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# **Competitiveness of Syrian Chicken Meat Production**

Prepared

By

Basheer Al Hamwi

With assistance from

Fredric Lancon

International Cooperation Center of  
Agricultural Research for Development-Montpellier- France

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## **Abbreviations**

<b>GMODC</b>	<b>Grand Mother, One Day Chicks</b>
<b>MODC</b>	<b>Chicken Mother for and One Day Chicks</b>
<b>ODC</b>	<b>One Day Chicken</b>
<b>LC</b>	<b>Live Chicken</b>
<b>CM</b>	<b>Raw Meat of Chicken</b>
<b>PCM</b>	<b>Processed CM( chicken cut, mortadella, and shawarma...)</b>
<b>MAAR</b>	<b>Ministry of Agriculture and Agrarian Reform</b>
<b>MET</b>	<b>Ministry of Economy and Trade</b>
<b>MLA</b>	<b>Ministry of Local Administration</b>
<b>MI</b>	<b>Ministry of Industry</b>
<b>ME</b>	<b>Ministry of Environment</b>
<b>MHH</b>	<b>Ministry of Human Health</b>
<b>MESH</b>	<b>Mecahnical Slaughter House</b>
<b>MASH</b>	<b>Manual Slaughter House</b>

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## **Preface**

World market is marked by being highly intensified and is hard to compete in. The purpose of this study is to comprehensively bring together existing data on the economic factors that affect the competitiveness of Syrian Chicken meat (CM) along with an estimation of its ability in future to compete in local and foreign markets, identify factors affect the possibility of developing its production, marketing services and expanding its export. As well as enhancing its application of international standards and satisfaction of consumer preferences.

The study focused on describing and analyzing the situation of production, marketing and processing structures of this commodity. The study aimed to identify economic factors affecting all stakeholders in the value chain, describe marketing structure and evaluate exist and potential competitiveness.

## **Introduction about the study**

CM production has greatly developed in the last ten years following the decision of Syria authorities to developed national production capacity to achieve self-sufficiency. Meanwhile opening agro-food sector to private investment allowed the establishment of large poultry meat producing companies. These modern companies vertically integrate the various step of chicken production; many of them produce Grand Mother One Day Chicken (GMODC), Mother One Day Chicken (MODC) or One Day Chicken (ODC) to chicken meat and processed meat in addition to forage importation. The country witnessed an increase in CM production that matching domestic market needs in volume and brought into the policy debate the issue of targeting foreign markets.. This report address the question: given the fact that Syria has a CM capacity exceeding the local demand, to what extent the CM sector is competitive in cost and quality wise to export its production , especially to neighbor countries? Do the quality and the cost of production enable Syria to successfully compete in local and foreign markets?

### **1 Development of CM production: issues and challenges**

CM is one of the most important food commodities at the global label. Syrian production and consumption of CM has remarkably increased in the last ten years due to more investment in the sector and high demand for CM in the market resulted from improvement in living standard. Syria is now self sufficient of CM production and has surplus for export.

Poultry industry has witnessed considerable expansion covering all the technical aspects of the sector, including CM and eggs production, diseases treatment, setting up big farms and slaughter houses with high capacity fitted out with high technology, factories that manufacturing equipments, forage and Processed Chicken Meat (PCM). This development was motivated by the incremental consumption of poultry products as a substitute of costly red meat as a source of animal protein, derivation of high productive races of chickens that have higher conversion rate of forage to meat, and rapidity in the recovery of investment capital.

As a result, production of chicken transferred from open traditional activity with low productivity to closed modern activity with high productivity and became very important for the national economy.



## 1.1 Barriers for Expansion of Production and Export of CM

The main barrier for expansion of poultry production in the past was the epidemic diseases that cause great losses for farmers, this resulted mostly of carelessness by some farmers, and high cost of medication. This problem now is less severe due to the higher awareness of CM producers about diseases, their treatments, and the availability of affordable medicines following the expansion of animal medicine local production. Still there is a problem related to the short distances between farms which is favorable to contamination. This caused a high rate of chicken mortality, up to 15% or more.

This study deals with the actual CM production and marketing in the S.A.R as it being considered as a basic and important industry, whereas it contributes effectively in securing food to Syrian people, and works on establishing the greatest level of self sufficiency for animal products. CM sector has also a great economic value and it is a main component in forming economic and strategically target. The development and growth of CM industries is linked to the development and growth of the animal sector, and it's considered as the main source of animal protein. Besides it is linked to other important industrial branches like forage production, animal medicine, poultry equipments, and the transport industries.

The study reviews the development of this industry in terms of numbers and structure of CM establishments, the size of production, the consumption, the investment and its sources of finance, and categorizing it according to the technical level to modern or traditional.

The study also addresses food security issue through an estimation of CM consumption by comparing production with import and export in order to investigate ways to enhance CM export.

Poultry sector is one of the main animal and agriculture activities that represent an essential important pillar of strategic and economic dimension for Syria, since it effectively contributes in providing food to people and in achieving self sufficient of animal production. The sector is also important because it is connected to agriculture development and other sub sector industries such as forage, animal medicines, packing and packaging materials and poultry industries

The basic factors of CM industry are showing up in Syria, which makes it an important producing CM country in the Middle East.

It is known that, satisfaction of consumer needs is the major motivation for several social economic, production and services activities. Therefore, studying the characteristics of demand will contribute to better definition of a strategies to promote the development of the poultry sector. Syria has witnessed great shift in meat consumption habits lately when people become more dependent on CM consumption as a substitute of other kinds of meat pushed by high population growth rate and high prices of red meat. Also the preferences of more healthy food encouraged investors to establish modern high technology foundations. It is expected that consumption of CM will increase in the next few years (the present per capita consumption in Syria is about 9 KG which is lower than some of neighboring countries since the rate in Saudi Arabia is about 33KG and in UAE is about 50KG). On the other side, local demand for processed CM still limited, but there is an increasing trend in this consumption.

Syria now is facing new international situation full of challenges and evolutions. This reflected in Syria's attempt to joining WTO, opening the economy for foreign investment and capitals transmission, taking the initiative to free its trade and joining free trade area agreements that entails her to open its markets before foreign commodities and gradually eliminate production and export support in which cost of production and export prices have increased. All these are making big challenge for the economical sectors and therefore to CM sector. However, this sector is still protected by law because import of CM for fresh consumption is prohibited. This requires preparation to compete since producers now are subject to local competitiveness only. The urgent question is to what extent the sector is able to compete if protection is uncovered?

Most probably the sector will face competition from imported frozen CM for several reasons related to high price due to high price of fodders beside the low level of marketing services make it difficult for producers to control supply, so they are exposed to great variations in prices level, the present way of presenting and slaughtering chicken in some Manual Slaughter Houses (MASHs) and shops, and unsuitable transportation and conserving CM by some agents in addition to health risks limit the ability of Syrian CM to compete in the local market. So it is necessary to make favorable procedures before protection policies are changed to allow frozen CM import for fresh consumption, to avoid negative results that the sector might face.

It is expected that Syria will import huge quantities of frozen CM despite the local production surplus because of price competition unless there is a plan to reduce local production cost and control the market.

For sure, producers will face difficulties and some will stop producing CM because the market will be full by huge quantities of low prices of imported CM. this will cause great loses for investors who will be enforced to sell their products by prices less than their actual cost. This is because most exporting countries support their production and export of CM. this situation is common in the countries that opened their markets for foreign CM such as Saudi Arabia, Jordan and Egypt. Actually, presently, most European and South American countries are supporting their poultry sectors to overcome monetary crisis, so to prevent the sector from collapsing. If Syria opened its market for CM import the most injury will be for small producers who lack financial resources and their high cost of production.

Despite the many advantages that Syria has due to its geographical location in the crossroad between Europe and Asia near promising and highly CM importing Gulf markets, there are several challenges for exporters in these markets. On the top of these challenges came the competition of low price of exported CM by other companies which some times sell CM by prices less than their cost in their countries because of their governmental support to the sector. This creates nonequivalent competition for Syrian exporters since Syrian CM prices are quite high. As shown from this study, most forage is imported in Syria and they are subject to high fluctuation. Moreover, several other difficulties are facing the sector such as: some barriers on boarders of imported countries, absent of information about markets conditions and the actual demand there, the high prices of CM forage and loan interests inside the country.

The authorities are regularly inspecting the procedures in the slaughter houses as well as in shops to ensure application of rules, technical and sanitary conditions and the quality of their products by taking samples and testing them in laboratories. However, the banishments for those who break the laws did not prevent them from repeating the violation. For that reason, the government now releases more strict legislations that allow to permanently closing those who are not keeping the rules until they correct the situation. The only problem for this procedure is that those whose slaughter houses are closed continue their business in different secret places such as houses or orchards which are difficult to be controlled.

The study includes details of CM breeding and marketing in Syria with an overview of world's CM production and trade. It focuses on the economical policies related to the sector and difficulties in producing and marketing CM such as the availability of forage and One Day Chicken Meat (ODCM) and other inputs in competitive prices with the emphasis on the need to solve technical, marketing and legislative problems and the necessity to control and organize production and marketing. By the end, the study highlighted the SWAT of the sector as indicators of the competitiveness of the sector.

## **1.2 Objectives of the study**

The general objective of the study is to estimate to what extent Syrian poultry meat is able to compete in local and foreign markets. Moreover, the specific objectives are;

1. finding out the economical elements that affect production, market and trade of this commodity
2. featuring the structure of this commodity
3. specifying the levels of technology in all activities along the value chain analysis

4. identify facilities and supported services provided to stakeholders
5. pinpointing the problems faced by stakeholders

### **1.3 Methodology**

To build up our study we followed two different ways:

First we collected data from:

1. primary sources including producers, traders, processors, retailers, and consumers
2. secondary sources such as; official statistical data from central bureau for statistics
3. previous studies about Syrian poultry

Second, we apply the indicators of competitiveness methodology to show the results

## **2 The Syrian CM market**

One of the biggest barriers for CM production in Syria is marketing of live birds because farmers suffer from instability of the market and they sometimes lose when prices cut down due to over supply that resulted from the absence of organization, and thus imbalance between supply and demand or production and consumption.

### **2.1 Position of Syria in the world poultry economy**

#### *2.1.1 World poultry meat market feature*

Last decade registered a great and fast world development in poultry industry due to an improvement in genetic resources that helped in creating new high productive grades, advancement in sanitary and medication research of poultry that reduced the probability of epidemic diseases attacks, condense plantation that provided with needed forage, competitive prices with respect to other meats and consumer preference for white meat still favor poultry meat.

CM market was recognized by sharp variation during study period when prices witnessed a decrease started in 2005 after the spread of bird's flu in some parts of the world and people hesitated to consume CM which led to a destruction of many farms all around the world and countries adopted protection policies with more strict inspection for their imports of CM and provide greater support to the sectors to keep availability of their nutrition.

The cost efficiency of poultry can be largely attributed to the relative ability of the birds to convert feed into meat. All these factors encouraged production of poultry all around the world.

Production of CM has increased through the period 1998-2007 by about 4% from 52,997 thousand ton in 1998, up to 75,826 thousand ton in 2007.

Major producing countries in 2007 were; United States, Argentina, Brazil, Canada, China, Colombia, India, Indonesia, the Islamic Republic of Iran, Malaysia, Mexico, Russian Federation, Thailand and Turkey.

Regarding the import, main importers in 2007 were; European Union, Russian Federation, China, Saudi Arabia, Mexico, Japan, United Arab Emirates, South Africa, Viet Nam, Kuwait, Canada, and Singapore.

As for poultry meat exports, the main exporter countries are; United States, Brazil, Argentina and Thailand.

In terms of global trade structure, export market is dominated by three majors origins, USA, Brazil and EU (namely: Netherland, Belgium, France , United Kingdom and Germany). USA and Brazil provide two thirds of world poultry meat trade and EU around 10%. The other exporters plays a minor role in chicken

meat trade. On the import side, the major importing countries are Russia, EU, Japan, Saudi Arabia, Mexico, China, Iraq and United Arab Emirates. Table (1) presents the distribution of major trade flows toward different regions of the world for the three major exporters of chicken meat destination countries

Major exporters sales are distributed toward four groups of countries: European countries (including EU and non-EU European countries) which represent one third of the major exporters sales, followed by Russia, Middle East and North African countries and Asian countries, each zone representing 16% of the major exporters sales, while North and Central America and Sub-Saharan African represent less than 10% of the total trade flows. It is worth noting that, EU exports are both mainly targeting European countries and represent the major source of chicken meat import for the European countries. In other words the chicken meat sectors trade in Europe is mainly an intra- European trade. Other strong interdependences can be notes, such as the USA-Russia flows. Brazil exports are mainly targeting and dominating the import market of the Middle East and the Asian market.

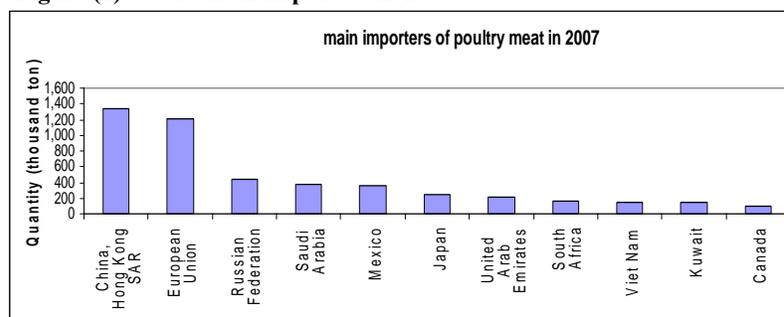
**Table (1) Major chicken meat trade flow (%)**

Item	Exporting countries			
	United States of America	Brazil	EU27	Total
<b>Importing countries</b>				
<b>EU+ non EU</b>	5%	5%	23%	33%
<b>Russia</b>	11%	3%	2%	16%
<b>Middle East and North Africa</b>	2%	13%	2%	16%
<b>North and central America</b>	7%	1%	0%	8%
<b>South America</b>	0%	2%	0%	2%
<b>Asia</b>	3%	12%	1%	16%
<b>Sub Saharan Africa</b>	2%	4%	2%	8%
<b>Total</b>	31%	40%	29%	100%

Source: FAO Database

However, beside this great development in poultry industry, a big deterioration in the sector was occurred after the spreading of bird flu in producing countries which caused a fallback in the production and consumption of poultry products in general and CM in particular. Not only that but also, most producing countries destroyed their flock birds. This lead to an increase in CM prices for tow reasons, first, the reduction in CM production and second, an incremental use of maize and soya to produce bio fuel. However, CM processing has pushed forward the supply of CM.

**Figure (1) World main importers in 2007**



Source: FAO Database

### 2.1.2 Production, consumption and trade of chicken in the region

While the analysis of the world chicken meat economy structure has underlined the importance of the Arabic countries market as a destination for world export it is important to understand the position of the Syrian producers in their regional environment which strongly influences their competitive environment.

Looking first at the consumption level and trends which is a good indicator of dynamic of the local market, which constitutes the foundation of an industry competitiveness it is important to underline the Syrian position.

A study by By the National Center for Agricultural Policy in partnership with some of the other directorates in the Ministry of Agriculture and Agrarian Reform about the impact of food prices on food security in Syria indicated that, per capita consumption of meat in Syria is less than the regional countries. So, while the average consumption of all meats in Syria is 22 kg/person, the average in Jordan is 36 kg, in Morocco is 32 kg, and in Saudi Arabia is 62 kg. The Syrian average is much lesser than in developed countries. However, the study shows that consumption of CM has been increasing lately suggesting changes in consumption habits due to availability of cheaper CM in the market in comparison with other meat.

FAO data for some regional countries indicates that the average per capita consumption of CM in those countries surpass Syrian consumption, for instance, the average in Kuwait is about 46 kg, in Lebanon is 18 kg, in Jordan is 21 kg and in UAE is 64 kg.

This means that, Syrian level of consumption is still low compared to other countries and this is linked to the purchasing power, and the kind of food-based poultry meat which is consumed with other types of vegetables, cereals, and others.

Figure (2) illustrate the respective consumption level and trends in the region. Three groups clearly emerge. On the upper side of the graph we found the gulf countries (Kuwait, Saudi Arabia, UAE) with a level of consumption above 40 kg per capita per year and a rather high growth rate. Lybia, Jordan, Lebanon and Iran constitute a second group with per capita consumption around 20kg per capita an a rather flat trends (except for Iran). The last group includes the remaining countries of the region where per capita consumption is below 15 kg per capita and with variable growth rates.

**Figure (2) consumption trends in the regions**

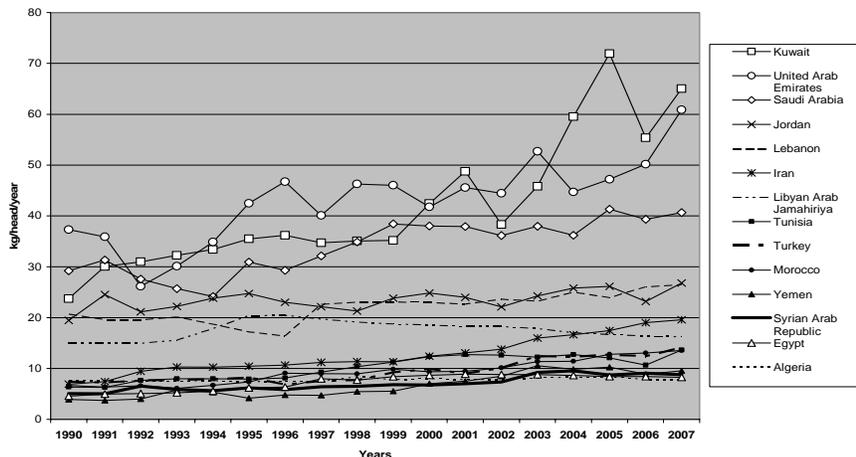
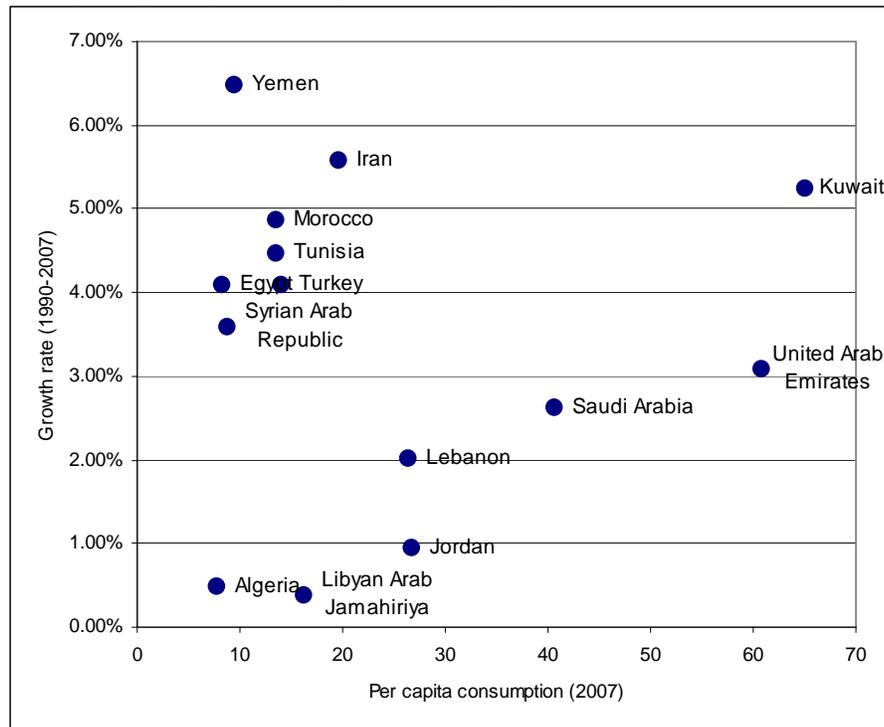


Figure 3 illustrate the relation between the level of consumption and the trends. The more dynamic market are on the upper-right corner of the graph combining a high level of consumption and a high growth rate; it includes Kuwait, UAE and to a lesser extent Saudi Arabia. The countries located on the left bottom corner of the graph , Algeria, Lybia and Lebanon are the least promising in term of market expansion trends. The remaining countries, including Syria, acknowledge a rapid per capita consumption growth of chicken meat although, their current level of consumption is still low. These are countries that may become important target for the poultry industry in the near future. Of course these figures are on a per capita basis and the analysis should be completed taking into account the total volume of the demand determined by the population.

