



Possibility to initiate a Small-Scale Broiler Farmers Association to improve incomes through supply chain development, in Al-Karak governorate, Jordan



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By

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DEDICATION

To all my family father, kind hearted mother, brother and sister

To my wife, Abeer Sawalqa for her encouragement, patience and determination during my absence,
I love you and our three daughters.

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ABBREVIATIONS

ACA	Agricultural Cooperative Association
ACC	Agricultural Credit Corporation
AGAD	Al-Karak Governorate Agricultural Directorate
AGLG	Al-karak Governorate Local Government
CSC	Centre for the Study of Co-operatives
DOC	Day Old Check
DOS	Department of Statistic
FAs	Farmers Associations
FCA	Farmer Cooperative Association
FEL	Farmers Education Level
GDA	General Directorate of Agriculture
GoJ	Government of Jordan
JCC	Jordan Cooperative Corporation
JD	Jordan Dinar (currency)
MoA	Ministry of Agriculture
MoH	Ministry of Health
MoIT	Ministry of Industry and Trade
POs	Producer Organisation

ABSTRACT

The study examined the present position of the broiler supply chain and the interventions to initiate small-scale broiler farmers' association in Al-karak governorate depending on the collected information from farmers, traders, consumers and other stakeholders. The broiler supply chain structure exposed that there is only one way to reach the product to the consumers, all the broiler farmers are compelled to selling their live birds to the broiler traders because there are no other choices.

The objective of this research is to investigate the possibility of establishing broiler farmers' cooperative association to develop the broiler supply chain through organising and coordinating links between farmers themselves, as well as with other stakeholders to protect them from misleading and exploitation by empowering their bargaining position.

Surveys were conducted, using questionnaires distributed among small-scale broiler producers in Al Quser and Al Mazar district and interviews among stakeholders (broiler traders, Al-Karak directorate cooperative manager and livestock directorate manager) to obtain additional information regarding the broiler sub-sector.

The results were shown that about seventy five percent of the broiler farmers in Al Quser district and about eighty percent in Al Mazar district supported the idea of establishing small-scale broiler farmers association. The farmers' cooperative association (FCA) establishing idea was mainly affected by the level of education of farmers, but no significant effect of location and age of farmers. The same trend was found on the FCA acknowledgement. The pricing system of broiler products didn't satisfy the majority of the farmers and considered it unfair. Eighty percent of traders unsupported the idea of initiating the small-scale broiler farmers association. Broiler traders expect that the FCA will terminate their business and kick them out of the broiler chain.

The majority of the farmers who supported the idea of establishing small-scale broiler farmers association in Al-karak governorate expect that the FCA has the capacity to improve the marketing system, access to inputs/financial credits, access to extension services, access to the technical assistance and accessing their product to the consumers directly. The farmers' cooperative association would support farmers organize and coordinate to improve the production and marketing process by sharing experiences and information about supply, demand, price, quality and quantity required by potential markets.

The Jordanian government should pursue an applicable strategy and a purposeful effort to assist small farmers to organise themselves and create awareness on the process of establishing FCA for small-scale broiler farmers.

Keywords: small-scale broiler farmers, broiler supply chain, small-scale broiler farmers cooperative associations.

CHAPTER 1: INTRODUCTION

1.1 Brief Description of Jordan

Jordan is a small developing country in the Middle East with total area of about 96.188 km² including the Dead Sea. The Jordan population is about 6.0 million (DoS 2009).

Jordan is bordered by Iraq on the east and by Saudi Arabia on the east and south, by Syria to the north. To the west is Palestine, while Jordan's only outlet to the Red Sea by the Aqaba Gulf in the south.

Broiler production industry in Jordan has been developed rapidly in the last two decades to become the most important sector in livestock production industry due to shortage in supply of red meat as competitive products. The high price of red meat compared to the production cost of broiler meat, low level of capital investment need to start broiler production unit with lower financial risk compares to other agricultural activities, good income and fast return of capital, increase the number of inputs supplier companies which provide the small farmers with production inputs. The government support includes extension services, health services, quality control on inputs and outputs, access to the agricultural credit with very low tax, and favorable climate those reduce the production cost (Abu-Iteleh et al 2007).

The number of broiler farms was increased to 2300 in the year 2009 with a capacity about 26 million birds per each production cycle. The total broiler meat production increased from 119000 metric ton (MT) in 2000 to 133000 MT in 2009 as in table 1.

Table 1: Jordan yearly poultry, meat and broiler production

Market Year	Production (1000 MT)	Consumption (1000 MT)	Imports (%)	Numbers of Broiler farms	Capacity (Million birds)	Change in production	Change in Consumption
2000	119	120	0.8	2074	23.88	7.21 %	7.14 %
2001	117	118	0.85	2140	24.21	-1.68 %	-1.67 %
2002	110	112	1.8	2213	29.2	-5.98 %	-5.08 %
2003	124	135	8.2	2206	29.14	12.73 %	20.54 %
2004	127	150	15.3	2164	26.04	2.42 %	11.11 %
2005	133	160	17	2202	27.53	4.72 %	6.67 %
2006	116	134	13.4	2254	28.75	-12.78 %	-16.25 %
2007	133	167	20.3	2300	30.54	14.66 %	24.63 %
2008	133	206	35.4	2300	30.54	0.00 %	23.35 %
2009	133	213	37.6	2300	30.54	0.00 %	3.40 %

Source: Index Mundi internets and MoA

1.2 Background

Livestock sector in Jordan is considered one of the most important components of the agricultural sectors. The total production value of livestock sectors was estimated about JD 872 million (1JD=1.43 USD) and the broiler sector contributed with JD270 million which represented 31% of this value. In 2009, one billion JD was invested in the poultry sector and its related activities. The poultry sector has a good extending potential to meet any increase demand for meat and egg products. The average consumption of broiler meat was 27 kg and 165 eggs per capita annually with 100% and 88% self-sufficient of egg production and chicken meat respectively (MoA 2009).

