, anti-dumping measures and protection from subsidized exports. Establish an effective mechanism for the protection of Jordanian traders and consumers from fraudulent trade practices according to WTO agreements, namely Technical Barriers of Trade Agreement, Health and Livestock Health Agreement, and Sanitary and Phytosanitary measures.
- Objective 8: Improve Animal Health Services by raising the number and technical standards of staff working in animal health and establishing a research centre for poultry disease and a laboratory for the quality control of veterinary vaccines.
- Improvement of production efficiency in the poultry sector

Laws and Regulations relating to Avian Influenza

There are various laws and regulations that should be taken into consideration when dealing with disease outbreaks in the poultry sector. The main one is the Law of Agriculture No. 44 from 2002.

Building on this law, a number of regulations have been issued to regulate work in the poultry sector. These regulations cover production, epidemiology, trade and other topics. Whilst the major authority responsible for these laws and regulations is the Ministry of Agriculture, there are a number of overlaps with the duties and responsibilities of other Ministries such as the Ministry of Health and the Ministry of the Environment. Even within the Ministry of Agriculture, there are two major departments directly engaged in organising and monitoring this sector; the Department of Veterinary Affairs and the Department of Animal Production. Other departments play minor roles in the process such as the Department of Laboratories and the Department of Marketing.

The other major factor that should be taken in consideration is the breadth of this sector and the fact that different production systems necessitate different approaches.

However, the following are the major regulations that directly affect work in this sector and need to be dealt with in the case of any outbreak of an epidemic:

- Regulation Number 3: Animal quarantine
- Regulation Number 4: Establishing poultry farms
- Regulation Number 16: Licensing of poultry slaughterhouses
- Regulation Number 17: Establishing, operating and monitoring processing of by-products of slaughterhouses
- Regulation Number 27: Organizing animal markets outside Municipality borders
- Regulation Number 34: Protecting wild animals and birds and their hunting
- Regulation Number 38: Compensation for culled animals

- Regulation Number 40: Procurements and procedures to be taken to prevent the spread of epidemic diseases
- Regulation Number 41: Bird tagging
- Regulation Number 42: Identification of epidemic and infectious diseases
- Regulation Number 44: Required technical and sanitary specifications of animal zoos and exhibitions

A brief description of major areas covered by these regulations is outlined below

Regulation Number 3: Animal Quarantine

This regulation regulates the trade in animals and animal products including live chickens and poultry products. It regulates import and export and defines responsible authorities. The regulations identify rules and procedures relating to preliminary checking for disease and for cases when shipments are not allowed to enter into the kingdom. It indicates the responsibility of the Ministry of Agriculture in controlling the trade process. Products that are subject to import license normally pass through the sanitary committee in the Ministry of Agriculture, which has the right to ban the import of any products for sanitary reasons. The main agencies responsible for applying these regulations are the Department of Veterinary Services, the Department of Animal Production and the Department of Marketing in the Ministry of Agriculture.

Regulation Number 4: Establishing poultry farms

The main authority responsible for implementing these regulations is the Animal Production Department in the Ministry of Agriculture, however the Ministry of Environment and the Ministry of Municipality Affairs also have a specific role to play in establishing new farms.

The regulation clarifies the specifications and conditions relating to establishing new poultry farms. It prevents licensing to any farm with less than 5000 birds to ensure that sufficient capital been invested and the farm is suitable to produce on economic basis. The regulation also specifies the distance between farms and the required distance from the nearest municipality border. In addition to that, it defines the role of the Ministry of Agriculture in regular visits to these farms to ensure that the operation meets health standards.

Regulation Number 16: Licensing of poultry slaughterhouses

This regulation defines the specifications of poultry slaughterhouses and the minimum capacity level to be licensed which is 1000 bird/hour. It also states that the veterinary services should be provided through a veterinarian employed by the plant. The MoA has the right of general veterinary supervision. Both the Ministry of Environment and the Ministry of Municipalities have specific authority in this field.

Regulation Number 17: Establishing, operating and monitoring processing of by-products of slaughterhouses

These regulations are mainly concerned with raising the standards of small processing plants that use poultry by-products as inputs to produce feed concentrates that enter the animal feeding cycle. It defines the specification and rules of operation of such plants.