**Figure 3 per capita consumption level and growth rate of chicken meat**



according to Arabic Organization for Agricultural Development (AOAD)'data concerning CM production in the Arabic countries through the years 1998-2007, the main producing countries were Egypt, Saudi Arabia, Morocco, Algeria, Syria, Jordan, Libya, Yemen, and Tunisia. Production in these countries has developed remarkably through this period. For example, Egypt production has increased from 381 thousand tons in 1998 up to 719 thousand ton in 2007, Saudi Arabia from 374 to 490 thousand ton, Morocco from 330 to 370 thousand ton.

Table (2) present the major indicators for the chicken meat sector in the region. In terms of food balance it si worth noting that, the majority of the countries are self-sufficient in chicken meat with ratio of self-reliance (volume of production above total domestic supply) above 90%. The only exception are the gulf countries that have a ratio below 50%. In terms of market size, population is the major determinant of the volume with Iran, Egypt, Turkey having the highest share of the total regional consumption with per capita consumption ranging from 8 to 20 kg per capita. Among the high chicken meat per capita consumptions the only significant market is the Saudi market; in spite of their high level of per capita consumption, the other Gulf countries are minor markets in volume terms. Looking at regional exporters, only four countries export more than a thousand tons of chicken meat including, in decreasing order, Turkey, Saudi Arabia, Iran and UAE. It is interesting to note that Lebanon and Jordan export around a thousand tons. However, even for the major exporters of the region, exports represent less than 5% of their total production with the exception of UAE chicken sector, for which export is a significant outlet. Total export from the region represents only 11% of total import of the region, which indicate a very low level of intra-regional trade (assuming that all regional exports are targeting markets in the region)

**Table 2 Chicken meat food balance sheet in the Arabic countries**

Item	Production		Imports		Exports		Domestic supply		Self-reliance ratio	Per capita consumption	
	Value	Share	Value	Share	Value	Share	Value	Share		2007	Annual growth 1990-2007
<b>Morocco</b>	350 929	8%	2 393	0%	126	0%	353195	7%	99%	14	4.9%
<b>Algeria</b>	258 573	6%	1 083	0%	1	0%	259655	5%	100%	8	0.5%
<b>Tunisia</b>	121 036	3%	549	0%	340	0%	121245	2%	100%	14	4.5%
<b>Libyan Arab Jamahiriya</b>	99 009	2%	147	0%	0	0%	99 870	2%	99%	16	0.4%
<b>Egypt</b>	646 893	14%	4425	1%	520	1%	650797	12%	99%	8	4.1%
<b>Occupied Palestinian Territory</b>	63 261	1%	6477	1%	143	0%	69595	1%	91%		
<b>Lebanon</b>	123 357	3%	2 983	0%	2695	3%	123646	2%	100%	26	2.0%
<b>Syrian Arab Republic</b>	158 579	3%	1111	0%	324	0%	159367	3%	100%	9	3.6%
<b>Turkey</b>	870 139	19%	93	0%	33224	37%	837008	16%	104%	14	4.1%
<b>Jordan</b>	123 469	3%	12099	1%	1738	2%	133831	2%	92%	27	0.9%
<b>Kuwait</b>	39 052	1%	105763	13%	128	0%	144687	3%	27%	65	5.2%
<b>Saudi-Arabia</b>	509 143	11%	404360	50%	25497	29%	888005	16%	57%	41	2.6%
<b>United Arab Emirates</b>	31 620	1%	178633	22%	11 823	13%	198429	4%	16%	61	3.1%
<b>Yemen</b>	105 012	2%	85712	11%	154	0%	190569	4%	55%	10	6.5%
<b>Iran</b>	1168 600	25%	3 274	0%	12457	14%	1159417	22%	101%	20	5.6%
<b>Total</b>	4668670	100%	809104	100%	89172	100%	5389316	100%	12	331	0

Table 3 confirmed the high concentration of chicken meat exports to the region, dominated by Brazil chicken meat exporters with almost 80% of the total volume of chicken meat exported by the three main world exporters to the region. These figures also confirmed the importance of the three major importers of the region, Saudi Arabia, UAE and Kuwait with 67% of total export. Brazil is the main source of supply for all the countries in the region with the exception of the Iraqi market for obvious geopolitical factors.

**Table 3 Chicken meat imports by major origins Arabic countries**

Countries	United States of America	Brazil	EU	Total
<b>Saudi Arabia</b>	0.2%	30.9%	6.4%	37.5%
<b>United Arab Emirates</b>	1.8%	15.6%	1.3%	18.7%
<b>Kuwait</b>	1.5%	9.7%	0.2%	11.4%
<b>Iraq</b>	6.2%	2.6%	0.0%	8.8%
<b>Yemen</b>	0.0%	4.9%	2.2%	7.1%
<b>Oman</b>	0.1%	3.2%	0.7%	4.0%
<b>Qatar</b>	0.3%	3.4%	0.1%	3.8%
<b>Iran (Islamic Republic of)</b>	0.0%	3.5%	0.0%	3.5%
<b>Jordan</b>	0.1%	2.6%	0.1%	2.8%
<b>Bahrain</b>	0.1%	1.5%	0.1%	1.8%
<b>Egypt</b>	0.0%	0.4%	0.0%	0.4%
<b>Syrian Arab Republic</b>	0.0%	0.2%	0.0%	0.2%
<b>Tunisia</b>	0.0%	0.1%	0.0%	0.1%
<b>Lebanon</b>	0.0%	0.1%	0.0%	0.1%
<b>Morocco</b>	0.0%	0.0%	0.0%	0.0%
<b>Total</b>	10.3%	78.6%	11.1%	100.0%

This review of the chicken meat sector within the region shows a dual situation. On one side, there is a small group of countries concentrating the largest share of the chicken meat trade, On the other side, the majority of the countries in the sub-region and especially the one with large population have a limited exposure to the world market. Syria belongs to this second group and the current outlook of its chicken sectors does not differs from what could be found in its neighboring countries. The potential impact of the GAFTA in terms of opening of chicken trade within the region should be kept in mind while looking at competitiveness of the chicken meat sector in Syria. To what extent an increasing opening of the regional trade to chicken meat could be a stimulus, or, on the contrary, a constraint for the development of the Syrian chicken meat industry?

## **2.2 Economical and social importance of CM in Syrian food**

CM is considered very important source of protein for people in Syria. The sector employed quite good percentage of people from rural and urban areas.

Within its efforts to achieved self sufficient of CM and protect the sector to keep the local production at high rate, the government has prevented CM import, and also allowed export for some quantities.

However, Syrian exports of CM would have enhanced if the production and exported costs have been cut down. Since now Syrian CM faces a substantial price competition by other exporting countries which support their exports of CM.

### *2.2.1 CM consumption in Syria*

The competitiveness of CM is determined by the ability to satisfy the sophisticated needs of consumers for quantity and quality, availability of inputs in optimal and economical prices and enough storage capacity to store the production when prices are down. Demand of CM is affected by several factors such as;

1. total supply of CM
2. population growth rate
3. price of CM in the market
4. prices of other meat which substitute the CM
5. consumers levels of income
6. preferences of consumers

Total demand for CM can be calculated through an estimation of what is called the apparent consumption plus the store and external demand represented in export.

since export is very limited not more than 3-5%, import is limited to small amount targeted mainly to processing and there is not storage of CM, the demand for CM is represented by local consumption which almost equal to total production.

Regarding the estimation of CM consumption, per capita GDP in constant 2000 SP was used for income and total population and average production of CM were used for the consumption calculations. Consumption was calculated by taking local production, and subtracting exports for each year since there are no imports to add. This value was then divided by the population in that year to get the consumption per capita.

The importance of CM as a main element in Syrian citizen food has increased to cover the need of animal protein. The growth of CM production and its relative low price contributed in the consumption augmentation. Per capita consumption has obviously developed during 1998 – 2007 due to more supply of CM from 6.2 Kg in 1998 up to 9.1 KG in 2007 with growth rate of 4.3%. In the meanwhile, meat production in this period has jumped by 6.7%. this consumption rate still very low in comparison with

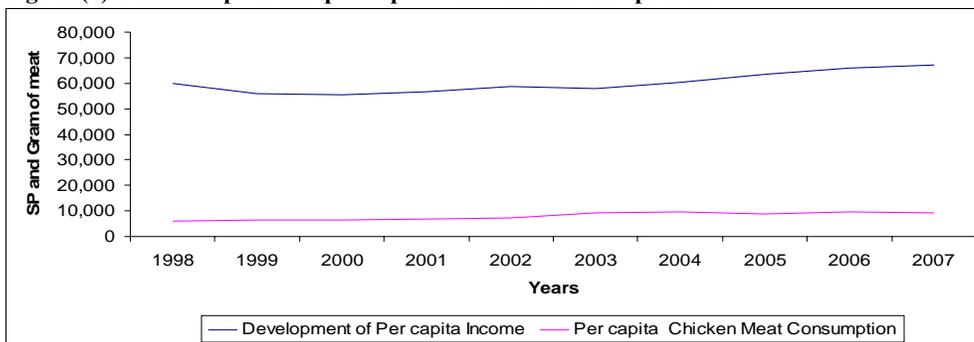
average world rate, which is about 26 Kg by person, but this average is considered acceptable due to the rate of production.

Since there is only small amount of exported CM, it is expected that any augmentation in production will be reflected in an increase in the per capita consumption of this commodity.

Most consumers prefer buying fresh CM. However, affected by new developed preparation of the meat, they started changing their habits to buy cut pieces of chicken such as wings, chests and legs. Also demand for roasted, fried, Shaowrma and PCM chicken is increasing.

Normally, as people achieve higher income, their ability to purchase more products and higher quality food increases. As a result, they are likely to purchase more expensive product. This same situation holds for CM products in Syria. So, after some Syrian people realized higher incomes, they acquired the ability to purchase higher quality Chickens. For many people this reflected in increasing consumption of CM products.

**Figure (4) the development of per capita income on consumption of CM**



Source: NAPC database

Because CM is a source of animal protein, with less fat (5% only while the percentage in cow' meat is 20%) , low level of cholesterol (about 60-80 milligram, in cow's meat 250 milligram) and high amount of amino acids it is more consumed by people.

CM is distributed to shops, restaurants or hotels after classification into two groups according to their weight, heavy chickens (2 Kg or more) are sold to shops that sell either raw (about 60% of total chicken), or as Shaowrma ( about 10%), while lighter chickens ( 850-1200 G) are sold as roasted (about 10%), or fried (about 7%), part of the chicken is sold to supermarkets and malls (about 8%) and the rest (5%) are sold as live birds. Slaughter houses normally slaughter quantities that requested in the market, but some times they keep some extra chicken in freezing stores when prices are low.

### 2.2.2 Poultry meat trade

Trade balance for CM is almost zero since imported and exported quantities are very limited. This means that percentage of self sufficient is almost 100%.

**Table (4) CM trade balance (000) ton**

Years	1998	1999	2000	2001	2002	2003	2004	2005	2006
<b>Production</b>	97.2	104	107	116	125	161	171.8	163.4	175
<b>Imports</b>	-	-	-	-	-	-	-	-	1
<b>Exports</b>	0.1	-	-	-	-	-	-	-	0.01
<b>T. Supply</b>	97.2	104	107	116	125	161	171.8	163.4	176

Source: NAPC database

However, recently, according to exporters information, export of CM started to be facilitated in very limited small quantities representing less than 5% of total production to some regional countries.

The main market for Syrian CM is Iraq, then Kuwait and Saudi Arabia. Syrian exporters are facing big challenge in these markets concerning their ability to compete. When exporting to Iraq, selling is often done inside Syria, exported companies perform all procedures on the Syrian borders on the expenses of the Iraqi companies and imported companies take the responsibility inside Iraq.

As for export to Jordan and Saudi Arabia, the freight can be submitted to the importers either on borders or in the markets inside the imported countries.

The following table includes a comparison of prices of CM in some regional countries. The prices were as follows:

**Table (5) Price comparison of CM in neighboring countries in 2009**

Country	Syria <sup>1</sup>	Jordan <sup>2</sup>		Saudi Arabia <sup>3</sup>		Egypt <sup>4</sup>	
Currency	Sp	Sp	Dinar	Sp	Saudi Rial	Sp	Egyptian pound
Price of KG of meat	125	<sup>5</sup> 130.42	2.00	<sup>6</sup> 129.67	10,5	<sup>7</sup> 129.6	16

From the above table we can conclude that prices of Syrian CM was the least among studied countries despite the absent of support for the Syrian product and the nearest price was in Saudi Arabia despite the subsidy for that CM.

### 2.2.3 CM Prices in Syria (Analysis of price trends)

Prices for CM are determined by prevailing market conditions. The government since the 1980<sup>th</sup> has replaced the administered pricing system with an indicative price and allows market forces to determine the prices. Prices of CM are subject to change during the marketing season and vary according to location; therefore, it is difficult to make an accurate assessment of total agent's revenue. The average price has increases substantially during 2007.

prices of CM were heighten in some days in 2008 up to 160-170 SP/KG because of an increase in input prices of about 50% (maize price was heighten from 8500 SP/ton in 2006 up to 15000 SP/ton, soya price from 14000 SP/ton to 23000 SP/ton). However, prices of inputs in 2009 went down and prices of CM as well declined to 110 SP/KG.

There is big difference between producer prices and trader and consumer prices. This clearly appears in the market chain analysis since a big marginal profit is allocated to slaughter house holders and retailers, while producers get limited profit and some times they lose. Local prices are the national average received for CM.

There are several factors affect CM price such as:

- Rise in international inputs price especially maize, soya bean and other forage complements and occasionally shortage of forage supply by local traders

<sup>1</sup> [http://www.sadasoria.com/arabic/page-select-id-show\\_det-17-15205.htm](http://www.sadasoria.com/arabic/page-select-id-show_det-17-15205.htm)

<sup>2</sup> <http://petra.gov.jo/PrintArtical.aspx?Artical=133306>

<sup>3</sup> <http://forums.saudistocks.com/t296307-48.html>

<sup>4</sup> <http://www.alanba.com.kw/AbsoluteNMNEW/templates/weeklyinternational.aspx?articleid=124459&zoneid=189>

<sup>5</sup> Exchange rate of Dinar against Syrian pound is 65.21 Sp for each Dinar

<sup>6</sup> Exchange rate of Saudi Rial against Syrian pound is 12.35 Sp for each Rial

<sup>7</sup> Exchange rate of Egyptian pound against Syrian pound is 8.10 Sp for each EP

- It can be assumed that an increase in the world market price of maize and soybean is resulting in equal percentage increase in local forage.
- there has been a sharp increase in production cost resulted from an increase in input prices since most input prices have recently risen significantly as a result of subsidy reduction on fuel and electricity. Small farm holders reacted by reducing the use of fuel and electricity and the consequence of this has been increased mortality rates of chickens resulting from diseases.
- Climatic conditions especially high temperature degrees cause high birds mortality

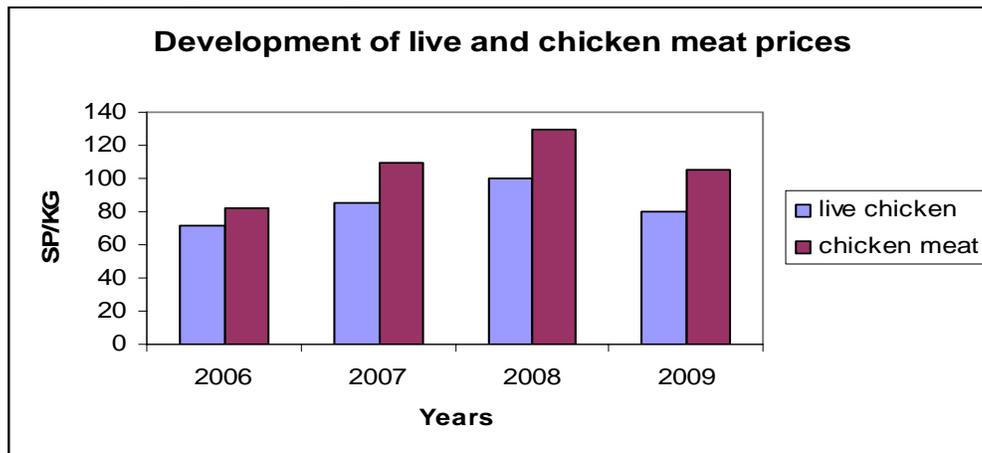
While inputs prices are not easy to be controlled by authorities, because they are subject to international fluctuation, prices of CM are estimated weekly by a committee under Ministry of Economy and Trade (MET), and even though these prices are not always followed up, producers are affected by them.