The broiler market in Jordan comprises 2.2 million birds per week with 20% derived from the five major integrators and 80% produced by independent small-scale and medium broiler growers. The small and medium-scale broiler farmers sell live birds through two chains; first chain they sell live birds to traders and to slaughterhouses then to the consumers and the second chain the broiler farmers sell their product to the traders and then to the consumers through the small processing units (Natafat).

The supply cost of broiler meat from the broiler producers to the consumer is very high (1.18 JD/Kg of live bird), mainly due to the high share (36%) of traders operated at different stages. The traders get high profit which reduces the income of the broiler producers and discourages them to extend and development their production. The small and medium-scale broiler farmers are complaining from low price of their product and the consumers are complaining about high price of the broiler meat. To protect the small and medium broiler producers and consumers from the exploitation of traders the broiler farmers should be organized and coordinated (Al- Masad et al 2010).

The Jordan government through the General Directorate of Agriculture (GDA) in the provinces and agricultural directorates in their districts (Extension Departments) have organized small and medium-scale dairy cattle, sheep, bees, flowers and crop farmers into agricultural cooperative associations (ACA). The number of these ACA is about 232, the large portion actives in the dairy cattle sector. The agricultural cooperative associations has supported their members access to credit, agricultural inputs, market information, extension services, and empower their bargaining situation. The ACA connect the farmers with governmental institutions and private supporting organizations (JCC 2009 & MoIT 2009).

According to KIT et al (2006), producers' organizations enable the small-scale farmers to enter existing markets, reach the end-consumers of their products, improve the products quality according to consumers preferences and empower their bargaining position and increase their profits.

In Al-karak province, all the broiler farmers operate independently without any organisation or association. This research investigated the possibility to organize the small and medium-scale broiler farmers in cooperative association as in the case of dairy cattle farmers.

1.3 Research Problem

There are more than 180 active broiler farmers in Al-karak province sell their birds individually to a few traders. Due to the fact that there are more broiler farms and only a few traders, the farmers are left with no options than to sell their birds to approaching the traders at the low prices they provide. Consequently, the bargaining power of the independent broiler farmer is low since farmers have no choices of traders but the traders have choices of farms. As the result the farmers receive a low price per kg of live birds sold to the existing broiler traders.

1.4 Research Objective and Questions

To investigate the possibility of establishing broiler farmers association for small-scale broiler farmers to improve production and marketing system and their bargaining position in the broiler supply chain.

Main Research Question 1

What is the broiler supply chain structure in Al-Karak province?

- i)** What is the broiler chain in the Al-karak Governorate?
- ii)** What are the roles of actors in the broiler chain?
- iii)** What are the roles of supporters in the broiler chain?
- iv)** Who are causing the problems facing the small broiler farmers?

Main Research Question 2

What are the requirements to bring small broiler farmers together in the broiler chain?

- i)** What are the roles, functions, management and capacity building requirements of producer organisations?
- ii)** What are the opinions of small broiler farmers concerning establishing a small broiler farmers association?
- iii)** Does the farmers' opinion on initiating broiler cooperative association influence by location, education level and age of the farmers?
- iv)** What should be the role of the government to bring the small broiler farmers to come together?

CHAPTER 2: METHODOLOGY AND FRAMEWORK

2.1 Study Area

The research was conducted in Al-Karak governorate, located in the southern part of Jordan. Al-Karak governorate has a total area of about 3500 km² divided into seven districts with 255,225 total inhabitants. All the broiler farmers are small to medium size they sell their product as a live birds individually to the traders then to the local consumers through the small processing units (Natafat). The total farms capacity in this province is (2499 thousand birds per cycle) with 15.460 thousand tons of broiler meat (AGAD 2009). Most of the consumers prefer to purchase live birds from Natafat and after choosing the live bird according health status, weight and sex asking slaughter man to process it with specific cutting as the consumer prefer.



Figure 1: Map of Jordan showing the two districts

Source: Google Maps.

2.2 The research methodology

Qualitative and quantitative research data was collected through field survey, personal interviews, and available literature on the topic.

2.2.1 Survey

The survey was conducted in two districts which were randomly selected from the main five districts dealing with broiler raising activity. Al Quser district was randomly selected from the northern governorate part and Al Mazar district was also randomly selected from the southern governorate part. All the broiler farmers in Al-Karak governorate are small-scale size. Each of northern and southern of governorate includes about 50% of total number of farms.