Regulation Number 27: Organizing Animal Markets outside Municipality borders

While the main focus of implementation of this regulation is the ruminants market, this regulation could be used as a tool to regulate local bird markets (especially for birds other than poultry such as pigeon) that are normally held inside the cities and on urban land.

Regulation Number 34: Protecting wild animals and birds and their hunting

According to this regulation, the Ministry of Agriculture has the right to determine the species of animals and birds to be hunted and the location and season of hunting. Hunting is subject to license and it can be restricted through licence removal. This regulation gives the licensing right to the RSCN, but this can be done through coordination with this organization.

Regulation Number 38: Compensation for culled animals

This regulation authorizes the Minister of Agriculture to determine the diseases subject to compensation according to their importance in terms of public health. The value of compensation is to be determined by a committee from the MoA and the Ministry of Finance. The regulation allows the culling of both infected birds and those suspected of being infected. It gives the relevant authority the right to determine the method of burial of culled birds.

Regulation Number 40: Procurements and procedures to be taken to prevent the spread of epidemic diseases

According to this regulation, the owner of animals or birds should notify the nearest authority of infectious diseases and the nearest authority should immediately notify the nearest veterinary centre. According to this regulation, the MoA has the right to sample, test and cull when suspected cases arise. The regulation also gives the right to the Minister of Agriculture to declare any region as an infected region; the declaration should specify the name of the region, boundaries of the region and the nature of disease.

Regulation Number 41: Bird tagging

This regulation concerns wild birds and is mainly used for research and scientific purposes; according to the criteria, the RSCN is the legitimate authority for licensing.

Regulation Number 42: Identification of epidemic and infectious diseases

This regulation identifies a list of diseases as per OIE lists. It includes the following poultry diseases as major diseases that might be a threat and need to be dealt with in a careful manner: Avian infectious bronchitis, Avian infectious laryngotracheitis, Avian tuberculosis, Duck virus hepatitis, Duck virus enteritis, Fowl cholera, Fowl pox, Fowl typhoid,Infectious bursal disease (gumboro), Marek`s disease, Avian mycoplasmosis, Avian chlamydiosis, and Pullorum disease.

Regulation Number 44: Required technical and sanitary specifications of animal zoos and exhibitions.

These regulations define the specifications of animal or bird exhibitions, zoos, circuses and shops. The regulations enforce record-keeping and specify the MoA as the legitimate authority for veterinary supervision. It also gives the MoA the right to close these places in the case of sanitary problems.

Chapter 8

Analysis

8.1 CURRENT STRENGTHS AND WEAKNESSES OF THE POULTRY SECTOR

The poultry sector in Jordan is considered one of the most productive sectors in the field of agriculture. It is estimated that the value of investments in this sector approach JD 500 million and these represent more than 55% of the volume of investments. The estimated value of production of this sector is about JD 180 million in 2005, representing 55.6% of the total production of the livestock sector. In addition to the direct contribution of the poultry sector in form of value added, the Jordanian poultry sub-sector contributes to the national economy through enhancing investment in related activities. The expansion of poultry production has led to the creation of many feed processing houses (17 in 2005) to produce the ready, concentrated feed. In addition, 7 processing houses have been established to convert poultry slaughtering by-products. The production of these firms amounted to 250 thousand tons, used as organic fertilizers in crop production and for animal feed. There is also investment in poultry slaughtering houses, processing, preparing and packaging. These investments create job opportunities and contribute to the national economy.

However, poultry production in Jordan faces many problems and obstacles such as:

- Competition between local produce and high-quality, subsidized European imported products
- Technical and health problems that increase the mortality rate in poultry farms to about 20% compared to 10% in developed countries
- Inadequate number of laboratories and diagnosis centres for poultry diseases with specialized veterinarians
- High production cost due to increased cost of imported feed, which is the main component of production inputs

8.2 PROSPECTS OF THE POULTRY SECTOR OVER THE NEXT FIVE YEARS

This chapter has not been developped.

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

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Annex IV

Maps

Maps to be developed