#### 2.2.4 Prices of CM in local markets

Estimation of CM price is done according to percentage of edible meat out of the slaughtered bird, which is estimated as follows based on weight:

- Meat and bones 60-70%
- Head 3.5%
- Non edible legs 5%
- Feathers 6%
- Blood 4%
- Gizzard 4%
- Edible bowels 2%
- Stomach and intestines 5%

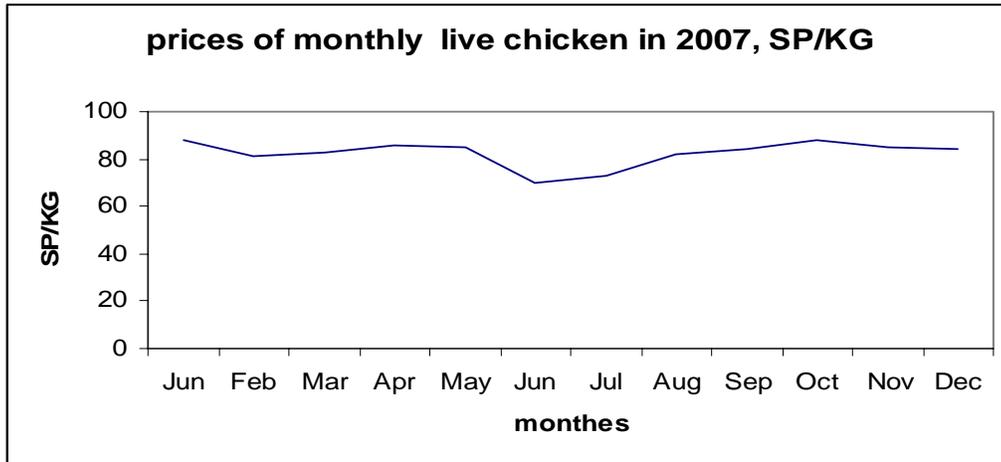
**Figure (5) development of meat prices, 2006-2009**



Source: NAPC database

From this figure we can see that the gap between live chicken and CM is widening the last three years. This suggests that slaughterhouse is getting more profits than breeders.

Figure (6) monthly prices of CM

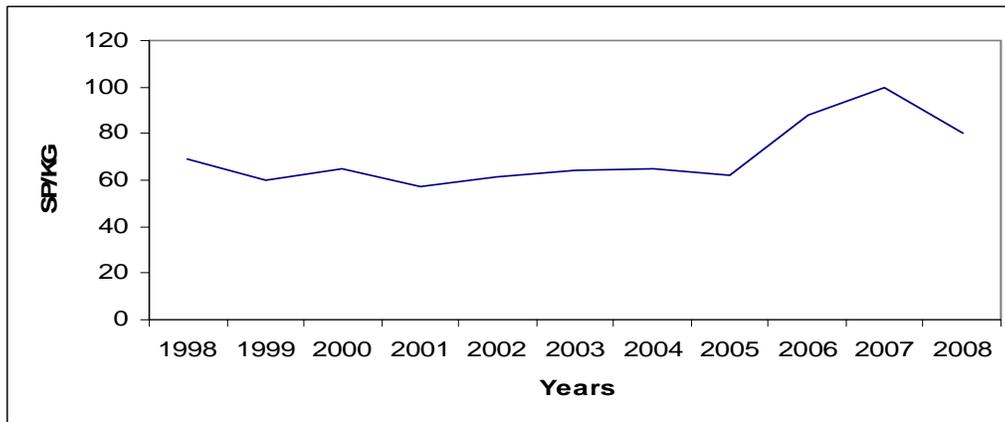


Source: NAPC database

Throughout meetings with the value chain agents they claim that, to achieve reasonable profit to the agents, breeder's price should consider 20% profit above total costs, trader's price 5% and retailer's price 10% above wholesale price.

Price fluctuation increases uncertainty for farmers both in price and outlets

Figure (7) wholesale market prices, 1999-2008



Source: NAPC database

To study the development of CM local market prices, we made a comparison between the standard prices of CM with the standard prices of food during 2000 – 2008, where the standard prices of CM are reflecting changes in the prices of CM for this period (the base year was 2000).

The standard price of CM declined in 2002 by 1% in comparison to year 2000 and by around 15% against previous year. However, it moved up after that and reached 191 % in 2008.

The increase in CM prices is explained by an increase in production cost resulted from high international prices of inputs, which mostly imported and more demand for CM in the market, due to the high price of other red meat.

Compared with standard prices of CM, the standard prices of food have gradually but smoothly increased, however, a sharp increase was registered in 2008, while standard CM prices, first fluctuated, then significantly increased in 2006 and the years after. Moreover, the level of standard prices increase of CM was higher than of food in most years.

**Table (6) Index number of wholesale prices (PAASCHE) 2000-2007 (2000=100)**

Item	2000	2001	2002	2003	2004	2005	2006	2007	2008
index number of wholesale prices of food stuff	100	96	101	105	105	105	109	110	125
index number of wholesale prices of CM	100	114	99	111	121	121	146	161	191

Source: CSB & NAPC Data base

### 3 The Syrian CM value chain structure.

Chicken breeding starts by importing one day grandmother (GMODC) chickens and breeding them in Syria to produce MODC chickens. After breeding, chickens go to slaughter houses where they are slaughtered and cleaned. Then they are distributed to retailers then to final consumers. Little quantity is processed and minor quantity is exported.

Chicken industry is mainly private in Syria. There are some cooperative societies specialized in breeding poultry and companies established according to law 10 for 1986 as joined venture companies shared at least with 25% of their capital by the public sector.

In addition, there is one company belongs to public sector, which is the General Establishment of Poultry (GEP). This company produces about 10% of Syrian total production of one day meat chickens, 30% of one day hen for egg and about 6% of CM.

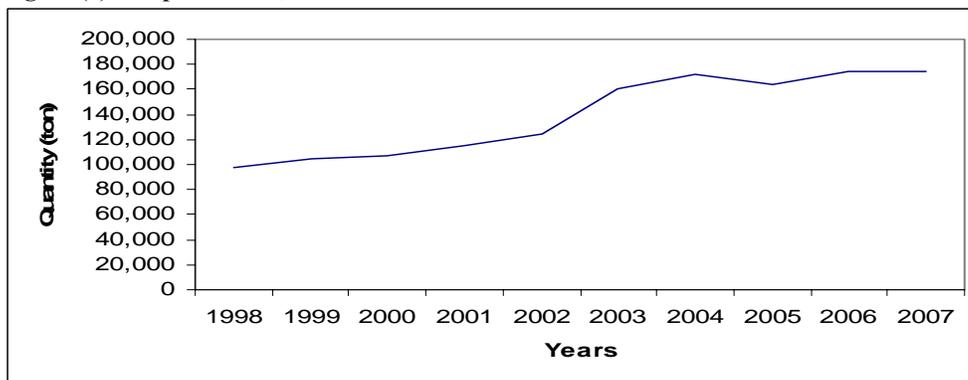
#### 3.1 Chicken production (chicken breeding)

From the mother breeders, farmers buy one day chickens to breed CM for 42-45 days on average. Some breeders keep their chicken for 50-60 days to get more weight up to 2 KG or more.

##### 3.1.1 Production trends and stakeholders

Syria has experienced a remarkable growth in CM production in the last five years. Figure 8 below shows the evolution of CM production during 1998-2007

**Figure (8) CM production, 1998-2007**



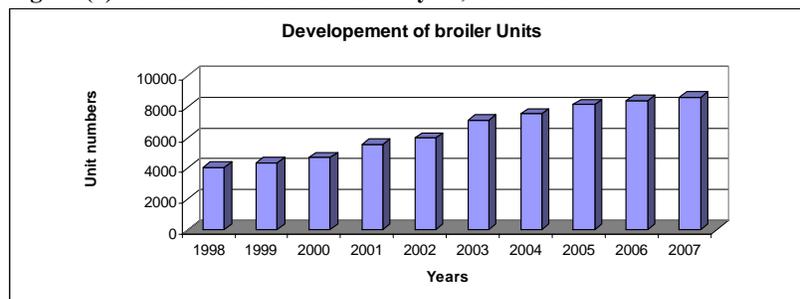
Source: NAPC database

Syrian chicken has witnessed great development during 1998 – 2007 reflected in an increase in chicken farm numbers, which almost doubled from 4040 farm (out of them 3414 licensed farms and 626 non licensed farms) up to 8660 farms ( 5879 licensed and 2781 non licensed) with average growth rate of 9%.

In the meanwhile, production of CM jumped from 97,243 ton to 174,932 ton. The increase was accompanied with an incremental growth in demand for meat resulted mainly from population growth and relatively low CM prices in comparison with other red meat.

Most chicken production is concentrated in middle Syria; in Homs, Hama, Idleb, Tartous and Al Gab governorates; in the south in Dar'a and Rural Damascus; and in the north in Aleppo. They all together represent 90% of total farm unit numbers and 93% of CM production (163325 ton out of 174932 ton).

**Figure (9) number of broiler units in Syria, 1998-2007**



Source: NAPC Database

### 3.1.2 Chicken breeding institutional issues: licensing and non-licensing

There are several reasons told by farmers for not licensing their farms, some are technical related to the conditions of setting up the farm including the place, the area, ...etc. The other kind of reasons is an economical reason related to the taxes and fees needed for getting the license for a farm. One of the most significant reasons for farmers or slaughter house holders who are not licensed is that, there is no advantage of being licensed, on contrary, licensed farms and slaughter houses are bearing burden of paying taxes and are controlled for sanitary terms, since the non licensed farms and slaughter houses can manage to produce and sell their products at the same price as licensed ones and with the same conditions.

In addition, getting a license for a farm or slaughter house is not easy for small agents, for instance, farmers prefer to build small chicken farms near their houses to be able to work and control the farm easily, but this is not allowed in the decree of licensing farms.

To get license for a chicken farm, according to the representative breeders society which is working under Union of Agricultural Chambers, farmers have to pay the following fees:

1. Fee for municipality;
2. Fee for Civil Engineers Syndicate ( calculated according to the area of the farm by about 750 SP for each square meter for concrete or sheet iron ceilings ( for example a farm with area of 600 square meter cost about 450000 SP);
3. Fee for Electricity Engineers Syndicate (calculated according to the power capacity of the farm) whither the farm was connected to the public net or use a generator to get the electricity power ;
4. If a farmer likes to have his own quern, then he has to get a separate license from Ministry of Local Administration and pay an annual fee for it.

In addition to the above fees that farmers have to pay to get licenses, there are several annual fees such as:

1. Tax on profits of about 50% of total net profits ( this was enjoined by law 24 for 2003 which considered chicken an industrial activity because agriculture is exempted from paying tax) this tax was substituted by an income tax between 4800 to 7000 SP for each farm according to number of barns in the farm;
2. Fee for cleanness of about 700 SP annually;

3. Fee for estate of about 7000 SP annually.

Procedures for not licensing farms or slaughter houses are usually stated by legislations, but the application of such legislations is not perfect. For example, the decree that compel shops to use cooling widows for CM display is still not applied in many places.

### 3.1.3 Marketing practices of live chicken (LC)

Farmers sell their birds when they reach the required weight, which is between 1500 – 2100 G. this depend on demand condition in the market. In all cases, farmers are obliged to sell their birds at certain weight what so ever the condition in the market, since keeping them in the farm become less economical, because the conversion factor of forage to meat become slower after this weight, so birds consumes more forage to produce less meat.

Farmers usually contact slaughter house holders or traders to offer their products, through which slaughter house holders are informed about the quantity and average weight of birds. And accordingly, they either tell farmers to wait for a few days for the birds to reach higher weight, or they send their tracks to carry the birds.

The slaughterhouse owner usually buys the whole birds from the farmers and sends tracks with workers and cages. The bargain about the price is usually not completed at the day of selling, because house holders prefer not to fix their price until they check the market next day. But farmers and house holders might agree to negotiate, and then the market price at that day will be the base to identify the price of birds.

Breeders complain that slaughterhouse holders delay in paying the value of birds which might long for one month or more, and they have it in few payments. Also they mind the invoice given by house holders, which is not standard one, but a kind of piece of paper in which the weight and total value are written. In fact, house holders are working in the market as whole sellers who control the price of live birds and the price of CM, so that they can get higher marginal profit for their slaughtering and preparing the chickens. Instability in the market and limited availability of cooling storages to store CM until demand is higher help in worsening the situation for farmers.

The buyer either carries the whole birds in one time, or mostly, carries part of the birds and keeps the rest to be carried after few days, through which farmers have to feed them. Birds are carried in cages, where 10 to 15 birds are filled in one cage. Sometimes, cages are weighed before and after filled with birds to specify the net weight of birds, but most of the time cages are not weighted before filling birds and are considered by house holder to be 8.5 Kg each, while their exact weight is 7 KG. So breeders lose 1.5 Kg for each 10-15 birds. In addition, some breeders mention that they were cheated in the weight of birds several times by house holders.

Breeders complain that traders who sell one day chickens sometimes sell them mixed sizes of one day chickens, some are at normal size and some of about 5%-10% are with smaller size. The small ones take longer time to reach normal weight. By the end of breeding period, they produce under weight birds (the bird's weight about 800 G only). This resulted (as explained by breeders) from one day chickens produced from small eggs by hens that are new in laying eggs. The price of these under weight birds is much less than big ones. However, traders claim that eggs before hatching are sorted according to their weight and eggs with small size are put aside.

## 3.2 CM production

chicken is prepared by the end of the breeding process up to the consumer through several channels, the most part is prepared in Manual SlaughterHouses (MASHs) in which work is done by hand and lacking to some aspects of health, less amount is prepared and sold in Mechanical SlaughterHouses (MESHs) in which sanitary conditions are applied, but the preparation costs in these houses are high, The other part is prepared in shops that sell chicken to the consumer.

At MASHs, birds are usually slaughtered in the same day or kept for days according to the market condition. The next day birds are sold to retailers or other outlets.

In the meanwhile, some retailers buy live birds and slaughter them in their own shops to satisfy the desire of some consumers who prefer to consume fresh chicken and they do not trust the mechanism of slaughtering in the MASHs. The retailer sells such birds at live bird's price and charges the consumer by 5 Syrian pounds as wage for slaughtering.

There are about 40 MASHs in Rural Damascus provide about 90% of the city market needs from CM. Some MASHs are not licensed, and they are not controlled or supervised by local authorities.

At the same time, there are only 5-6 MESHs in Syria, and they are able to cover more than 40% of the market if they worked at full capacity. However, they are all working at a low level of CM production capacity due to their high cost of operation. And inability to sell at higher prices to cover the cost, because of that, their level of production is currently not high enough to cover their cost of production. These houses should work at list 10 hours to cover the cost of operation, while most of them are now working at about 4-5 hours.

Therefore, about 7-10% of the chickens in MESHs are processed as Mortedilla, Nagit,bagar, Shawrma, ...etc this enhances supply of chicken in the market and diversify consumption of CM.

There is a very intensive competition between manual and MESHs, because there is a big considerable gap in the cost of slaughter process between them (cost of MASHs is 1- 1.5 SP per KG meat, while cost of MESH is around 5-8 SP per KG). MESHs holders protest that they are obliged to apply all technical, ecological and sanitary requirements and all the laws and decrees are obligatory enforced on them. This increases the cost of production, while most MASHs do not apply most of the requirements, which means less cost of production. As a result, MESHs are not able to compete with MASHs, because, as they say, they are not able to sell their chicken which is healthier and have better quality in the local market by higher prices for several reasons. As a result, most MESHs are bearing loses and one of them has stopped working now.

On the other side, MASHs holders defend their position claiming that, the number of MESHs in Syria is very limited (5-6 houses only), they can not cover more than 10% of the market needs of CM and many MASHs are licensed and supervised by veterinarians, they apply most sanitary requirements.

Authorities are hesitating to take a decisive solution even though they confess that, there is a need to develop the MASHs and enforce them to apply technical and sanitary conditions, but this problem is not easy to be solved, since many families depend on the MASHs work.

To solve the sanitary problem within MASHs, it's suggested that, the government when licensing the slaughterhouses enforces them to have big refrigerators to keep slaughtered chicken and sterilize CM by air before distribution. This will increase the cost but it will ensure they will not soak CM in the water and guarantee the safety for consumption.

As for now, MESHs request that the government exempt them from paying some fees and taxes to be able to redress some loses, or it should enforce MASHs to apply the same condition they do and therefore their cost will be higher, so that they might be able to compete in local and foreign markets. They indicate the differences in their practices with MASHs by making the following comparison between manual and MESHs.