Twenty broiler farmers from each district were randomly selected by using information obtained from the district livestock directorate office which located in centre of each district. Survey were administered to 40 small-scale broiler farmers (20 farmers/ district), the two locations consisting of five districts, two districts in north and three districts in south of the governorate. The three districts in the southern part were coded as numbers (1, 2, and 3). These numbers were written on small paper pieces and shaken by hands then chose one of the three paper pieces and open it to get the district name. It was done the same way to choose another district from the northern part. The names of small-scale broiler farmers in the selected district from southern part were also written on small pieces of paper and shaken by hands. After shaken the 20 farmers were randomly selected for the survey. The same process was followed up to select randomly the northern district and the 20 farmers/ district for survey.

The survey for the small-scale broiler farmers focused to identify issues related to the problems faced by small broiler farmers in the broiler chain (sub question 1.4), the opinions of the broiler farmers on the initiating of broiler farmers association (Sub question 2.3) and their role in the broiler chain (sub question 1.2). The survey was used to collect background information from small broiler farmers concerning on their age (average age of the broiler farmers in the broiler production) and education level which provide information regarding the farmers' capacity requirements. The other Information was collected on farms capacity and number of cycles per year.

2.2.2 Interviews

i) The Broiler Traders

The interviews focused on the main problems face the broiler chain (sub question 1.3) and investigate their opinion on the idea of establishing small farmer's organisation (sub question 2.4).

ii) The broiler butchers

The interviews focused to obtain information about the consumer price, the operating cost of the processing unit, the quality control responsibility and the consumer trend.

iii) The Broiler Meat Consumers

The interviews focused to get information about the trend, preference and dietary habits of consumers.

iv) The Districts Livestock and Cooperative Directorates Managers

The government's role is to help small-scale broiler farmers come together (sub question 2.2). The roles, functions, management and capacity building requirements of farmers association (sub question 2.1).

2.2.3 Other sources of data

i) Literature

The literature review gives information related to the roles, functions, management and capacity building needs for farmers associations (sub question 2.1).

ii) Documents

The document gives information related to the broiler chain structure (sub question 1.1), the roles of actors (sub question 1.2), and the roles of supporters (sub question 1.3).

Table 2: Summary of information/data and their source

Sub Question	Data	Data source
1.1	Broiler chain structure	- Districts livestock office report - Survey and interviews
1.2	The actors roles	- Districts livestock office report - Survey and interviews - Field study
1.3	Roles of supporters	- Districts livestock office report - Interviews
1.4	Problems facing farmers	- Survey with broiler farmers - Interviews
1.4	Problems facing traders	- Interview with broiler Traders
2.1	Roles, functions, management and capacity building requirements of farmers association	- Interview with districts livestock officers and literature review - JCC manager interviews
2.2	How government can help Farmers come together	- Interview with districts livestock officers.
2.3	Farmers' opinions on establishing broiler Farmers Organizations	- Survey with broiler farmers
2.3	Opinions of broiler traders on establishing farmers Associations	- Broiler traders interviews

2.3 Analysis of the survey data:

The collected survey data was coded and analysed using Statistical Package for Social Sciences version 11.5 (SPSS®, 2002). Descriptive analysis was used to find out the demographic composition of the smallholder broiler farmers in the survey such as average age, farm capacity and total numbers of birds produced per year (number of cycles/year). Data collected from the two locations regarding the farmers' opinions of establishing broiler farmers' organization in Al-Karak province and other information as dependent variables (shown in enclosed questionnaire) were analyzed by using analysis of variance, One Way ANOVA. The independent variables were locations, the level of education, and age of farmers. The significance was considered when P value < 0.05.

CHAPTER 3: VALUE CHAIN AND PRODUCER ORGANISATIONS

The producer organisations and value chains are playing together very important role in the agriculture and economic development to increase the producers' income and reduce the poverty. Value chains are focusing on supplying products or commodities from the producers to the consumers through many activities (inputs supply, production, transportation, processing, trading and retailing) are involved among the actors of chain. Organize and strengthen the coordination among the actors in the chain lead to reduced transaction costs and helps to ensure the quality and safety of the products, and encourage the implementation of effective marketing strategies.

On the other hand, the producer organizations are an effective ways to increase the value generated through the chain by developing and pursuing product quality and safety assurance to agree with the essential standards demanded. Producer Organisations (POs) can easily provide and bring support from other stakeholders, and empower producers bargaining position to get fair share of the total generated value. Moreover, POs may be operated -beside organising producers- to collect the primary product (raw materials), first stage processing and improve marketing through accessing contracts with next actor in the chain (traders or buyers), In these cases the POs is playing a role as actor and supporter in the chain. In general, there are two kinds of POs formal and informal depend on their legal position, size, geographical range, role and functions. The formal POs are more benefit than informal because they have permission in implementing activities and represent their members with any official agreements. The best type of formal POs is cooperatives due to that owned by producers and managed by selected leaders from the members.