**Table (7) practices of slaughter houses as regarded by MESHs**

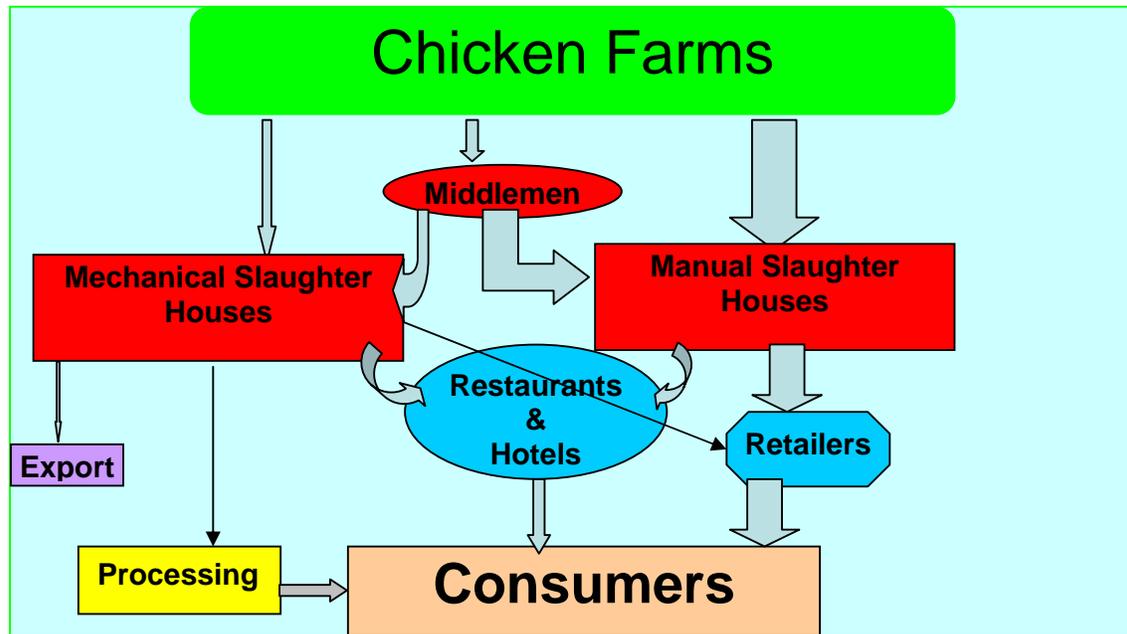
<p>MASHs practices</p> <ol style="list-style-type: none"> <li>1. Some Many houses are unlicensed;</li> <li>2. Cost of building and equipments is limited and not more than one million Sp;</li> <li>3. All slaughter process done in one or two rooms; slaughter is executed in barrels, either close from the bottom, so blood rested down and smears birds, or open from the bottom, so blood flow on the floor. In addition, birds are accumulated in the barrels. Therefore, lower birds are throttled and some of their blood still inside their body because they are unable to move to make bleeding possible;</li> <li>4. After slaughtering, birds are moved to containers which are barrels full of non renovated water heated by hearth to facilitate pulling out the feather. This cause water contamination by any sick birds and infect intact birds (this what they claim);</li> <li>5. In MASHs, to pull out the feathers, they use round pullers that circling and cause bruise on bird's body affects the quality of some birds;</li> <li>6. Intestines are snatched out manually and thrown away without inspection for diseases;</li> <li>7. Chicken are soaked in water with ice to the next morning. So, they absorb water and gain weight;</li> <li>8. Blood is discarded into swages without treatment, so that it pollute the environment ;</li> <li>9. Some houses throw the left outs ( feather, legs and guts...etc) in free lands, rivers, and some are submitting them to garbage collectors, who took them to public garbage place, where they will be a source of diseases;</li> <li>10. Chicken are sold with the heads and lungs then consumers pay for these parts and cast them out;</li> <li>11. Chicken are sold without packing or registering date of slaughter or expire time;</li> <li>12. Since chicken are soaked in water, their weight increases by about 150 to 300 G. therefore, consumers buy water at the price of meat;</li> <li>13. Chickens are allocated to retailer shops in bags made from Polyethylene, which is considered bad for health;</li> <li>14. These products are distributed in tracks which uncovered are not cooling;</li> <li>15. Eatable intestines are filled in big bags (each contains 10-15 KG);</li> <li>16. Workers are never tested or examined for diseases, and they work in non sterilized clothes;</li> <li>17. They do not have freezing unites or cooling stores, but when they need stores they can rent a space in one store;</li> <li>18. Some houses evade tax paying and their workers are usually not registered in social insurance security. Nevertheless, the building and practices are in contradict with Syrian specifications.</li> </ol>	<p>MESHs practices</p> <ol style="list-style-type: none"> <li>1. All houses are licensed and completely subject to sanitary, social and ecological supervision by several authorities;</li> <li>2. Cost of building and equipments is high of about 25 -50 million Sp;</li> <li>3. Slaughter is done in three separate and independent sections with their tools and workers. Namely: slaughtering section, snatching intestines section and cooling section;</li> <li>4. Before slaughtering, birds are kept for a while in cool place to be calm, since that helps fast bleeding when slaughtered;</li> <li>5. Birds hanged in up down position and manually slaughtered (all other procedures are mechanical) and blood flowed in special ditch to be collected in a tank;</li> <li>6. Birds are kept few minutes to completely bleeding, then moved to a tank full of renew hot water at 58 degree centigrade ( at these degree feathers are pulled out easily and birds are not harmed by taking off the skin) and each bird consume 15 liter of water ( used water is treated chemically by Pheromones to kill germs and separate fat off the water then pumped to swage) from this water samples are regularly tested by officials from Ministry of Environment on the expenses of house holders at cost 400 sp to ensure its safety to be cast into public swage ;</li> <li>7. Feather is pulled out in vertical pullers, which do not harm the bird's body and feathers are pushed in special duct to a tank that all left outs collected in and finally sold to factories that dry and sterilize them at 400 degree, then they used as fertilizer, or to feed fish;</li> <li>8. Birds moved after that to the next section in which heads are cut off inferior the neck, so that glands which contain germs are removed (this done according to Syrian specifications issued in 1992 and recommended by veterinary faculty in Al Ba'th University recently). Moreover, legs are cut off and intestines are mechanically snatched and inspected for diseases. All the process is done in cool atmosphere at 20 degree;</li> <li>9. Birds are entered a machine that absorbs blood and lungs;</li> <li>10. Birds are moved to the third section in which they are washed and cooled in two spiral machines, the first contains water at 25 degree and the second at zero degree, then chickens are dried by air at zero degree, so their weight is reduced, but their validity is lengthen;</li> <li>11. Chickens are moved to packing hall at 15 degree and sorted in groups with 50 G weight difference, packaged, printed with the date of production, expiration, name of the farm and their weight then packed in cartons each contains 10-20 chickens;</li> <li>12. Some chickens are sold as separated parts after cutting (chests, wings, ...) and eatable intestines are packaged in bags each contains half KG and sold fresh;</li> <li>13. There are unites for freezing and stores in these houses (freezing is done at -40 degree for 12-18 hours and storage at -18 degree). Good storing requires that chicken is clean and freezing is done after slaughtering by not more than two hours;</li> <li>14. Chickens are allocated to selling windows in cooling tracks;</li> <li>15. workers are examined every 3 months and their clothes with the instruments are treated according to ISO standards ( usual number of workers are about 100 including technical persons, drivers and administrators).</li> </ol>
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In 2007, CM production was concentrated in Hama with 20% of total production followed by Dar'a (17%), then Idleb (17%), Tartous (12%), Aleppo (12%), Homs (9%) and Rural Damascus (6%)

### 3.3 The value chain configuration (synthesis)

The following chart shows the flow of products from farmers to final consumers

Figure (10) construction of sector



## 4 Chicken value chain financial analysis

### 4.1 Chicken Production Cost

#### 4.1.1 Chicken production practices and associated costs

Total area of the farm is decided by number of birds to be produced annually. Technical instructions recommended a devotion of one meter for each 10-14 birds ( 10 in summer and 14 in winter).

Breeding started by sterilizing the farm by antiseptics which are either Phenol, Aldahids, Iodine or Formalin. Some breeders use lime and plastering the farm with lime and some use fire for that purpose. After sterilization, sawdust is spread at the floor with thickness differ in summer than in winter to absorb humidity from bird's manure. ODC are then bought.

Forage is provided to one day chickens after entering the farm based on the age of one day chickens. Forage structure is differs during the stages when percentage of protein reduced and energy and complementary substances increased gradually.

Vaccines are added from the first days along the life time of chicken and on average it is added 5 times as follows:

1. Mxed vaccine ( Bronshit & Newcace) at age of 3 days
2. Gomporo vaccine at 8 days
3. Gomporo vaccine at 17 days
4. Newcace vaccine at 21 days
5. Newcace vaccine at 31 days

Also antibiotics are normally added four times as follows:

First one day chickens are given antibiotic + vitamin during the first 24 hours of the one day chicken age, then they are given antibiotic at age 15-17 days, 27 days with expectorant and at 33 days. The result of using the antibiotic appears after 48 hours (positive or negative). Some of the antibiotics used for chicken are; Tylzine, ati interior parasites Coksidia, other antibiotic for chronic cold and enteritis according to veterinarian recommendation.

In the meanwhile, vitamins are added with drinking water all days except when vaccines or antibiotic are given as follow:

1. Up to the 21 days of the one day chicken vitamin B + AD3EC are given
2. After that only vitamin AD3EC is used

In winter, to warm birds, farmers use either coal from oil refinery which is cheap, or gas oil which is now costly after the government eliminates the support on gas oil in 2007. most farms have access to electricity from public net, and they use electricity to illuminate the farm and for motors to get water from wells (as for the cost of electricity, chicken farms are dealt with as an industrial activity, so they are charged at higher price), but some farms do not have access to public net, so they use generators to have electricity and their cost is much higher than having electricity from public net. The high cost of gas oil and electricity made some farmers neglect warming birds in winter and cooling them in summer. Chicken farms need water resources to provide birds with water, but farmers are prevented by law to dig wells for their farms, so they have to buy water from distance by tanks and this increases their cost. Mortality in most farms is high between 12% up to 15%, while normal percentage should not exceed 5%. This resulted in winter of more diseases and in summer due to high temperature. However, to reduce the negative impact of temperature, most farmers either use fans in summer to cool the birds, open the windows, sprinkling birds with water, but this increase the diseases, or reduce the amount of forage in birds feed, but this lengthen the breeding period.

When licensing their farms, farmers made commitment to make contracts with either veterinarian or agronomist to supervise the breeding, but some farmers complain about that because of the cost of this supervision.

One of the most critical issues in chicken farming is that, some farmers disregard the importance of vital security, since they are disuse sterilization, medication and vaccination programs and most non licensed farms are not equipped by modern equipments, and therefore, the mortality rate in their farms is high. In addition bad weather greatly affects the breeding and increases the death of birds.

Farming cost includes foundation or fixed cost which covers cost of buildings, equipments and maintenance cost; and operational or current cost which includes prices of one day chickens, forage, energy, water, vaccines, medications, wages and supervisions.

Farmers can produce chicken through 5.2 cycles in a year, so cost calculations consider the capacity of production in a year.

#### *4.1.2 Farm foundation or fixed costs*

Data was collected from field surveys in which interviews with number of slaughterhouses in the provinces of Damascus, Homs, Hama and Idlib, Aleppo and Dar'a. In addition to meetings with number of breeders, owners of big companies who are preparing the chicken in modern slaughterhouses and sell their products in the domestic market and export the ODC and CM to some neighboring countries.

calculation is made here of the cost for a typical farm that has an area of 500 square meters with an average capacity of 5000 chicken (cost of each square meter is 3500 SP) (the economical life for the building is estimated to be 30-50 years)

- The equipments for the farm are;

1. Cribs; the farm needs 24-26 cribs ( each crib for 160 birds) (price of each crib is 700 SP)
2. Watering apparatus: 32 watering apparatus ( price of each apparatus 600SP)
3. Benzine generator ( price is 9500 SP)
4. Sprinkler set (price is 25000 sp)
5. Fire places: the farm needs 3 fire places ( price of each fire place is 1500SP)
6. Aspirators: 6 aspirators ( price of each aspirator is 1500SP)
7. Fans : 4 fans ( price of each fan is 2000 SP)
8. Water tanks: 2 tanks with capacity of 1000 liter ( price of each tank 4000 SP)
9. Building for storing forage and one room for the worker with an area of 30 square meter ( cost of each square meter is 3500 SP)

#### 4.1.3 Live chicken production representative costs

Table 8 shows the details of an average breeding cost of CM taking into consideration the differences in the cost between big and small farms.

**Table (8) Average Cost of production of one KG of Live Chicken ( LC) meat in 2007, (SP)**

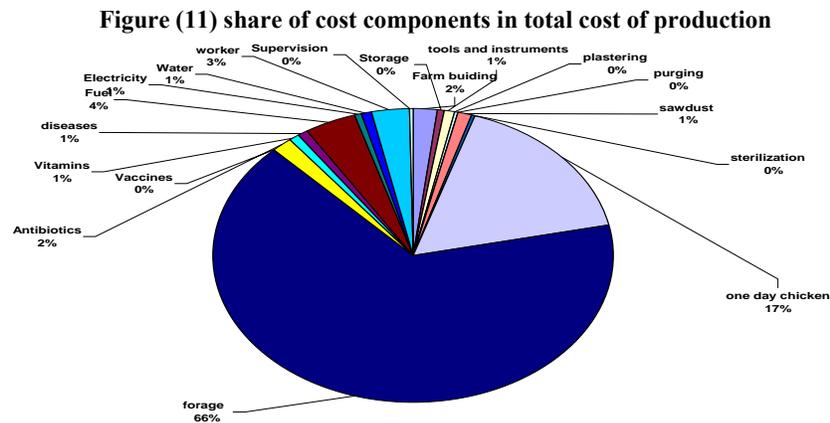
Fixed costs per kg of live animal	share of one kg to total cost
Farm building	1.5
Storage building	0.3
Depreciation of tools and instruments	0.7
Total fixed cost	2.5
Variable costs	
plastering with lime	0.1
purging by fire	0.0
sawdust	0.9
sterilization before receiving one day chicken	0.2
one day chicken	12.2
forage	48.9
Vaccines	0.1
Antibiotics	1.2
Vitamins	0.7
Treatment of diseases	0.4
Fuel	3.1
Electricity	0.6
Water	0.6
Total input and service cost	69.0
Labor	
Wage of worker	2.2
Supervision by Veterinarian	0.3
Total labor cost	2.4
Total cost	73.9
Output	
live animal	77
Profit	3.1

Source: calculated data

- The cost was calculated for an ideal farm that applies all vital requirement, so its cost is higher than those which do not apply such procedures;

- The average weight for the output live birds was estimated to be 2 KG while in actual farms it might be higher than 2KG;
- The fuel was allocated along the year on average at 4 ton, but the actual need is about 7 ton only in winter;
- The average dead birds was calculated at a percentage equal to 10% , while the recommended percentage should not exceed 5%, so when we calculated the profit for 5% dead birds it was about 66325 SP. The reason why we consider 10% instead of 5% is that most farmers told us that their percentage is even higher and sometimes reaches 25%. This is because either the farm is not in good condition, or the farmers neglect applying vaccination and antibiotics;
- The above cost was not consider the new decree by MET, which imposes additional tax on importing maize and barley by private sector equal to 3500 Sp for ton, when maize consists about 70% of chicken forage.

The following chart represents the distribution of each components cost share of in total cost of production in 2007



Source: calculated data

The chart shows that, the main components of the cost are forage which represents about 66% of total cost followed by ODC price with around 17%, then fuel 4% and antibiotic 2%.

From these figures we can say that, any improvement in the competitiveness of CM should consider reduction of these elements.

Variation in the cost of breeding is initiated from several factors such as; size of the farm, kind of equipments, location, services ...etc. nevertheless, the main element that affects the cost is fluctuation of input prices, particularly, forage and one day chicken prices. Moreover, the cost has increased last year after the support of oil gas was removed and the price of each liter increased by 13 SP from 7 to 20 SP.

From the above percentages, we can say that, any reduction in the cost of breeding has to be targeted to the input cost which consists over 75% of total cost. According to farmers, this can be done, if prices of forage and one day chicken are reduced, and this is possible through widening production of maize and soya, or trade of forage and one day chicken are controlled in local market, since there is kind of monopoly for them. Other wise, the sector needs a governmental support, because the sector can not compete internally, or externally unless reduction of breeding cost has been achieved.

On the other side, improving medicine industry is recommended for this purpose to provide cheaper medicines with good quality.

## 4.2 Slaughtering and Marketing Cost

### 4.2.1 cost of slaughtering in MASHs

When birds are slaughtered in the MASHs then the cost of slaughtering for each KG includes the fix cost, which cover the buildings, equipments, tools and instruments and transportation means in addition to variable cost, which includes price of live chicken, daily expenses such as electricity, phone and mobiles fuel and water beside the wages and other expenses such as taxes and fees. We calculate the cost at the current situation in which CM is soaked in water after slaughtering. However, cost will be higher and thus prices if CM was not soaked and also cost will increase more if chicken was sold after cutting the head.

The following table shows the cost of slaughtering in MASHs:

**Table (9) average cost of slaughtering in MASHs**

<b>Fixed costs per kg of chicken meat</b>	<b>share of one kg to total cost</b>
<b>Total area of the house</b>	0.0008
<b>Slaughterhouse building</b>	0.05
<b>Administrative building</b>	0.02
<b>Depriciation of cages</b>	0.079
<b>Basins</b>	0.002
<b>Depriciation of pullers out</b>	0.006
<b>Tables</b>	0.001
<b>heaters &amp; containers</b>	0.011
<b>Steelyard</b>	0.001
<b>Refrigerators</b>	0.003
<b>track cars</b>	0.132
<b>cooling big cars</b>	0.028
<b>cooling small car</b>	0.007
<b>Tools depreciation</b>	0.001
<b>Total fixed cost</b>	0.35
<b>Variable costs</b>	
<b>Commodity in process</b>	
<b>Live animal</b>	104.1
<b>Input and services</b>	
<b>Fuel</b>	1.4
<b>oil for cars</b>	0.1
<b>Electricity</b>	0.08
<b>Telephone&amp; mobile</b>	0.10
<b>Nylon bags</b>	0.19
<b>Total input and service cost</b>	1.8
<b>Labor</b>	
<b>Workers</b>	1.1
<b>Drivers &amp; administrators</b>	0.4
<b>Taxes &amp; fees</b>	0.1
<b>Transforming the left out</b>	0.02
<b>Overhead expenses</b>	0.16
<b>Total labor</b>	1.7
<b>Total cost</b>	107.9
<b>Output</b>	
<b>chicken meat</b>	108
<b>Profit without soaking in water</b>	0.1
<b>Chicken meat weight when soaked with water(50 g/kg increase)</b>	108.7
<b>Extra profit when soaking with water (50 g/kg increase in weight)</b>	0.8

Source: calculated of data taken from slaughter house holders

#### 4.2.2 Cost of slaughtering in MESHs

The cost of slaughtering in MESHs is much higher than in MASHs for several reasons; first, the total CM output in MESHs will be less, because they cut off the head which consists about 3.8% of total weight. Second, MESHs do not soak CM in water. Third, MESHs are packaging CM and manipulating the water of cleaning before push it in swage.

The following table shows the cost of slaughtering in MESHs

**Table (10) average cost of slaughtering in MESHs**

<b>Fixed costs per kg of chicken meat</b>	<b>share of one kg to total cost</b>
<b>Total area of the house</b>	0.0002
<b>Slaughterhouse building</b>	0.02
<b>Administrative building</b>	0.00
<b>Depreciation of cages</b>	0.125
<b>mechanical line depreciation</b>	0.058
<b>Depreciation of mechanical pullers out</b>	0.033
<b>Mechanical sorting line</b>	0.017
<b>Steelyard</b>	0.001
<b>Refrigerator room</b>	0.019
<b>track cars</b>	0.069
<b>cooling big cars</b>	0.022
<b>cooling small car</b>	0.006
<b>Tools depreciation</b>	0.002
<b>Total fixed cost</b>	0.37
<b>Variable costs</b>	
<b>Live animal</b>	116.7
<b>Input and services</b>	
<b>Fuel</b>	1.1
<b>oil for cars</b>	0.1
<b>Electricity</b>	0.03
<b>Telephone&amp; mobile</b>	0.03
<b>backing materials</b>	0.10
<b>Total input and service cost</b>	1.3
<b>Labor</b>	
<b>Workers</b>	0.6
<b>Drivers &amp; administrators</b>	0.3
<b>Taxes &amp; fees</b>	0.0
<b>manipulating the left out</b>	0.01
<b>Overhead expenses</b>	0.25
<b>Total labor</b>	1.2
<b>Total cost</b>	119.5
<b>Output</b>	
<b>chicken meat</b>	108
<b>Profit from CM</b>	-11.5
<b>total daily profit</b>	-6.98

Source: calculated data

#### Notes:

Calculations were based on the prevailing price in stores that sell chicken in the broiler market which was 108 Sp in order to compare with the prices of meat product from the MASH. But in reality, the products of this slaughter are sold at higher prices than the market price in the outlets of these companies and restaurants, luxury hotels and supermarkets and this will bring some profit to them, but because of the

varying price in the market with the price of the prices they sell these slaughterhouses and the potential exposure to losses if sold in the market at these prices, they are forced to reduce the quantities produced and they are working below their capacity because only few consumers have the willingness and ability to pay higher prices for the products of these slaughterhouses. The calculation was done to specify the price which can bring profit to the owner of the MESHs, if they work with full capacity and they slaughter about 50000 birds per day and this price was 120 Sp per kilogram, thus they are achieving a profit of 11 615 Syrian pounds a day in case they sell by this price. But when they operate at less than their capacity, and we assumed they were working about 4 hours a day in which they are slaughtering 20000 birds. And thus, the value of supplies will be reduced and the cost will be less and they will achieve a profit equivalent to 2872 Sp per day if sold at 116 Syrian pounds per kilogram but if they sold at 120 Sp they achieve profit of / 108 472 Sp per day / but it will lose 208 328 Sp a day if sold at the market price of 108 Sp per kilogram.

**Table (11) Average cost for chicken slaughtering and cleaning in MESH**

<b>Fixed-cost</b>	<b>share of one kg to total cost</b>
<b>land area of slaughterhouse</b>	0.0004
<b>Slaughterhouse building</b>	0.04
<b>Administration Building</b>	0.01
<b>Cages</b>	0.311
<b>Depreciation of the mechanical line</b>	0.145
<b>Depreciation of mechanical feather pullers</b>	0.083
<b>Depreciation of cooling and storage line</b>	0.042
<b>Steelyard</b>	0.001
<b>Cold rooms</b>	0.047
<b>Trucks to transport live chickens</b>	0.173
<b>Large refrigerated vehicles for the distribution of production</b>	0.055
<b>Small refrigerated vehicles for the distribution of production</b>	0.014
<b>Depreciation of tools</b>	0.005
<b>Total fixed costs</b>	0.93
<b>Variable costs</b>	
<b>live birds</b>	116.7
<b>Fuel</b>	1.1
<b>oil for tracks</b>	0.2
<b>Electricity</b>	0.06
<b>Phone and Mobile</b>	0.06
<b>Packaging material</b>	0.25
<b>Total variable costs</b>	1.7
<b>Employment</b>	
<b>Wages of workers</b>	0.6
<b>Drivers and administrative</b>	0.3
<b>Fees and taxes</b>	0.0
<b>Waste Treatment</b>	0.02
<b>Other costs</b>	0.25
<b>Total employment</b>	1.2
<b>Total costs</b>	120.4
<b>Output</b>	
<b>Meat output</b>	116
<b>Profit from the meat</b>	-4.4

Source: calculation of data from agents

### 4.3 Cost of Export

the most important export market for Syrian CM is Iraq, however, the procedures on the Iraqi boards hinder the export, exporters must pay customs duty of about 70 US\$ for each ton, so this increases the cost of Syrian chicken which is already high and limit the ability of competing there. Other markets are Kuwait and Saudi Arabia.

The cost of CM export includes price of chicken, cost of freezing, packing, packaging, transportation cost, customs duties and other fees. The estimation of these costs for the year 2007 is as follows,

1. Price of one ton of CM is 10 8000Sp/ton;
2. Cost of freezing, packing, packaging, and fees to get certificate of origin and invoice is 18000 SP/ton;
3. Transportation cost in cooling tracks to Iraq is about 4700 US\$ ( 225600 SP) for a track that carry 17 ton ( about 13271 SP/ton) ( the average cost for the track is 4500 US\$ in summer and 3000 US\$ in winter);
4. Customs duties is 3360 SP/ton (70US\$/ton);
5. total cost is 142631 SP/ton (137 SP/KG);
6. Price of exported CM to Iraq was between 1800-3200 US\$/ton (86400 -153600 SP/ton ) (86 – 153 SP/KG) on average 120 SP/KG ;
7. Benefit or lose (selling price – cost of export) ( $120 - 142 = -22$  SP/kg).

When exporting to far countries by sea the cost will be more, because Syria did not have cooling containers to transmit CM by ships, so traders have to charter such containers from Greece. This increases the cost of transportation, because these containers will travel to Syrian shore empty to carry the CM freight.

### 4.4 Profitability and Distribution of Cost and Profit Across Agents

#### 4.4.1 Profit of farmers

From the previous analysis we find that the average cost of breeding at the farm level was 73.9 SP for each one KG live bird and the average price for one KG live bird was 77 SP. Therefore, the farmer will get a profit equal to 3.1 Sp for each KG and for a farm of 5000 birds the total cost will be 665175 SP and the profit will be about 27825 Sp for the cycle of breeding (45 days) and the percentage of his profit to the total cost was about 4.2%.

#### 4.4.2 Profit of MASHs

As for MASHs, we apply in calculating the cost a percentage of net meat and bon out of live bird to be 70% since MASH did not cut off the head of the bird in addition to 4% as a weight for liver and craw, so the cost of one KG of CM for a house with daily capacity of 7000 bird was about 114.1. However, the actual price in the market for CM was 108 SP, for livre 130 SP and for craw 20SP, so if he did not soaked in water he will lose about 17915 SP, but if CM is soaked as all MASHs do, he will get a profit of 8545 SP daily in case the weight of water absorbed was 25 G for each Kg CM, or 35000 SP daily if the increase in weight was 50G for each KG of CM).

Since soaking CM in water is illegal, the CM price in the market should be raise to be at least 110.5 SP per KG, so that the profit will be about 6585 Sp daily in case CM was not soaked in water.

#### 4.4.3 Profit of MESHs

the cost of slaughtering in MESHs was estimated for a slaughter house with a capacity to slaughter 5000 bird in one hour, the estimation was calculated in two cases and in both case there was loses if the sell price of CM was 108 SP/KG, first if the MESHs works for 10 hours, the loses will be about 460385 SP

daily, but if it works for 4 hours only the lose will be less equal to 297185 SP. Therefore, the price of live bird has to be reduced by 5 SP for each Kg to achieve profit, otherwise, the MESHs has to sell at 120 Sp with 12 SP above local market price if it works for 4 hours, or at 116 SP with 8Sp above local price to achieve profit if it works for 10 hours.

#### 4.5 Base run consolidated account

Calculation for profit and loss was done for the entire chain up to the retailers for the MASH based on the reality of the current work applied in MASH in terms of soaking chicken with water, so that, there is profit to the owner of the slaughterhouse and found that the sector make a profit in this case equivalent to 6% which will be distributed by 4% for the product along the breeding cycle (about 45 days) and 2% to the owner of the slaughterhouse every day, while the costs at the sector level distributed to breeders who bear 96% of them while the share of the owner of the slaughterhouse is equivalent to 5%

**Table (12) Consolidated account for MASH**

	Cost	Commodity during processing	Revenue	Profit
<b>Breeder</b>	100.6	0	104.8	4.2
<b>MASH</b>	5.5	104.8	112.2	2.0
<b>At the sector level</b>	106.0		112.2	6.2
<b>Ratio of cost and profit to revenue</b>				
	Cost	Commodity during processing	Revenue	Profit
<b>Breeder</b>	96%	0%	100%	4%
<b>MASH</b>	5%	93%	100%	2%
<b>At the sector level</b>	94%	0%	100%	6%
<b>The distribution of costs and profits among dealers</b>				
	Cost	Commodity during processing	Revenue	Profit
<b>Breeder</b>	95%			68%
<b>MASH</b>	5%			32%
<b>At the sector level</b>	100%			100%

Source: calculation of data from agents

For MESH calculation of the profit or loss was based on the current reality in which they operate less than the actual capacity and assuming they would sell at the market price and with the same costs without decreasing of their cost when working at full capacity. Therefore, it was found that the cost split between breeders and owners of slaughterhouses by 96% for farmers and 3% for the MESH. As for the profit, the breeders will achieve 4% gain, while the slaughterhouse will bear a loss of 11.3% if sold at the market price and the result will be a loss at the sector level -7.1%. But if we calculated the reality of the cost and price of sales made by the MESH, the cost of breeders would be equivalent to 100.6 and for the MESH 3.8, and thus the breeders will gain 4.2% throughout the cycle of breeding, while the slaughter winning of 0.1% per kilogram per day as shown in the following table.

**Table (13) Consolidated account for MESH**

	Cost	Commodity during processing	Revenue	Profit
<b>Breeder</b>	100.6	0	104.8	4.2
<b>MESH</b>	3.8	116.7	120.5	0.1
<b>At the sector level</b>	104.3		120.5	4.3
<b>The distribution of costs and profits among dealers</b>				
	Cost	Commodity during processing	Revenue	Profit
<b>Breeder</b>	96%	0%	100%	4%
<b>MESH</b>	3%	97%	100%	0%
<b>At the sector level</b>	87%	0%	100%	4%
<b>The distribution of costs and profits among dealers</b>				
	Cost	Commodity during processing	Revenue	Profit
<b>Breeder</b>	96%			97%
<b>MESH</b>	4%			3%
<b>At the sector level</b>	100%			100%

Source: calculation of data from agents

## **5 Related and supporting industries *and services***

### **5.1 One Day Chicken supply**

#### *5.1.1 Domestic production of ODC*

Import of one day chicken meat (ODC) is prevented by law to protect and encourage local production. Therefore, all ODC are produced locally, and thus Syria is self sufficient of ODC.

#### *5.1.2 Trade policy for the output/ for both export and import*

As for the export, policies for CM were aimed to satisfy local market needs and export extra production when there is an extra. However, after a protest from exporters, there is now a decree allows export certain quantity every month. CM import is banned for direct consumption. Exporters believe that, if Syrian law allowed import of frozen CM, Syrian CM can easily compete for its quality, but it can hardly compete the frozen imported CM for the price, because most export countries support their chicken production. As an example, the cost of one ton of forage in Syria is about 200 US\$, while in Argentine the cost of one ton of forage is only 60 US\$ due to a support for CM forage in Argentine by the government.

If Syrian CM has been supported, it would surely compete well in local and foreign markets.

There are several international stocks of CM in Syria, those are, Lohman, Cob, Arbo, Icarz, Harbard, Rohywet and Hibro. Chicken breeding started by importing GMODC chickens and breeding them in Syria to produce MODC chickens (there are 3-4 big companies breeding GM ODC chickens in addition to some individuals who grow limited quantity of GMODC. Total production of those companies is about 2 million of MODC annually, which can produce 200 million one day chickens meat, which are now satisfying Syrian needs of CM). In addition, imports of MODC increase the number of ODC, so sometimes, they caused an overproduction. As a result, and despite there is an export of some ODC, the prices of ODC decline when their production are big. This encourages breeders to expand their breeding of chicken and some breeders who breed hens for eggs shift to produce CM. This reflected in more supply of CM in the market and prices go down. By the end, many breeders stop breeding chicken and prices go up again.

There are about 50 farms specialized in producing MODC chickens. After this development in producing GMODC and MODC, the government prevented import of ODC to protect local production.

GMODC' farms are given great care, because these one day chickens need stern health conditions and high technical experience, so their expenses are very high. The farms are completely closed and the breeding period extent to 7 months. MODC also kept in the farm for 7 months before laying eggs that produce ODC. Import of GMODC and MODC face some difficulties. For example, when importing one day GMODC, the invoice in the customs is not submitted to the importers until they paid their total value to the foreign exporting companies, this delay the procedures, because usually most exporters agree through contracts with the importers to have their money later. Import of GMODC chicken faces some difficulties such as: ships usually took a long time to be discharged in the labor. This increases the cost on both import and breeding. Also, in the customs, importers are not allowed to receive their freight unless they pay duties. This sometimes takes long time when it is possible that importers sign commitments to pay later and allow receiving the goods as the case in other countries. Furthermore, big companies are able to rent a store in the port, so they can discharge their goods faster than small companies which can not have this advantage.

### 5.1.3 Trade of ODC

#### **ODC production costs**

Chicken breeding in Syria is started by importing GMODC chicken or MODC chicken to produce ODC. Import price of GMODC chicken is 2000 Sp plus 150 SP for custom duty in addition to transportation cost. This amount doubled because for each female one day chicken importers must import male one day grandfather chicken. MODC's import price is 180SP. Total cost of each mother breeding is about 1500 SP.

Here in our study we did not consider the cost of grandmothers and mothers breeding, but we calculate the price of ODC instead.

Export of one day chicken is successfully achieved to many neighboring countries such as Egypt, Lebanon and Jordan as well as to some foreign countries.

Syrian policy concerning agricultural and animal products aimed to achieving self sufficient for major strategic commodities, so that be able to apply the needs of consumption, encourage producing commodities that Syria has comparative advantage in producing them, enhance the export of those commodities that have the ability to compete in the internal and international markets and support the sensitive commodities to satisfy the consumption needs and to provide hard currency needed to cover the import requirements.

Regarding the import, the government allowed import of one day GMODC and MODC chickens. In the meantime, import of forage and medicine is allowed.

## **5.2 Forage supply**

Chicken forage industry is very important for improving CM industry. Forage is the main component of CM cost represents of about 58% of total cost. Forage industry in Syria started in 1993 and gradually developed to become quite big with about 120 factories prepare and provide about 7000 -8000 ton forage daily to CM breeders. Some of these factories have capacity to produce about 50 ton per hour. However, the majority of these factories depend on imported raw material to produce their output.

Since the actual need of local CM is less than the capacity of these factories, the government allowed the export of forage in 2008.

Local raw material for forage industry able to provide about 20% of the needed forage

the successful of the sector is hindered by a very high production cost resulted from high input prices, especially of the forage which consists more than 60% of total production cost and is mostly imported, so it is subject to international price fluctuation

Despite the availability of resources to cultivate maize and soybean, the ability to widen their cultivation is hindered by several factors represented by draught, high cost of production and the interest of farmers to cultivate more profitable crops. On the other hand there is no incentive for investors to widen their cultivation so that the cost might be less.

Presently, most factories import raw materials to produce the forage, but this makes industry very sensitive and fragile due to international price fluctuations in addition to high cost of transportation from exporting countries.

To make CM production competitive, forage has to be offered to producers by competitive prices and in good quality. The sector now suffer from high cost in the world market, which is controlled by exporter countries and from monopoly and high prices in local market, which is controlled by Syrian traders. This limits the ability of Syrian CM to compete inside and outside the country.

The most difficulty of CM production is the increase of forage prices, especially maize and soybeans which led to an increase in CM prices.

In the last two years (2006-2007) international prices of maize (price of one ton of maize increased by about 80% and 100% for soybean. This increased the cost of producing ODC and CM as well.

Breeders complain that prices of forage are highly fluctuated and accuse raising the prices without good reasons sometimes, especially when forage quantity in the market is limited and the demand is high, and because of that, local traders of forage are considered the most beneficial of chicken breeding, since they are able to impose their prices on the breeders, because market of forage is almost a monopoly market. For instance, in 2007 international prices of maize and soya were raised, so the local market was affected and prices of maize went up, while in 2009 these prices declined, but the impact on the local market was very limited. On the other side, traders defend their position claim that prices of these commodities are raised and declined according to international prices, and they only add slight profit over their cost of import and they bear hazard to provide local market with forage.

In the light of the incremental international forage price, Syria has to look for expansion in the cultivation of fodder locally and in the light of the reality of available land and water resources..

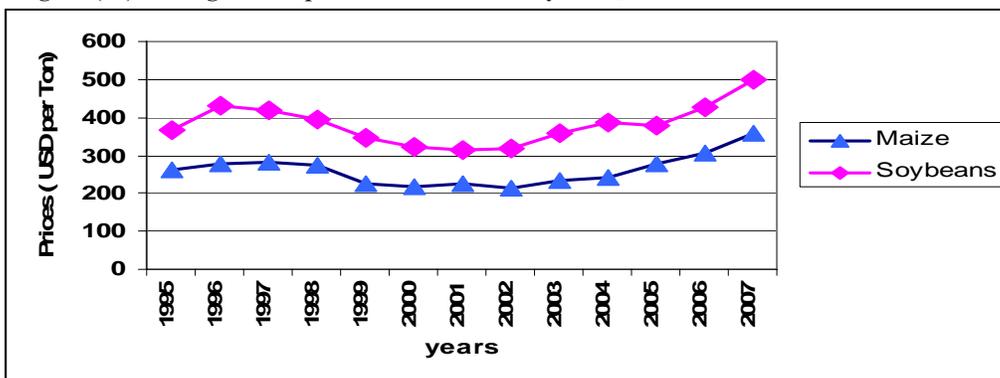
the continues increase of forage price threatens the future of CM industry, so it is suitable to make study for the costs of agricultural production to expand in the cultivation of fodder in the event shows their usefulness.

Some of the factors affect price of forage;

- Supply and demand forces in international market affect prices of main forage components which are maize and soybeans and they are reflected locally in an increase in their prices, since 90% of forage are imported;
- High world demand on energy and the use of maize to produce vital fuel in the form of ethanol in major exporter countries increase its price;
- Growth of population increases the consumption of food in the world and accordingly the demand for maize and soybeans increase.

Reduction of subsidy for agriculture in exporting countries lowered the incentive for production and shrunken the supply in the international markets.

Figure (12) Average world prices of Maize and Soybeans, US\$/Ton



Producers assure that, Custom duties on soybean imported for oil extract in the factories are much lesser than soybean to be used for forage. Therefore, producers requested that the government should reduce custom fees on imported soybean for forage to the same amount on imported soybean for oil extract.