3.1 The value chain concept

The production in the Broiler meat sector is organized within a production chain. Barnes (2004) explained value chains as union of enterprises that collaborate to accomplish rewarding position in the market vertically. In this stiffly competitive world of changing markets and technologies, businesses are faced with new demands, making it difficult to remain sustainable. Therefore, production chain approach is one business strategy used to adapt to these changes for broiler farms. The basic characteristic of a broiler farms value chain needs to be market-oriented focusing on different actors of the broiler chain to work together to produce quality broiler meat for market. The value chains will allow broiler meat businesses to respond to the market by linking production, processing and marketing activities to market demands. The vertical alignment of actors along different segments of the chain is connected from one end of the primary production process through processing and possibly into the final marketing stages where consumers purchase a finished product. At each stage the broiler meat value increases. This is different from supply chain, which considers horizontal alliance with no value is added to the product. The actors with different chain functions in value chain are mutually dependent as they have common goals (to produce and supply broiler meat) and work collaboratively to achieve. The value chain provides a platform to work together over the long term issues and resolve problems together persist in within the chain.

A value chain portrays all actions are conducted to produce raw material, transport, process and distribution of a specific product or commodity from the primary producer to the consumer. These actions operated by a number of actors (suppliers, producers, traders, processors and retailers) who are involved sequentially until reach it to the consumer. In each of series stages the product becomes more valuable. The value chain analysis in a simple sense focuses on the key actions and processes in the chain, such as supplies, production, transportation, manufacturing, marketing, and money and information exchange. In the broad meaning it is including other stakeholders (supporters) activities to improve the quality of the product and those who give the quality certification, permission, extension and guidance (Da Silva et al 2007).

The value chains will operate successfully if each actor executes his role in a best profitable way to increase the product value. All actors in the chain should have full knowledge and cooperative to execute their roles in right way. All actors have to be honest and transparency with each other to maintain the relationship among the chain for long time to progress and gain more profits (Wikibooks 2010).

Figure 1, gives an overview of this production chain. It starts with the suppliers (including breeding companies that providing day old broiler checks), the broiler growers and processors (slaughterhouses). In the final stage, Broiler meat is distributed to retailers, food service and food industry, and then it will reach to the final actor (consumers). Also this figure explains the goods, cash and information flows and the functions of actors.

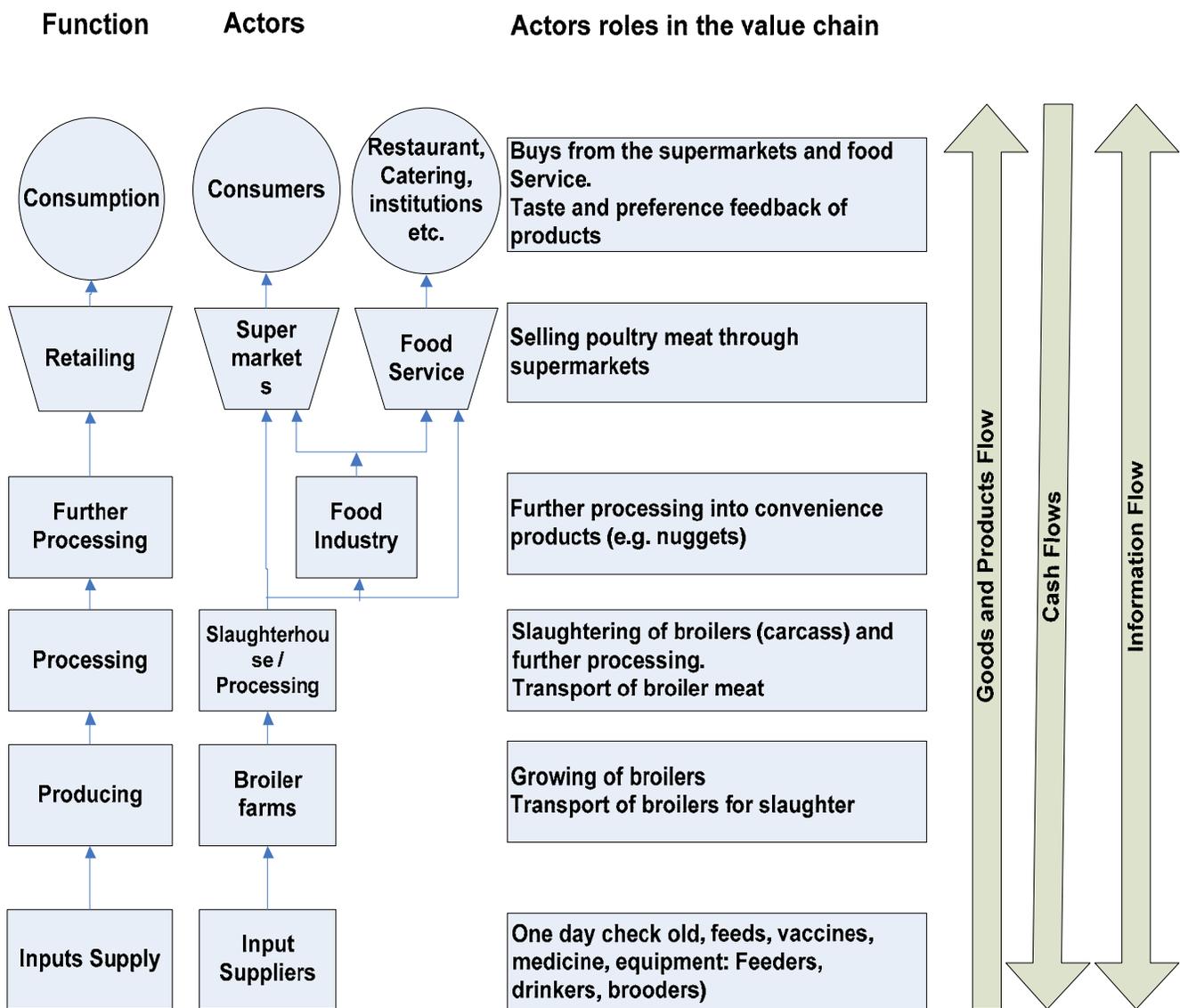


Figure 2. The Broiler value chain in a developed country (Netherlands)
Source: Van Horne 2007