**Table (14) production, import, export and self sufficient of soybean in Syria, (000) ton**

commodity	Soybean					
item	Production	Import	Export	Available	% of self sufficient	% of local Production to Imports
2000	4	69	0	72	5	6
2001	4	54	0	58	6	7
2002	5	101	0	106	4	5
2003	3	156	0	160	2	2
2004	4	139	0	143	3	3
2005	4	214	3	215	2	2
2006	3	59	0	62	5	5
2007	2	296	0	298	1	1

Source: NAPC data

**Table (15) production, import, export and self sufficient of maize in Syria, (000) ton**

commodity	Maize					
item	Production	Import	Export	Available	% of self sufficient	% of local Production to Imports
2000	191	951	-	1142	17	20.0
2001	216	296	-	512	42	73.0
2002	232	899	-	1131	21	25.8
2003	226.7	914.2	-	1141	20	24.8
2004	210	856	-	1066	20	24.5
2005	187	1474.0	0	1661	11	12.7
2006	277	2403	2	2678	10	11.5
2007	350	1742	1	2091	17	20.1

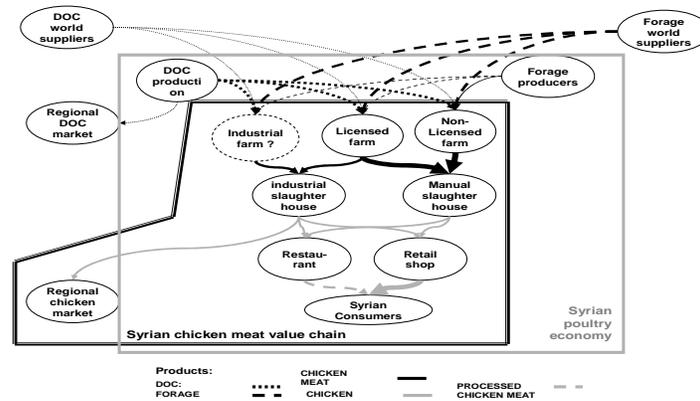
Source: NAPC data

From the above tables we can figure out the following results: the percentage of local production to imports for Soybean is very limited between 1-6% while the percentage for maize is higher (11.5-73%). On average the percentage for Soybean is about 4% and for maize is about 26.5%.

### 1.2.1 Forage trade

Syria does not import ready forage for CM industry, but instead it imports raw materials (maize, soybean...) and prepares them to be fitted for CM feed. The above tables identify the imported quantities of these materials. From these tables we can see that, CM industry is almost totally depended on imported forage. This reflects the difficulty of being secured, since summer crops need water at a time when the region suffered from drought.

**Figure (13) forage supply in relation to the sector**



### 5.3 Credit supply

Credit is a key component in chicken breeding, since the activity bears a lot of cost for feed during breeding period (1,5 month) that can be recovered only at the end of the breeding cycle when the chicken are sold. Hence, chicken breeding relies heavily on credit availability.

Lack of finance for input purchasing is a major issue, since most farmers have difficulties in obtaining finance from the agricultural cooperative bank.

*The bank credit systems for chicken production:*

The agricultural cooperative bank is the only governmental body that provides loans for CM breeders.

Up to year 2009, the bank introduced three kinds of loans, short term loans for birds breeding, middle term loans for buying equipments and instruments, and long term loans for setting up buildings. (Non licensed farms can not have these loans).

The loans conditions were;

First, the bank used to provide short term loans for a period up to 6 months to licensed farms on rate of 60 SP for each bird according to the capacity of the farm as stated in the license that given to the farmer by MAAR and according to actual breeding situation through an inspection. The farmer has the right to get loans every 160 days.

Second, the bank used to provide middle term loans on rate of 50 SP for each bird according to the capacity of the farm as stated in the license that given to the farmer by MAAR for buying equipments including (cribs, watering apparatus, generator, Mixture of forage ...etc)

Third, the bank used to provide long term loans for setting up buildings at rate of 50% of total cost specified by directorate of technical services up to 1000000 SP, in which payments are paid according to the execution of the building. The first installment repayment is deserved through 300 days of the loan handling.

The interest rates on the short and middle term loans was 5% to public and cooperative sector in its titular character, 7% for cooperatives as members and 8% for private and joined sectors. The interest rates on the long term loans was 5% to public and cooperative sector in its titular character, 8% for cooperatives as members and 9% for private and joined sectors.

The agriculture bank according to a decree number 19/m dated ¼/2009 has modified the loans and the interest rates as follows:

First, the bank modified the short term loan's rate to be 100 SP for each bird and farmers have right to get loans every 190 days.

Second, the bank provides middle term loans on rate of 50 SP for each bird for buying (mechanical cribs, mechanical watering apparatus, generator, Mixture of forage ...etc), but for manual cribs, watering apparatus the rate is 15 SP for each bird.

Third, the bank provides long term loans for setting up buildings on rate of 1750 SP for each square meter of concrete ceilings, or 1250 SP for each square meter of Zink ceilings to cover 50% of total cost specified by directorate of technical services up to 1000000 SP on payments according to the execution of the building. The first installment repayment is deserved through two years of loan handling.

The interest on short term loans became 6% to public sector and to cooperative sector in its titular character or, 7% for cooperatives as members and 8% for private and joined sectors.

For mid term loans, the interest is 8% to cooperative sector in its titular character, 9% for cooperatives as members and 10% for private and joined sectors.

For long term loans, the interest is 9% to cooperative sector in its titular character, 10% for cooperatives as members and 11% for private and joined sectors.

*Supply of credit from chicken traders:*

small farmers in remote areas who have non licenses for their farms are in lack of funds to make cash purchases of inputs and have no alternative credit sources except to contact middle men who provide them with inputs in kind loans with higher cost to be recovered from the output which they buy with lower prices.

Farmers face difficulty in getting finance sources for their breeding especially those who have non licensed farms holders due to the conditions of getting loans from the cooperative agricultural bank, which provide loans for licensed farms only and such loans cover part of the expenses only. So when farmers face shortage in their finance resources, they have to deal with middlemen who provide them with inputs with higher prices at about 10% and they also purchase the CM with lower prices. Farmers have to accept that, because they do not have other choice. This case especially found in remote areas for another reason, because there is none, but these middlemen to sell them inputs or buy the output from them, and if they do not want to deal with these middlemen, they have to buy inputs from the city and sell the output there, which is very costly for them.

Actually, there is a kind of reciprocal interests between those farmers and traders who provide them by input on credit.

Farmers usually can not sell their outputs to other traders, since if they do so, they will run out of people who are willing to provide them with inputs on credit.

In the meanwhile, there is no way for exporters and slaughter house holders to get loans and they have to rely on their own resources in financing their business.

## **6 Actors strategies and value chain governance**

### **6.1 An unstable marketing environment**

There are failures in the CM market due a weak coordination between supply and demande at the different stage of the value chain, which leads to price instability of ODC and live chicken. This hinders the capacity of the CM value chain agent to plan their activity and investment. Price variations for feed and other substitutes further increase the uncertainty that breeders should cope with.

The biggest problem for producers is the decline of CM prices in the market and this happened when prices of ODC decreased from about 20 SP to less than 5 SP sometimes, because of more supply. This encourages farmers to widen their production of CM hoping to get more profit when cost of production reduced by about 7 SP by KG of CM. But this increase in the supply of CM results in a decrease of CM price. Therefore, the compensation of cost reduction is lost by the CM price decrease and farmers even lose sometimes.

Market instability is thus a major constraint to sustain CM production and even lead some farmers to permanently stop producing CM. This instability is particularly affecting breeders that are engage in longer cycle of production (about 2 months), whereas slaughterhouse can adjust their activity more rapidly to price changes, even on a daily basis. Furthermore, breeder deals with a highly perishable output, while CM can be stored in cold storage. Accordingly Breeders complained of non stability market that lead slaughter house holders to impose their prices and handle all selling conditions, particularly when market prices are low due to extra supply. House holders know that, breeders can not keep their birds for long time after reaching the required weight and they have no other choice, but to sell them the birds.

It is therefore crucial, to support the establishment of devices that could reduce market instability. Various mechanisms can be explore such as the provision of relevant information, short term credit or insurance systems to assist breeders in coping with market instability and training to give them a better understanding of the markets functioning.

unless a mechanism to stabilize the market is made through an estimation of the actual local market needs and the ability of export and control the production by controlling providing licenses to import MODC and thus the supply to be fitted with the demand, the value chain will decline instead of progress.

### **6.2 Public policy and Value chain governance**

The policy for CM production aimed at ensuring self-sufficiency in CM and relied on a strict ban on CM import (some CM was imported occasionally for CM industry) and a severe control on CM export that remain marginal in volume terms and irregular in frequency. Given the increasing. With the implementation of agricultural policy reform, the aim for animal products in Syria targeted to encourage the production of goods that Syria has a comparative advantage in production to meet the needs of domestic consumption also aimed at promoting and increasing exports of goods that can achieve a competitive advantage in foreign markets and strengthening of the commodities subject to competition in domestic markets to reach out to meet the food needs of growing population and the provision of foreign exchange necessary to cover import requirements.

On domestic marketing, the government stopped directly interfering by imposing prices for CM. The government monitor the prices in the market and intervenes only when prices of CM are too high by producing and introducing extra quantities of CM to balance the market through the GEP which increases its production volume in this period.

Public administration keeps a central role for ensuring and improving the quality of CM through the enforcement of sanitary rules at various stage and the provision of health services

The government also provides support for the sector through the provision of loans to cover part of breeding chicken costs,.

### *6.2.1 Marketing policy*

Marketing of CM is subject to market supply and demand powers and the government does usually not interfere in the market unless the prices become very high, when GEP increases the supply of CM to reduce the price. However, there is a mechanism for an estimation of CM prices and announcement for agents to use them as a guide when dealing in the market. This is done by an appointed committee under MET including representatives of MAAR, GEP and poultry committee according to actual prices in the market as shown up from the interaction between supply and demand and according to cost of production. Therefore, the committee considers the cost of CM to retailers using production cost as a base to calculate the price by adding transportation fee to the production cost (one Syrian pound for each kg) plus profit of slaughter house and cost of distribution (two SP) and counting the price of one kg of meat according to percentage of meat in the LC which considered 74% of LC weight with consideration to market conditions. These rates are indicative and non-binding and are placed to guide the part of dealers in the market and is not committed by traders often, when determining the price in the market depends on supply and demand. Although prices are indicative, they indirectly affect the prices of producers as some of the owners of slaughterhouses pay the price of production based on prices declared by the Committee when prices in the market are higher.

Then the committee estimates the consumer price for raw CM by adding 4 SP as a profit for retailers. As for roasted CM, the estimation is done for the whole chicken not for one kg, so the committee estimates the price for a weight of chicken of 1400 g of raw CM and added 25 sp as a cost of roasting plus 10% profit and for fried CM the committee adds 5-10 SP above roasted CM.

As for inputs, they are mostly imported, so there is fee imposed on them which is formally 1%, but it might extend to 5% because of non official expenses.

### *6.2.2 Trade policy*

Trade plays an important role in developing the national economy through supplying national needs for goods and services, assisting in economic development, motivating businesses to adopt new technologies, and creating employment. The government took steps to open Syrian markets through trade liberalization and expansion of non-oil exports.

Trade liberalization in Syria is reflected in a series of reforms leading to easing or eliminating barriers to trade. Licensing imports are being removed, tariffs reduced and rationalized, and fees on imports reduced. The highest tariff rate was reduced from 255% to 60% and the average tariff rate brought to 14.5%.

Concerning export, the law allows export of one day chicken mother (MODC), ODC, veterinary medicine and animal forage produced in Syria. As for CM, the government allowed export of a limited amount of 2000 ton only, distributed equally among 5 big companies that have modern slaughter houses and clean products matching international standards. MET issued decree 1785 dated 22/6/2008 which allows only five companies that have modern slaughter houses to export CM in order to guarantee exporting good quality of CM.

Exporters complain that, all competitors of Syria in the region markets gets supported from their own governments when they export CM, or ODC, while Syrian exporters on contrary pay taxes when they export these commodities. Exports of one day chickens or CM are subject to several fees, such as: fee for custom statement of about 115 thousand SP, fee for local administration, and fee for paper ratification in addition to some other overhead fees. These fees are fixed whatever the size of exported freight. Moreover, there are some taxes on producing chicken from Syrian breeders, while all other competitors are supporting the chicken. For instance, Saudi Arabia supports production and export of ODC. Other countries such as France, Brazil, Argentina, Ukraine, and Romania are all support their production of CM. For instance, CM exports from France traders benefit from support program of EU in addition to national support for poultry. Also Brazil traders get facilities to credit by lower interest rates from their government and from exemption from some taxes.

Traders believe that, if Syrian CM has been supported, it would surely compete well in local and foreign markets.

The government reduced all subsidies on poultry forage, fuel, electricity and fertilizers in the context of policy reforms. This heightened the production cost and made the sector weaker for competitiveness.

### *6.2.3 Investment policy*

In the last 15 years, the Syrian investment environment has made significant progress. Since the issue of Law 10 of 1991, Syria has provided incentives that attracted direct foreign investments, with inflows of capital in banking, construction, industrial and tourist sectors. The law offered several privileges for investment including exemptions from income tax, and custom duties on imports of raw materials and equipment. In the sphere of attracting private investment, a new law (Law 8 of 2007) replaced the earlier Investment Law 10 of 1991. The new legislation has introduced more incentives and granted additional guarantees beyond those included in the former law.

The Syrian government plans to increase investment by 7% to reach 25% of GDP by 2010.

Trade and investment are related elements that favor a more open setting. The intention to transform Syria into a point of attraction for FDI will foster trade, and a liberal and simplified trade framework favors investment. A future challenge is that investment includes agriculture according to its potential contribution to economic development in the country.

Current policies based on encouraging investment through creating environment that attract investors by strengthening infrastructure, increasing legislative and administrative facilitation for project certification, releasing laws that included tax incentives and custom duty reduction and allowing investors to hold lands for their projects. All these procedures aimed to initiate competitive investment climate that attracting foreign direct investment as a means of spurring growth and economic development in Syria.

The Government worked to simplify procedures for implementing investment projects including removal of restrictions on foreign exchange and stabilization of local currency exchange rates, providing of investment services such as facilitating imports of raw materials, cutting down taxes and tariffs, allowing transfer of principal foreign money outside the country and making certification of the projects easier through one window system.

In addition, foreign companies are allowed to raise funds from domestic sources, including bank loans, without any restrictions. Those companies are treated equally with national firms in all respects and can bring foreign employees to run their businesses.

The Cabinet released decision 4 allowed investors who are investing under investment encouragement laws to get loans in foreign currency from outside the country to implement their projects and repay these loans and their interests through Syrian banks starting in first 2008.

Producers asked the government to consider poultry as one of the components of the Agricultural subsidy fund to support CM production, or at least exempt it from tax, so that, the cost of production will cut down and the sector could compete in foreign markets.

## **6.3 Private strategy to improve value chain efficiency**

### *6.3.1 Development of a Syrian poultry integrated industry.*

Poultry industry has greatly flourished in Syria in the last ten years. CM production has developed as a result of specialized breeding farms. The most recognized sign of this development is the entrance of many big integrated companies into poultry market during the last decade.

During the last few years, many new projects were set up based on the investment law number 10 for 1991, which secured many privileges for the investors such as: exemption from taxes for certain years, exceptional permission to import the needs of their projects of equipments and instruments, and to export

the outputs, so that many investors were encouraged to invest in producing, marketing and exporting chicken.

These companies follow an integrated strategy for developing poultry meat production covering the whole technical process from one day old chicken production to fresh meat, cut meat, chicken mortadella, shawarma production. They use high technology in breeding grandmothers and mothers for both CM and eggs. They also established modern MESHs with high rate of productivity and constructed processing factories for CM.

To date, there are but few plants run by these companies. Some of these companies depend on imported CM and some rely on local CM products. The expansion of CM processing is still slow and has not been without problems.

### 6.3.2 *Lack of stakeholders based organizations*

The structure of poultry sector in Syria is consists of several institutions that working together to provide CM for consumers. The sector includes breeders, traders, slaughterhouse holders, and retailers. These agents are all insist on the need to establish a union or agency for poultry sector that will be responsible for quality control for internal and external trade, market information collection and dissemination and overseeing the policy of the sector.

Most of the stakeholder interviewed acknowledge the need for a platform where chicken issue could be discussed and for making proposal to solve theme; There is different view on whether such an intuition would have to be under the GUP , or given its multi-stakeholder nature (breeder, trader, slaughterhouse) it should have its own constituency.

In Syria there is Central Poultry Committee of 7 persons designated through an election in the Agriculture Chambers Union. This committee was established in 1995 and has branches in all governorates. The committee looks for the interests of breeders who are members in the chamber only through coordination with concerned authorities, but it has no authorities to enforce members to keep their commitments. Now the committee is making effort to be the only representative of the sector that has full authorities to impose laws on all the agents in the sector as a substitute of the suggested union.

the absent of an agency that has the responsibility to coordinate and organize the sector, plan and control the production and market according to the capacity of production and the actual demand in local markets as well as the expected exports resulted in disarray of the sector.

Stakeholders believe that such body would be able to improve coordination among agents and contribute to an improvement of the economic environment of the chicken value chain (trade, credit policy...)

They believe that there is an urgent need to establish a Union for Poultry that could organize the present disorder in the sector that caused of the absent of strategic plan for producing the exact needs of output, since such union would perform the main feature for a successful strategy and organize the breeding, marketing, import and export of the input and output. The union is able to make available the requirements of the sector and monitor the quality of input and output.

The sector needs to be organized by a body that have authority to control chicken production according to specific plan designed on base of the actual requirement of local markets and the ability to export. Farmers are now producing according to their own interest and the situation of chicken prices in the market. So the business is a kind of gambling.

The problem of the decline of CM prices in the market, when prices of ODC decreased because of more supply which encourages farmers to widen their production causing prices of CM to cut down, when supply greatly exceeds demand, is a clear example of instability in the market and the need for a body to control and organize the sector.

All efforts with the government along years to allow establishing a union to control production in the sector and stabilize the prices were in vain, because the General Union of Peasants (GUP) object setting up such union unless it was under his umbrella, since there are some societies in the GUP specialized in poultry.

Such union is found in most producing countries and is the best solution for the problem of fluctuation in production and prices which hinder the sector and cause disaster for some farmers. Production and prices are not stabilized now and farmers move from producing eggs to CM when prices of chicken are high and vice versa. Traders of CM refuse to buy birds and exploit farmers when prices are down.

Such Union would be able also to compel farmers and slaughter house holders to keep technical and sanitary conditions and organize production, marketing, import and export of poultry products. The committee for poultry, under the Union of Agricultural Chambers, is assisting in CM and eggs marketing and export, but it is not cover all the agents in the sector.