3.2 Producer organisations (POs) concept

The definition of organisation is social entity which consists of a group of people (members). The organization is created into existence and continued in progress way by its members to achieve its purposes or goals which it was established for, all members and their activities in the organization are normally structured and coordinated towards achieving purpose or goals (Rollinson 2005).

Moreover, there are two types of POs; the first one is the formal organization and the second is the informal organization. The distinction between these types depends on their legal position, size, geographical range, role and functions. The Informal organization included producer groups and village associations which created by a group of farmers to achieve some purposes like mutual marketing information, experiences in using new techniques or methods in the production systems, supporting each other in hard cases. Informal organisations are more highly adapting to the surrounding changes and not so expensive. In the informal POs contract will be done by the individual member. The formal organizations include cooperatives, associations and societies which must be registered according to the applied legislation to obtain a permission to implement its activities. Formal organizations and their members can easily enter into contracts, access to credit and it can be easily protected from the misuses such as the fraudulent use of funds or the exploitation the name of the producer organisation (Bijman et al 2008).

Furthermore, the farmers associations (FAs) are formed to execute certain functions which are grouped under two wide headings. The first category represents FAs that aim to play an economical and commercial roles such as improve marketing, access to the production inputs, technical assistance, extension services, access to credit, provision of information, management of risks. The second category represents FAs that act to achieving the general interests of the rural area or a specific part of it (CSC 2005).

According to the above, the producer organisations are social entities created by farmers or other group to serve their members with its goals. All the producer organisations are grouped according their roles and functions into two categories; formal and informal organisations. The formal organizations like cooperatives, association, union and societies which execute two types of roles and functions, the first role is advocacy or policy aiming (representative role) that lobby behalf of their members and represent them in negotiation with government, donors and private sector and the second role is mostly economical and technical aiming to improve production and marketing systems, access to the inputs, extension services, technical assistance, credit. The formal type has to full register according to the legislation. The informal types like village associations play the local development role that supporting the local development processes and improve the village life quality. The expected services from informal organisations are similar to the types of public/social service that should be executed by the local government; in many cases the informal types play a supporting role to the local governments in developing the life of inhabitants.

The International Cooperative Alliance (ICA) defined the cooperative, its value and principles as shown in the table below:

Table 3a: Definition, values and principles of a cooperative

Definition: Cooperatives are the best type of formal producer organisations. A cooperative is an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise.	
Values: Cooperatives are based on the values of self-reliance, democracy, fairness, justice, solidarity. All the members have a responsibility for supporting and helping each others to progress and success to achieve the cooperative purposes	
Principles: According to the ICA there are seven cooperative principles are guide steps by which cooperatives put its values into practice.	
1st principle	•Voluntary and Open Membership: cooperative are voluntary organizations, open to all persons able to use their services and willing to accept the responsibilities of membership, without gender, and social, racial, political or religious discrimination.
2nd principle	•Democratic Member Control: Cooperatives are democratic organisations controlled by their members, who actively participate in setting their policies and making decisions. Men and women serving as elected representatives are accountable to the membership.
3rd principle	•Member Economic Participation: Members contribute equitably to, and democratically control, the capital of their cooperative
4th principle	•Autonomy and Independence: cooperatives are autonomous, self-help organizations controlled by their members. If they enter to agreements with other organisations, including governments, or raise capital from external sources, they do so on terms that ensure democratic control by their members and maintain their co-operative autonomy.
5th Principle	•Education, Training and Information: cooperatives provide education and training for their members, elected representatives, managers, and employees so they can contribute effectively to the development of their co-operatives.
6th Principle	•Cooperation among Cooperatives: cooperatives serve their members most effectively and strengthen the co-operative movement by working together through local, national, regional and international structures.
7th Principle	•Concern for Community: cooperatives work for the sustainable development of their communities through policies approved by their members.

Source: ICA 2007

3.2.1 The purpose of agricultural cooperative associations (ACAs)

The Agricultural Cooperative Associations (ACAs) are a firm owned by farmers. The main goal of ACAs is supporting the members in their farming business. It enables the participated members by accessing of inputs (feed, medicine, equipments, seeds and fertilizers), providing technical assistance, technical advice, extension services, marketing farm products, processing farm products, advocacy on behalf its member and financial support. The ACAs connect their members to the national and international markets. It also improves their ability to achieve bargaining power through collective marketing actions (buying & selling) which leads to establish countervailing power in comparison with seller and buyer. The members get an advantage from economies of scale through decreasing transaction costs or keeping it low because they execute the transaction activities by themselves (Bijman 2009).