The General Establishment of Poultry (GEP) along with many representatives of the sector exerting efforts to support establishing such union. A draft of a law to establish such union was made, but they did not succeed in convincing the authority to approve it, so they now are trying to convince the government to establish a league for poultry agents instead of a union and steps are taken in this direction.

## **6.4 Quality management along the chain**

### *6.4.1 Quality management by stakeholders*

CM quality is a concern of most breeders who are making all efforts to produce healthy birds that bring profit for them. However, the case is different with slaughterhouses and retailers, so while technical slaughter houses are very concerned about the quality of their products to strengthen their position in local market and enhance their ability to export so that they produce clean and packed cooling products and present their products in closed cooling windows, most manual slaughterhouses are still need to be adjusted to fully keep the sanitary conditions when preparing their products. However, not all manual slaughterhouses are the same because some of them are applying the sanitary conditions to some extent while others are working in places and with conditions that are far from applying the sanitary conditions. The same can be told for retailer shops when they display the products, so while some retailers present CM in closed cooling containers we find some who slaughter birds in their shops and sell the products in open not cooling places. In the meanwhile, some retailers are now differentiate the products by selling separated parts of CM instead of selling the bird as a whole, and by preparing shawrma, roasted and fried CM. The government issued several legislations to follow up the application of sanitary conditions in slaughterhouses as well as in shops. Consumers vary in their concern about good quality of CM, of course all consumers prefer higher quality of CM but not all are aware about the conditions in which bird are treated in slaughter MASHs and some of them can not afford he money to by better quality.

Weak demand for quality in internal markets enables the MASHs who not applying healthy conditions to be successfully keep to providing market with less low quality products and hinder packing services and cooling transportation for CM and made the impact of government efforts to develop the sector very limited.

Some MASHs are paying little attention to the quality. This resulted from the failure of buyers to reject poor quality and the lack of a quality based on pricing system. Therefore, we can say that, control of quality in local market is somehow limited, while for export, traders care for their CM quality.

There is a need for an effective regulatory framework in order to create full and fair competition between mechanical and MASHs to guarantee the quality of CM. there is difficulty associated with different cost that might hider the impact of such regulation.

Quality problem can be guaranteed if buyers begin to insist on higher quality and willing to pay premiums for higher grade produce

#### 6.4.2 *Public regulation and quality management*

The quality issue was always the concern of the government. This issue was addressed in much legislation such as:

- i. Participation in international organizations, such as the International Centre for Registration of Trade Marks in Madrid and the Lahaiy Agreement concerning the international registration of samples of industrial products;
- ii. Obliging an irremovable origin mark on imported goods, with few exceptions (Letter 275/4/4/366 of 2006 by the Ministry of Economy and Trade to its directorates);
- iii. Law 8 of 2007 regulating provisions of distinctive marks, geographical indications, and typical charges where distinctive marks should be able to be seen by eyes, and should be written on goods and services in Arabic letters with possibility to add foreign letters in similar size. The law included a special section for geographic indications which define the origin of products in a country in which product quality or other features refer to that geographical origin;
- iv. Regulations on food safety such as the creation of a national committee for food safety (Decree K 3877 of 2005) and a draft law for consumer protection which intends to guarantee consumer rights and safety.

Syrian Commission for Standardization and Specification identified the conditions for CM for processing as follows:

- Slaughtered birds should be free of any bruise, blood and water residues and feather;
- Frozen CM should not be longer more than one week under -18 degrees centigrade;
- Providing medicines should stop 72 hours before slaughtering;
- Packing and packaging materials are to be clean and healthy.

Ministry of Local administration, through the law 524/n dated 7/7/2009, stipulated for licensing slaughter houses the following conditions:

- To be far from habitants 1.5 KM;
- The slaughter house must consists of three separate parts; the fist for live birds; receiving, the second for slaughtering and cleaning and the third for left out collection;
- Workers must wear special clothes and must be examined regularly;
- Cages, tolls, vehicles and work places must be treated by antisepsis.

#### 6.4.3 *Sanitary policy*

On the production side, MAAR issued a decree number 4 in 2005 that stipulated for farmers who want to license their farms to make contracts with either veterinarian or agronomist to supervise the production activities so that the quality of birds is better.

Also in the market side, the decree 1161 dated 12/5/2009 by MET included that MASHs should have a unit for water sterilization of CM cleaning water, allowing licensing of slaughter houses only in industrial areas, preventing slaughtering bird outside regular slaughter houses and requested slaughter houses to cut the head and extract lungs before selling chickens to the shops. The decree also oriented to distribute the meat in cooling vehicles and display CM only in cooling windows. However, a dispute was there because of this decree when MASHs objected cutting the head and extract lungs which they said need to be done mechanically.

Currently, there is a scientific committee preparing a guide for healthy practices for slaughter left outs administration and initiation standard specifications for slaughtering and left outs of slaughter houses. The guide will put restrictions for slaughtering outside regular and licensing slaughter houses that apply environmental conditions.

MHE watch and testify the Syrian standard specification number 1945 of the year 1998 for selling CM Showrma in the shops.

The sector is arranged by several institutes that have direct or indirect link with its activities and facilitate the import and the locally manufactured poultry inputs. These institutes are;

1. Ministry of Agriculture and Agrarian Reform(MAAR);

The ministry has a main role in certifying and supervising the sector through three directorates which are;

- a. Directorate of animal production;
- b. Directorate of animal health;
- c. Directorate of veterinary medicine monitoring;
- d. In addition, some other directorates in the ministry have indirect role in arranging the sector such as the directorate of plant protection through which the imported forage is tested to ensure it is free of plant diseases, and the General Association of forage.

The following is a description of the role of these directorates:

a. Directorate of animal production;

Regarding chicken, this directorate fulfills the following tasks:

- Licensing chicken farms
- Technically certifying import of one day chicken GMODC and MODC and technically certifying import of chicken forage

Procedures for licensing chicken farms:

licensing farms is done according to decree 9/t dated 6/2/2003 by ( MAAR) which stated a condition for a farm to be built outside cities, towns or villages in a distance not less than 500 meters away of habitant buildings, and far at least 300 meters of any other chicken farms. Also the area should be 150 square meters or more.

Procedures for certifying import of GMODC and MODC:

the certification process is done according to decree 301/t date 6/12/2006 by (MAAR) which stipulated for importers to have licensed farms for breeding grandmothers or mothers, since the imported quantity is identified according to the capacity of breeding in this license plus 25% to substitute mortality, then the technical certification is given if the sanitary condition in the origin country is OK. Imported chickens should be provided with sanitary certificate that attests that chickens are free of diseases and ratified by the Syrian diplomat in the origin country. Then when reached Syrian borders, a sample is taken to be tested, while the imports are kept in an isolated farm for 21 days until test results are found out. In case the sanitary conditions are violated the freight is destroyed at the expenses of the importer.

Procedures for certifying import of forage:

The certification process is done according to decree 43/t date 1/7/2004 by (MAAR) which stipulated for importers to have trade record. When imported, a secondary sample of the forage is taken by specialized committee, and then a 3 KG sample is extracted from the secondary sample and distributed to:

- i. Agricultural quarantine department to be examined for any odd seeds, insects or diseases;
- ii. Forage laboratory to ensure the consistence with Syrian specification;

- iii. Animal health department to ensure fitness for chicken feeding;
- iv. Autonomic power commission to be inspected for radians;
- v. Part of the sample is kept as an evidence and another part is given to the importer.

Valid freight is permitted, but if violated, the consignment is rejected and returned at the expenses of the importer.

This directorate also monitors the factories of forage mixture to ensure the correct percentage of forage components in the final products, since some farmers have their own mixing machines and produce and sell forage not identified with standard forage.

b. Directorate of animal health:

There are three divisions under this directorate with connection to poultry business those are; division of diseases, division of veterinary quarantine and division of laboratory. These divisions provide the following services:

- Make regularly surveys to check the sanitary situation of the sector concerning poultry diseases including Newcastle disease, Gumboro, Salmonella, contagious and respiratory diseases;
- Inspect sick birds for farmers in the directorate;
- inspect imported GM ODC and MODC and exported ODC;
- produce vaccines that sold to farmers ( import of all vaccines is allowed except those for diseases that do not exist in Syria).

c. Directorate of medicine monitoring;

This directorate is licensing and monitoring manufacture, export and import of animal medicine. There are about 46 factories manufacturing veterinary medicine in Syria producing more than 2000 medicines, all are licensed and supervised by the directorate. Imported medicines are tested before entering the country.

This year, a decree by MAAR included that prices of veterinary medicines should be written on the medicine box.

Imported veterinary vaccines and medicine consist only 10-15% of Syrian medicines.

There are two problems related to veterinary medicines; first the smuggling medicines which are mostly harmful to animals because of the low quality, the second is high custom duties on importing veterinary medicines which are between 10-20% of the import price.

Regarding Syrian veterinary medicine's export, Syria exports veterinary medicine to about 20 countries. The directorate permits export after analyzing the medicine and ensuring its coincidence with international standards. The directorate is planning to establish a laboratory for testing the residual impact of used medicines in animal meat after slaughtering for the safety of consumers.

Procedures of medicine import

- Imported medicines are to be registered in the directorate to be studied by specialized committee to identify their side effects, doses and the period of their drive out of animal body. And they are tested to ensure their effectiveness;
- import is allowed for medicines that are not manufactured by more than three companies in Syria;
- Syria prevent importing medicines, which are forbidden from import by other countries.

As for medicines that manufactured in Syria; random samples are taken from factories and shops and tested, then every violated medicine is confiscated and prevented from use and breakers of the law are sent to court.

The directorate also watches the application of prices set by manufacturers

2. *Ministry of Local Administration (MLA)*

The ministry is licensing and monitoring Slaughter houses, factories of forage and retailer shops. The ministry has the authority to close any violated foundation.

3. *Ministry of Economy and Trade (MET)*

This ministry is certifying import and export activities of poultry products and supervising the firms and shops.

4. *Ministry of Human Health (MHH)*

The ministry supervises CM shops to ensure the safety of meat for human health.

5. *Ministry of Environment (ME)*

The ministry watches the environmental standards in MESHs for treatment of water that used in cleaning slaughtered chickens.

6. *Ministry of Industry (MI)*

The ministry licenses and monitors CM processing.

## 7 Development prospects for the poultry sector

### 7.1 Prospects of the sector

<p>Strength</p> <ul style="list-style-type: none"> <li>• ODC production industry;</li> <li>• ODC export on the regional market;</li> <li>• Syrian geographic position (close to expanding market);</li> <li>• Domestic market price is cheaper than market price in neighboring countries;</li> <li>• There is strong public research and extension services disseminate information to the breeders;</li> <li>• Input supply arrangements prove to be satisfactory;</li> <li>• Natural resources wealth, human capital and strong domestic demand;</li> <li>• birds are fed 100% by forage of plant origin;</li> <li>• Syrian exports to GAFTA are now exempted from custom fees and access to theses market became easier after the full implementation of the agreement in 2005.</li> </ul>	<p>Opportunity</p> <ul style="list-style-type: none"> <li>• Expanding local market;</li> <li>• Expanding regional market;</li> <li>• Improving the reputation of Syrian chicken meat only breed with plant forage;</li> <li>• Increasing investment in modern industrial foundations of the sector.</li> </ul>
<p>Weaknesses</p> <ul style="list-style-type: none"> <li>• Heterogeneous system for slaughtering;</li> <li>• Limited incentive for quality improvement on the market with quality control function that is not carried out in an efficient way;</li> <li>• Shortage of cooling transportation means for exporting;</li> <li>• weak monitoring of meat preparation and marketing in some manual slaughterhouses;</li> <li>• Instability in the chicken market; (price cycle) with high marginal profit for traders against producers and consumers;</li> <li>• poor management of the sector by the state</li> <li>• Frequent change in trade policy. It is undeniable that the policy changes have a severe impact on CM exports;</li> <li>• High production cost acts as disincentive to CM export.</li> </ul>	<p>Threats</p> <ul style="list-style-type: none"> <li>• Social cost of rehabilitation of MASH;</li> <li>• Totally dependent on forage import and the incrementally price increase of the forage on the world market;</li> <li>• Despite of benefiting of large scale of production and having advantage of large scale of economy, MESHs are losing in the market due to differences in the cost and practices between these houses and MASHs and this is likely to have seriously damage the MESHs industry.</li> </ul>

## 7.2 Scenarios

Slaughter houses are considered the leaders of the chain, since they handle the market. They play a major role in balancing the market through encouraging farmers to produce more when there is shortage in the supply, or orient them to be slow when there is oversupply. The dynamic is mostly on the supply side due to availability of one day chicken in cheaper prices (which consists about 13% of total cost).

Therefore, we can figure out the following scenarios for the future of the sector as the following:

Scenario 1 no change: business as usual with the current adverse situation for the MESH, most of the chicken production being handle by the MASH. However this situation is unsustainable on the mid-term since the supply of the ODC chicken is ensures by industrial groups that own the MESH. To what extent theses companies could specialized only in ODC production and leave out the slaughtering part?

Scenario 2., Promoting a specialization of the two system, the MASH for the domestic market and the MESH for the export market might not be compatible with the current configuration of the regional market, where most of the countries produce their own chicken meat and where import market are concentrated in the Gulf countries which are highly competitive. It is not obvious, any of the countries in the sub-region has a competitive advantage over the others in terms of technology. This would also imply a complete opening of the market in Syria to get the same access to other market. Even if the Syrian MESHs comply with sanitary norms, other criteria such as the marketing connections might hinder the competitiveness on the other markets. Furthermore, the sensitivity to feed price remain a major constraint for strengthening the competitiveness of the Syrian chicken meat sector; this apply to the other regional producers as well. Major chicken meat producers at the world scale benefit from a highly efficient feed supportive industry. The only countervailing measure in an open trade environment such as the one of the Gulf countries remains in the subsidy allocated by government that want to support their chicken meat sector. It remains to be seen to what extent this type of subsidy can be sustained by the Syrian public finance. There are either no strong argument to support the idea that Syria agriculture could provide feed to chicken industry at a competitive price, even though improvement can be made such as: optimizing the feed formula to incorporate feed locally produced (if the selected breed can eat them with the same conversion ratio); improving the marketing of the imported feed if any market dominant position increase the feed marketing margin.

Scenario 3: Enforcing the sanitary law by closing all violating manual slaughterhouses and expanding establishing modern developed mechanical slaughterhouses that provide healthy products. Closing manual slaughterhouses will lead to economic and social problems such as creation unemployment among house holders, shortage in CM supply in the market and increase of CM prices. Therefore, such scenario is not applicable since an immediate close to such houses will cause many families to lose the sources of income and some will shift to other business and the market will face less supply. Also, there is possibility that some will illegally continue their work in hidden non sanitary places.

Scenario 4: seeking a better integration of the two sub-systems (industrial and manual). By adopting strategies to adjust the position and conditions of existing manual slaughterhouses to apply sanitary conditions by facilitating credit accessibility, reducing fees on certification, and allocating convenient land provided with water, swages and other infrastructures for the manual slaughterhouses which need to build new slaughter houses to move their. This will increase the cost of preparing chicken but will improve the sanitary, better management of market instability (information system), and allow for more strict policy for licensing slaughterhouses. This option could be seen as a transitory phase justifying the current protection of the Syrian chicken meat market to give time to the sector to adjust to higher requirements in terms of quality.

One issue related to the subject is that, current prices are high compared to prices of exporting countries that compete with Syria in the neighboring countries. And thus, Syrian exporters are unable to export CM and may be exposed to danger in case of opening markets to import. And therefore, reduce the cost of

production should be considered. This can be done in two ways: either the State supports the cost of production as is the case in most of the producing and exporting countries and this would entail the state considerable financial burdens and make the sector fragile to foreign competition. The other solution is control the production process and encourage the production of local inputs, particularly feed, which constitute over 65% of the cost of production. Unless the costs will be reduced, all the elements of the chain will face a major challenge to be able to continue to work and compete.

## **8 Summary and recommendation**

Poultry sector is growing fast and is one of the most important sectors in terms of employment generation and protein supply to the Syrian population.. The sector has significantly developed after several new modern companies have invested in the sector. On the other hand, several constraints have to be addressed to make strengthen the competitiveness of the sector. In particular policy should address the problem of price instability caused by repeated increase or shrunk of production resulting in surplus of CM in the market over normal consumption leading to loses for farmers that enforce them to stop breeding chicken, This is an indicator of the need for an intelligible price and production policy that plan and organize production on the base of actual local market requirement and the ability for export. Also, it must be acknowledged the necessity to compel manual slaughterhouses and retailers to consider the sanitary issues when handling and preparing CM.

Other important issues can help enhancing competitiveness of the sector are supporting the sector local industry of inputs and equipments, widening the plantation of maize and soybean to substitute their import, encouraging investment in building cooling units to reserve the extra production when prices cut down and in cooling transportation means particularly sea cooling containers.

Syrian chicken is currently protected through CM import ban for direct consumption; however, allowing CM import could threaten the sector due to high cost of production. Moreover, there is great opportunities for Syrian CM to compete in the regional markets, yet its high price limit these opportunities. So, intending to open local markets and enhance the export, the cost of CM production must be reduced. This can be done either by subsidizing the sector and adopting convenient price policy to control the price of inputs, or by exemption from some taxes on forage import. Another way of support is to exempt producers from taxes on income which calculated on base of 310 work days, while the actual days are much lesser.

Some of the recommendations in the study are;

- There is need to find ways to reduce the cost of production and initiate balanced price policy to achieve price stability
- Widening local forage industry and enhancing production of maize and soybean
- Encouraging and facilitating investment in poultry sector and provide more incentives to the investors
- Providing financial resources to producers and facilitating getting loans from CAB
- Classifying poultry sector among commodities that benefit from the agricultural support fund to reduce the cost of production
- benefiting from export support and develop fund in merchandizing CM in foreign countries, offering credits for Syrian exporters and providing information and studies about foreign markets and export opportunities and requirements for accessing these markets
- Establishing marketing committee to organize and control the market and provide information about prices, supply and demand in the market.