Moreover, ACAs enable farmers for reaching of products to the export market with better prices and higher return through improving the quality of products and increasing the product value added by processing and packaging according to the consumers' preferences. The ACAs can be the coordinator in the production oriented value chain. They can link will between the producers themselves and with the wholesalers which can save individual farmers' time and resources (Penrose-Buckley 2007).

Supporting small-scale farming to increase the productivity, sustainability, and profitability is the main method to reduce poverty in the developing country by using agriculture for development. The supporting lead to improve the producers' organisations performance to achieve the following:

- Enhance price incentives, increase the quantity and improve the quality of public investment
- Improve marketing of product
- Enhance access to financial services and decrease the incident uninsured risks
- Promote innovation through science and technology
- Increase sustainability of agriculture and supplier of environmental services

Furthermore, producer organizations are essential for smallholders to become more competitiveness by collective actions to decrease transaction costs, empower bargaining power, and increase ability to play representation role in the national and the international policy strategy. The producer organizations make the position of the smallholders more stronger in the markets through enabling the producers to access to production inputs, credit, and better product marketing to improve the product quality and packaging according to the consumer preferences depending on the information flows from the farmers about product quality, quantity and delivery time. Also POs can be providing technical assistance to develop and improve the production system in terms of quality, quantity and contribute in increasing the product value added through the roles of processing and marketing (WDR 2008).

3.2.2 Formation of producer organisations (POs)

Penrose-Buckley (2007) was extracted from his conducted researches in ten developing countries and some issues raise to focus on establish farmer organisations as follow:

Table 3b: Issues to establish Farmer Organisations

- Group size: group size should be kept small, ideally between 15 and 30 members, to facilitate good communication and regular interactions between all group members.
- First meetings: a new group needs to follow a simplified business planning process, starting with an assessment of market opportunities before defining the group's objective and developing a very simple marketing strategy. It is also important at this stage to define how the group will divide any proceeds from their collective activities.
- Pilot activities: before the FA or individual members invest significant resources in the group, it is a good idea for the group to gain experience and test its marketing strategy through various pilot activities. New POs should focus on very simple collective activities and services for members, based on participants' existing livelihood activities. At this stage, FAs need to find the right balance between allowing the new PO to learn from its own experience and failures, and using its influence to help members avoid bad decisions that may undermine their confidence.
- Consolidation: if the pilot activities are successful, the group can begin to invest and expand its activities and gradually develop a simple decision-making structure. From the very start FAs need to help POs to develop a market-oriented approach and to focus on financially sustainable PO services and activities.
- Financing: most new POs will depend on the FA for access to start-up funding. Generally, it is better for FAs to provide access to loans rather than offering grants, as grants can exaggerate the profitability of the PO and undermine the members' sense of responsibility. If the FA does decide to offer a grant for operational funds or specific investments, the timing is critical: if a grant is offered too soon, before the group has established itself, it can undermine the initiative and sense of ownership within the group.
- Shared assets: managing shared assets requires considerable social capital and management skills, and FAs should therefore avoid financing shared assets, such as tractors or processing equipment, until groups have gained experience and developed their capacity.
- Transforming community-based groups into POs: existing community based groups may already have significant social capital. The challenge is to ensure that the members of such groups understand that the new group will function as an independent business and that they are prepared to take ownership of the business, including the risks involved.

Source: Penrose-Buckley 2007

3.2.3 Strengthening of the producer organisations capacity

Organisational reinforcing and creating negotiation skills are required to support and strengthen POs through build up the capacity of leaders/managers and members to lobby and develop suitable legislation, perform and sustain partnerships in both horizontal and vertical directions and strengthen the negotiating capacities vis-à-vis the other stakeholders. Leaders, managers and members require training to understanding how they collect, assess and distribute market information needed by farmers to improve and empower competitiveness. Producer Organisations need support in terms of technical knowledge to achieve the certification requirements, accounting and financial management (Giel Ton et al 2007).

In addition, POs require capacity reinforcement in the accountability of members, effective communication channels in two directions, credibility, transparency and effective financial management and internal technical knowledge (Rondot et al 2001).

3.2.4 Challenges faced by producer organisations

Despite the successful results of many POs, but the efficiency of these organizations is faced by legal restrictions, weak administrative capacity, and elitism selection, left out of poor and vulnerable producers, cannot obtain recognition by state as full partners. Donors and governments have the capacity to assist by giving the license to the organization, training of managers and leaders and supporting weaker producers, in particular women and young farmers. However, providing this support without building dependency remains a challenge (Richard 2004).

3.3 Examples of agricultural cooperatives in Jordan

In Jordan, dairy cattle sector has been developed rapidly after 1980 when the government allowed the private sector to invest in it. The private companies have been imported a high milk production commercial cattle breeds like Friesian breed, and also imported production inputs (feed, medicines, vaccines and other equipment necessary in the production process) which encouraged many farmers to raise these dairy cattle breeds and thereby increase the amount of produced milk. The farmers were facing barriers in marketing the fresh milk as result of manipulating and exploiting of dairy plants owners. The dairy plants owners purchase the milk and delay pay for six months which is putting the farmers in difficult financial situation. Also the dairy farmers faced other problems like increasing the cost of feed, legislation and access to credit. This situation is prompting dairy farmers to form the cooperative associations for protecting their rights and helping them to face the challenges.

Nowadays, there is a number of small to medium farmers' dairy cattle cooperative associations which produces about 80% of the total milk production in Jordan. The cooperatives help and support its members by accessing to the production inputs with low cost as much as possible, marketing of fresh milk, protecting them from exploitation of milk processing plant owners, claiming and defending the farmers' right, and pressuring on the government to support small farmers and trying to change or amend any laws and regulations to facilitate the production and marketing. For example, the small farmers dairy cattle cooperative association in Irbid governorate which was established in 1980 took a loan from the Agricultural credit corporation and got an international financial donation from the Spanish government to establish a dairy plant to receive the milk from its members with fair prices according to the cost prices and produce high quality milk products (yogurt, labaneh, butter, pasteurized milk and white cheese) to sell them to the local consumers and retailers with competitive prices (ACC 2009).

Al-karak Sheep farmers Cooperative Association was established in 1984 by a group of sheep farmers to assist them overcome the obstacles that they face during the process of production and marketing of their products according to the personal interview of sheep farmers association director in Al-karak

regarding the objectives of the association and main problems that facing the sheep farmers. The summary of the problems as follows:

- Accessing to the production inputs (feed, vaccines, medicines and equipments) resources with adequate quantity, good quality and fair price, specially feed during the dry seasons.
- Accessing to cash credit and other finance to purchase the feed for lambs fattening.
- Marketing milk and milk products, especially in the spring season when the lambs' births deliberate in winter season and weaned the lambs at the beginning of spring season. The farmers produce high amount of milk in three months after lambs weaning and consequently, the milk and milk products prices go down.
- Accessing to the production, marketing information and extension services.
- Representing farmers' interest in negotiations with government, donors and privet sector.
- Improving the reproductive and production quality of the sheep flocks through animal breeding and management programs.

The sheep farmers' cooperative association consists of 120 sheep farmers among the Al-karak governorate. It was managed by the elected management council consist of seven members included the chairman; the actions of management council monitored by the elected monitoring committee consist of the three elected farmers who are members in the cooperative. The council elected every two years by direct election. The bookkeeping monitoring, accounts and budget ratification of the cooperative association subjected to direct supervision of JCC.

The sheep farmers' cooperative had enabled their members to sell their products in annual contracts to the retailers with fair price. The cooperative got a financial support from the Japanese government and built dairy plant specialize for processing sheep milk. Also the cooperative got an international financial donation from American Mercy Core Association to access to the production inputs (feed, water transport equipments and veterinary services).

According to the above, agricultural cooperatives are an effective way to develop the agricultural production systems and find appropriate solutions to the obstacles are facing the production and marketing processes. On the other hand, the broiler farmers in AL-Karak governorate are facing a difficult situation in marketing their birds as that situation previously faced dairy cattle and sheep sectors. So they have to come together and organise themselves in cooperation system to solve their problems and access to financial support to building effective logistic system for collecting, distributing, processing and selling their product directly to the consumers and kick out the exploiter and manipulator traders (middlemen).

CHAPTER 4: RESULTS

4.1 Results of the questionnaires small-scale broiler farmers

4.1.1 Age of farmers

The average age of the broiler farmers from the two districts shows that the average farmer age in the Southern part (Al Mazar district) was about (44.9±10.96) years when compared with those in the Northern part (Al Quser district) which was about (43.6± 9.64) years. About 75% of the farmers are within the age range of 30-50 years as shown in table 4 and figure 3.

Table 4: Results of the Questionnaires Respondents in the Two Districts

	Location			
	Al Mazar district		Al Quser district	
	Mean ±SD			
		Range		Range
Respondents Number	20	-	20	-
Average Farmers Age (Year)	44.9± 10.96	30 - 65	43.6± 9.6	26 - 60
Average Farms Capacity* (1000)	10.7± 4.60	4.0- 20.0	8.7 ± 5.6	5.0- 24.0
Average Production Cycles/Year	4.85± 0.67	4.0- 6.0	5.00± 0.79	3.0- 6.0
Average Farms Land Size (Dunam**)	6.0 ± 2.19	3.0- 10.0	6.0 ± 2.67	2.0- 12.0