## **9 Conclusion: a competitive sector ?**

### **9-1 - strengths and opportunities for *improvement***

1 / Poultry sector in Syria is capable of competing in foreign markets in terms of quality for being clean, healthy and in conformity with international standards. Its geographical location close to the Gulf markets is another asset for its chicken industry as it can supply fresh chicken meat to these high value market whereas major competitors from outside the region have to spend more time to reach these high demanding market affecting the quality or the form (frozen) under which CM would be sold,

However, the Syrian meat sector competitiveness is threaten by the high cost of feed. Given the current Syrian economic situation, and in spite of the social and economic importance of the CM it is unlikely that these feed cost can be compensate by public subsidy at the expense of the state budget as it is done in Gulf countries. Nevertheless, feed cost should be reduced as much as possible. The Syrian CM sector cannot avoid depending upon import in whole or in part because it is not possible to cover the needs of the market from local production. Although it could be expanded its cultivation to reduce dependence on import, it is difficult to reach self-sufficiency, because the available resources (land and water) are allocated, as a priority, for the cultivation of other crops that are considered more important from the standpoint of the Government to achieve food security. However, the costs can be partly reduced through an improvement of the manufacturing forage by increasing the number of factories producing it and increasing competition among producers to reduce prices, but it would not be sufficient to achieve the competitive price and it must consider other means such as exemption from taxes and provide some support.

2 / The capacity of the Syrian CM sector to be competitive is supported by the fact that, Syrian domestic prices compared to the price, the neighboring countries of chicken fresh is relatively low and this encourages the expansion of export to these markets, taking advantage of the possibilities of the new big companies in the sector that produce and export chicken mothers and ODC efficiently and export CM when there are appropriate opportunities.

3/However the sector is not in a position to make use of these strengths given the dualistic structure of CM industry with the co-existence of the MESH and the MASH, the latest being able to operates with lower cost and output price but with low sanitary standard and even low quality of the meat. The MESH is not able to supply the Syrian market and operate at low level of utilization of production capacity. The domestic market cannot therefore be used as a base for the MESH to gain experience in CM production and be prepared for regional competition (competing with other exporters to regional markets, or being able to compete with potential foreign suppliers to the Syrian market if the trade restriction are removed). Furthermore, the MASH sub-systems cannot « be excluded » from the sector because it is an important source of jobs for urban and peri-urban areas and because the MESH capacity would not be able to cover the current markets needs. Furthermore, consumers are still very sensitive to price level and « accept » or have no other options than to accept CM of low quality at lower price.

Eventually, and not the least, the two sub-systems are still interdependent since the ODC production is in the hand of the large company MESH, that supply the whole chicken breeding farms and which indirectly are crucial for the viability of the whole sectors, including the MASH.

The challenge

Thus the challenge faces by the Syrian CM sectors is how to better articulate the two sub-systems in order to strengthen the viability of the MESH (and beyond the broiler companies that provide also the ODC) while also allowing the MASH to operate. The current situation is not sustainable on the long term as the collapse of the MESH companies would affect the whole sector, and that the MASH would not be necessarily in a position to compete if Syria is pressured to open its CM market to regional competitors. Increase the coherence in the CM sectors means to generate incitation to the MASH to improve their competitiveness in terms of quality, but also to support this evolution through appropriate policy instruments and last but not least to ensure that the MASH as group of stakeholders abide to the strategies.

Area for public support.

*Institutional issues.* Ensuring that the MASH sector will endorse the proposed strategies requires first that there is a “consensus” a “share vision” of the challenge that threaten the whole sector. In other words there is a need that all the players of the system understand that they are “on the same boat” even if they have not immediate (short term) converging interest.

This elaboration of the “share vision” can be promoted by public support through the acknowledgement of the MASH interest and constraint and the establishment of a “place”, a platform, where the discussion between the various actors could take place and the provision of relevant information (the CM competitiveness report) that can be understood by the actors. A fruitful instructional process of exchange between the various parties will also depend on the quality and effectiveness of stakeholders’ organizations. Here also public support can be critical to provide the means to the MASH organization and others to be more operational, so the representatives of each party in the platform have the legitimacy to speak for their pairs. This process of stakeholder organization and representation may be a critical issue in the Syrian institutional context where historically public administrations tend to organize the stakeholders rather than providing means to the stakeholder to build and manage the organization themselves. This requires to a certain extent a change in the mindset of public servant that would follow this process and the development of capacity and expertise in the administration. It should be noted that this change in the perception of stakeholders’ organization establishment and operation also concerns the stakeholder themselves which in many cases would expect or are used to a situation where the public administration is in charge of organizing. Furthermore, the needs for being organized might be easily perceived and conceived by private and individual actors since the current situation allows them to operate.

The establishment of effective organization or MESH and chicken breeder might be less challenging since they are fewer (in the case of Mesh) or have a better perception of their constraint in the current configuration of the CM sectors.

When a common understanding of the challenge faced by the CM sector can be shared by representative of effective and legitimate stakeholder organizations, a more detailed strategy on the response could be discussed and translated into an action plan involving both private collective action and public support.

*Means for adaptation:* The expected changes in the MASH practices would require investments. A mechanism should be conceived to allow MASH owners to invest in the improvements of their equipments in order to facilitate the transition toward more healthy standard CM production. It is clear that public action combined with the bank sectors would be critical to offer options to the MASH sub-system to upgrade their technology within a viable financial scheme (loan with long grace period, discount on interest rate...)

This upgrade in the MASH practice is not only limited to the “hardware” but should also take into account the “human capacity”. Specific action in the field of training MASH manager, worker should be developed (with the assistance of MESH industry that have an expertise in this field) to make sure that the investment in equipment and new practices can be mastered.

Investing is a bet on the future, in order to minimize the risk inherent to investing, a reduction of live chicken price volatility should be targeted through an improvement of stakeholder awareness of the mechanism through which price fluctuate (glut in ODC supply and mixed quality of i.e ODC layer and broiler)

*Market incentive regulations:*

The domestic market is not playing its role of “learning ground” that is critical in terms of competitiveness building. Syrian consumers (or CM meat end users such as restaurant, shawarma shops...) are not enough aware of the low sanitary and even organoleptic qualities of the meat supplied on the market. Regulations and laws have been published but their enforcement is weak. Consumers behavior being the most efficient incentive to trigger changes in production, marketing and processing practices upstream, it is important to promote the change in their quality requirements. Consumers should be informed of potential health hazards associated with low sanitary standard.

For the MESH industry an definitive opening of the chicken export is necessary to allow them to operate at a higher capacity, reduce their operating cost and thus also increase their supply on the local market at a better price. The expansion of MESH supply on the local market at affordable price will also be an incentive to change consumers' preferences and requirements that are a key factor to ensure the long term competitiveness of the CM sectors.

Sequence of action, Arbitrage and compensation:

The conception and implementation of strategy to address the CM challenge that hinders the strengthening of the Syrian CM sectors competitiveness is a holistic process. Promoting stakeholder institutions without any market incentive and investment support would not provide the require stimulus to attract stakeholder into the process. Putting the focus primarily on sanitary laws without providing the means to MASH to evolve toward acceptable standards would not be either a viable option.

However it should be also taken into account that any "adaptation process" will lead to exclude current actors of the CM sector. It is likely that not all MASH (and also broiler producers, retailers...) would be able to maintain their business; It therefore crucial that the adaptation process is carefully monitor by the public administration in order to address this issue and to promote alternative sources of income to the looser of the adaptation process"

The Annexes

**Table (8) Average Cost of production of one KG of Live Chicken ( LC) meat in 2007, (SP)**

Fixed costs	unit	unit value	duration	share	tot value	per one live animal	per kg of live animal
Farm building	1	1,750,000	25	0.1923	13,462	3.0	1.5
Storage building	1	350,000	25	0.1923	2,692	0.6	0.3
Depreciation of tools and instruments	1	155,800	5	0.1923	5,992	1.3	0.7
<b>Total fixed cost</b>					22,146	4.9	2.5
<b>Variable costs</b>	qty	Unit of qty	unit price		value	per one live animal	per kg of live animal
<b>Input and services</b>							
plastering with lime	100	kg	10		1,000	0.2	0.1
purging by fire	1	lupsum	200		200	0.0	0.0
sawdust	55	bags	155		8,525	1.9	0.9
sterilization before receiving one day chicken	1	lupsum	1500		1,500	0.3	0.2
one day chicken	5000	animal	22		110,000	24.4	12.2
forage	20000	kg	22		440,000	97.8	48.9
Vaccines	6	bottle	150		900	0.2	0.1
Antibiotics	5	bottle	2200		11,000	2.4	1.2
Vitamins	1	unit	6000		6,000	1.3	0.7
Treatment of diseases	1	lupsum	4000		4,000	0.9	0.4
Fuel	4	ton	7000		28,000	6.2	3.1
Electricity	1	lupsum	5000		5,000	1.1	0.6
Water	10	Tank of 5000 liter	500		5,000	1.1	0.6
<b>Total input and service cost</b>					621,125	138.0	69.0
<b>Labor</b>							
Wage of worker	1.5	month	13000		19,500	4.3	2.2
Supervision by Veterinarian	0.192	year	12500		2,404	0.5	0.3
<b>Total labor cost</b>					21,904	4.9	2.4
<b>Total cost</b>					665,175.0	147.8	73.9
<b>Output</b>							
live animal	4500	bird	154		693000	154	77
<b>Profit</b>					27,825.0	6.2	3.1

Source: calculated of data taken from slaughter house holders

**Table (9) average cost of slaughtering in MASHs**

Fixed costs	unit	unit value	duration	share	tot value	per kg of chicken meat
Total area of the house	1	8000000	100	0.00010959	9	0.0008
Slaughterhouse building	1	5,000,000	25	0.00273973	548	0.05
Administrative building	1	2,000,000	25	0.00273973	219	0.02
Depreciation of cages	1000	1,200	4	0.00273973	822	0.079
Basins	20	10,000	25	0.00273973	22	0.002
Depreciation of pullers out	3	40,000	5	0.00273973	66	0.006
Tables	1	20,000	10	0.00273973	5	0.001
heaters & containers	1	40,000	1	0.00273973	110	0.011
Steelyard	2	20,000	15	0.00273973	7	0.001
Refrigerators	3	40,000	10	0.00273973	33	0.003
track cars	3	2,500,000	15	0.00273973	1,370	0.132
cooling big cars	2	800,000	15	0.00273973	292	0.028
cooling small car	1	400,000	15	0.00273973	73	0.007
Tools depreciation	1	5,000	1	0.00273973	14	0.001
<b>Total fixed cost</b>					<b>3,581</b>	<b>0.35</b>
<b>Variable costs</b>	qty	unit of qty	unit price		value	per one live animal
<b>Commodity in process</b>						
Live animal	7000	bird	154		1078000	104.1
<b>Input and services</b>						
Fuel	1	100000	1	0.14285714	14286	1.4
oil for cars	1	2000	1	0.5	1000	0.1
Electricity	1	25000	1	0.03333333	833	0.08
Telephone& mobile	1	30000	1	0.03333333	1,000	0.10
Nylon bags	1	lupsum	60000	0.03333333	2,000	0.19
<b>Total input and service cost</b>					<b>17,119</b>	<b>1.8</b>
<b>Labor</b>						
Workers	32	350			11200	1.1
Drivers & administrators	10	400			4000	0.4
Taxes & fees	1	lupsum	210000	0.00273973	575	0.1
Transforming the left out	1	lupsum	60000	0.00273973	164	0.02
Overhead expenses	1	lupsum	50000	0.03333333	1667	0.16
<b>Total labor</b>						<b>1.7</b>
<b>Total cost</b>					<b>1118315</b>	<b>107.9</b>
<b>Output</b>						
chicken meat	10360	slaughtered bird	108		1118880	108
<b>Profit without soaking in water</b>					<b>565</b>	<b>0.1</b>
Chicken meat weight when soaked with water(50 g/kg increase)	10428		108		1126224	108.7
Extra profit when soaking with water (50 g/kg increase in weight)					7344	0.8
Extra profit when soaking with water (25 g/kg increase in weight)					3672	
Price of liver	437.5		115		50312.5	
Price of craws	437.5		25		10937.5	

Source: calculated of data taken from slaughter house holders

**Table (10) average cost of slaughtering in MESHs**

Fixed costs	unit	unit value	duration	share	tot value	per kg of chicken meat
Total area of the house	1	10,000,000	100	0.00010959	11	0.0002
Slaughterhouse building	1	10,000,000	25	0.00273973	1,096	0.02
Administrative building	1	2,000,000	25	0.00273973	219	0.00
Depreciation of cages	10000	1,200	4	0.00273973	8,219	0.125
mechanical line depreciation	1	14,000,000	10	0.00273973	3,836	0.058
Depreciation of mechanical pullers out	1	8,000,000	10	0.00273973	2,192	0.033
Mechanical sorting line	1	4,000,000	10	0.00273973	1,096	0.017
Steelyard	10	20,000	15	0.00273973	37	0.001
Refrigerato room	3	1,500,000	10	0.00273973	1,233	0.019
track cars	10	2,500,000	15	0.00273973	4,566	0.069
cooling big cars	10	800,000	15	0.00273973	1,461	0.022
cooling small car	5	400,000	15	0.00273973	365	0.006
Tools depreciation	1	50,000	1	0.00273973	137	0.002
<b>Total fixed cost</b>					24,457	0.37
<b>Variable costs</b>	qty	unit of qty	unit price		value	per one live animal
<b>Commodity in process</b>						
Live animal	50000	bird	154		7700000	116.7
<b>Input and services</b>						
Fuel	1	500000	1	0.14285714	71429	1.1
oil for cars	1	10000	1	0.5	5000	0.1
Electricity	1	50000	1	0.03333333	1,667	0.03
Telephone& mobile	1	50000	1	0.03333333	1,667	0.03
backing materials	1	lupsum	200000	0.03333333	6,667	0.10
<b>Total input and service cost</b>					79,762	1.3
<b>Labor</b>						
Workers	100	400			40000	0.6
Drivers & administrators	50	400			20000	0.3
Taxes & fees	1	lupsum	100000	0.00273973	274	0.0
manipulating the left out	1	lupsum	200000	0.00273973	548	0.01
Overhead expenses	1	lupsum	500000	0.03333333	16667	0.25
<b>Total labor</b>						1.2
<b>Total cost</b>					7888385	119.5
<b>Output</b>						
chicken meat	66000	slaughtered bird	108		7128000	108
<b>Profit from CM</b>					-760385	-11.5
Price of liver	2000		130		260000	
Price of craws	2000		20		40000	
<b>total daily profit</b>					-460385	-6.98

Source: calculation of data from agents

**Table (11) Average cost for chicken slaughtering and cleaning in MESH**

Fixed-cost	unit	unit value	the economic life	ratio of the cost to the economic life	total daily cost	share of one kg to total cost
land area of slaughterhouse	1	10,000,000	100	0.00010959	11	0.0004
Slaughterhouse building	1	10,000,000	25	0.00273973	1,096	0.04
Administration Building	1	2,000,000	25	0.00273973	219	0.01
Cages	10000	1,200	4	0.00273973	8,219	0.311
Depreciation of the mechanical line	1	14,000,000	10	0.00273973	3,836	0.145
Depreciation of mechanical feather pullers	1	8,000,000	10	0.00273973	2,192	0.083
Depreciation of cooling and storage line	1	4,000,000	10	0.00273973	1,096	0.042
Steelyard	10	20,000	15	0.00273973	37	0.001
Cold rooms	3	1,500,000	10	0.00273973	1,233	0.047
Trucks to transport live chickens	10	2,500,000	15	0.00273973	4,566	0.173
Large refrigerated vehicles for the distribution of production	10	800,000	15	0.00273973	1,461	0.055
Small refrigerated vehicles for the distribution of production	5	400,000	15	0.00273973	365	0.014
Depreciation of tools	1	50,000	1	0.00273973	137	0.005
<b>Total fixed costs</b>					<b>24,457</b>	<b>0.93</b>
<b>Variable costs</b>	unit	unit value	the economic life	ratio of the cost to the economic life	total daily cost	share of one kg to total cost
<b>Chicken during preparation</b>						
live birds	20000	طير	154		3080000	116.7
<b>Inputs and services</b>						
Fuel	1	200000	1	0.14285714	28571	1.1
oil for tracks	1	10000	1	0.5	5000	0.2
Electricity	1	50000	1	0.03333333	1,667	0.06
Phone and Mobile	1	50000	1	0.03333333	1,667	0.06
Packaging material	1	fixed value	200000	0.03333333	6,667	0.25
<b>Total variable costs</b>					<b>36,905</b>	<b>1.7</b>
<b>Employment</b>						
Wages of workers	40	400			16000	0.6
Drivers and administrative	20	400			8000	0.3
Fees and taxes	1	fixed value	100000	0.00273973	274	0.0
Waste Treatment	1	fixed value	200000	0.00273973	548	0.02
Other costs	1	fixed value	200000	0.03333333	6667	0.25
<b>Total employment</b>						<b>1.2</b>
<b>Total costs</b>					<b>3179528</b>	<b>120.4</b>
<b>Output</b>						
Meat output	26400	الطيور المذبوحة	116		3062400	116
Profit from the meat					-117128	-4.4
Value of edible viscera	800		130		104000	
The value of Alhawwasal	800		20		16000	
<b>Daily net profit</b>					<b>2872</b>	

Source: calculation of data from agents

**Table (12) Consolidated account for MASH**

	Cost	Commodity during processing	Revenue	Profit
<b>Breeder</b>	100.6	0	104.8	4.2
<b>MASH</b>	5.5	104.8	112.2	2.0
<b>At the sector level</b>	106.0		112.2	6.2
<b>Ratio of cost and profit to revenue</b>				
	Cost	Commodity during processing	Revenue	Profit
<b>Breeder</b>	96%	0%	100%	4%
<b>MASH</b>	5%	93%	100%	2%
<b>At the sector level</b>	94%	0%	100%	6%
<b>The distribution of costs and profits among dealers</b>				
	Cost	Commodity during processing	Revenue	Profit
<b>Breeder</b>	95%			68%
<b>MASH</b>	5%			32%
<b>At the sector level</b>	100%			100%

Source: calculation of data from agents

**Table (13) Consolidated account for MESH**

	Cost	Commodity during processing	Revenue	Profit
<b>Breeder</b>	100.6	0	104.8	4.2
<b>MESH</b>	3.8	116.7	120.5	0.1
<b>At the sector level</b>	104.3		120.5	4.3
<b>The distribution of costs and profits among dealers</b>				
	Cost	Commodity during processing	Revenue	Profit
<b>Breeder</b>	96%	0%	100%	4%
<b>MESH</b>	3%	97%	100%	0%
<b>At the sector level</b>	87%	0%	100%	4%
<b>The distribution of costs and profits among dealers</b>				
	Cost	Commodity during processing	Revenue	Profit
<b>Breeder</b>	96%			97%
<b>MESH</b>	4%			3%
<b>At the sector level</b>	100%			100%

Source: calculation of data from agents