*Farm capacity= Number of birds/farm

**Dunam=1000m²

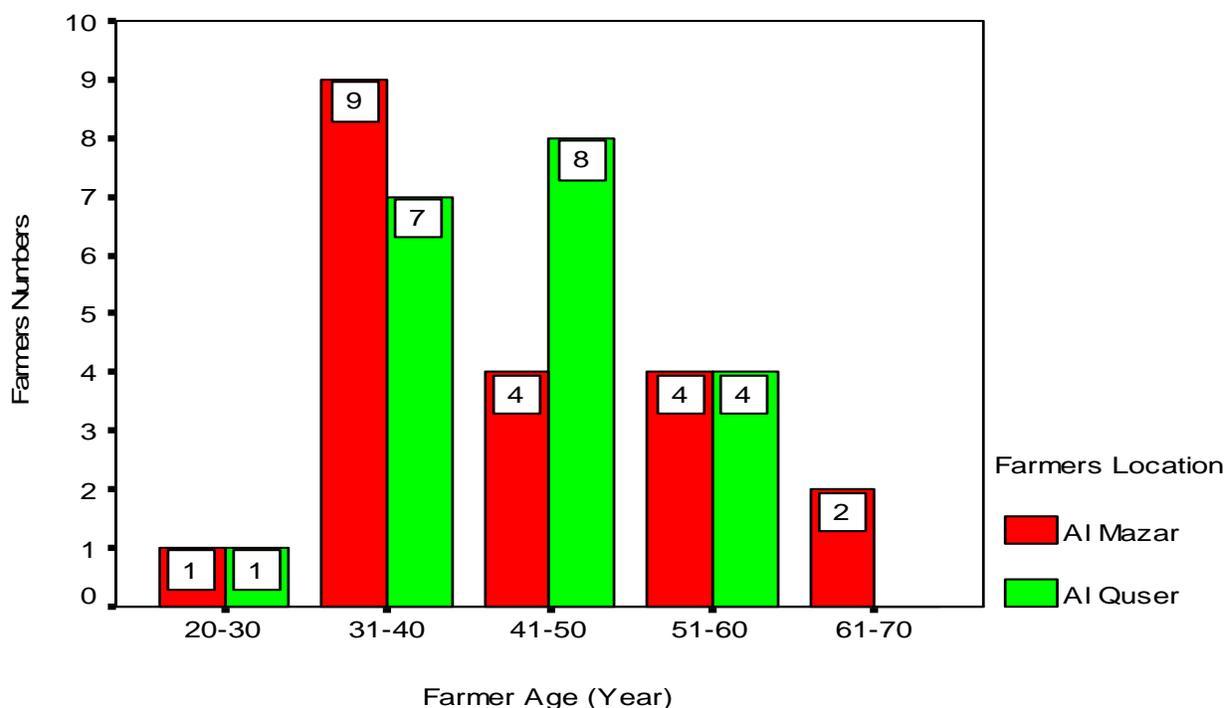


Figure 3: The average of the farmers age in the two districts

4.1.2 The average farms capacity and the production cycles / year

The average farm capacity owned by the broiler farmers in the two districts shows that southern part (Al Mazar district) has higher average farms capacity (10700±4.66 birds) compared with the average farms capacity (8700±5.67 birds) in northern part (Al Quser district) as shown in table 4 and figures 4.

The average number of production cycle in chosen districts as shown in table 4 and figure 5 which almost the same (five cycles / year). The square meter of broiler houses keeps about ten birds. The farms with 5000 birds' capacity produce about 8.5 ton of live birds per production cycle which slaughter to produce about 6.0 ton of broiler meat per production cycle and 30.0 ton per year.

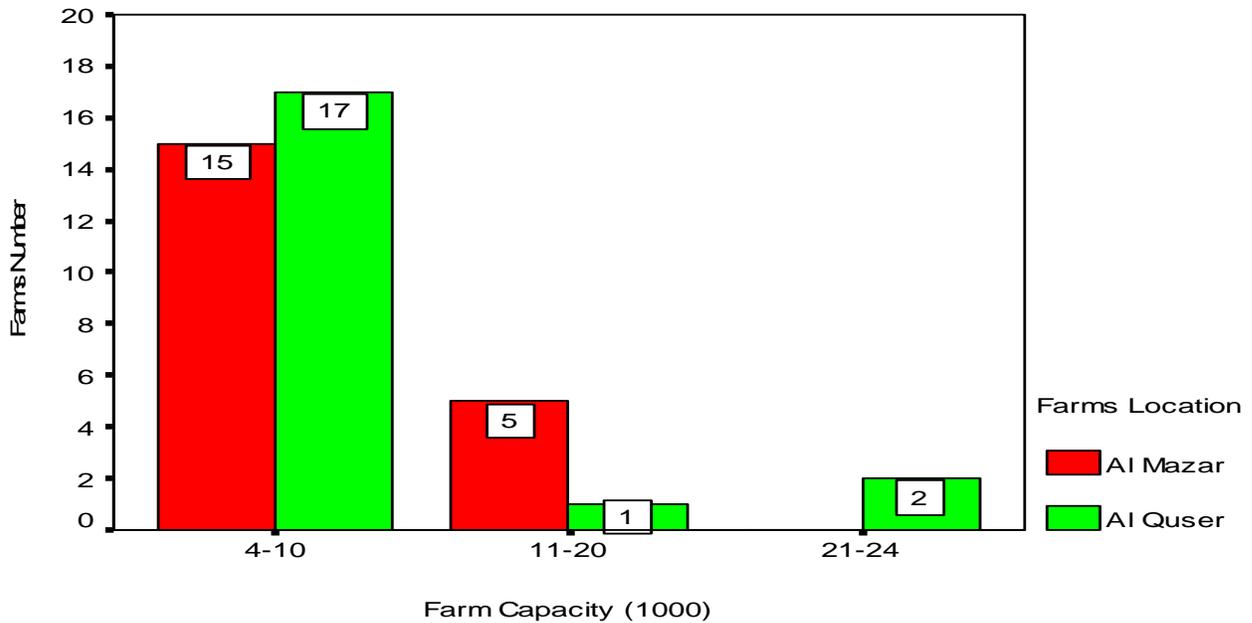


Figure 4: The average of farms capacity in the two districts

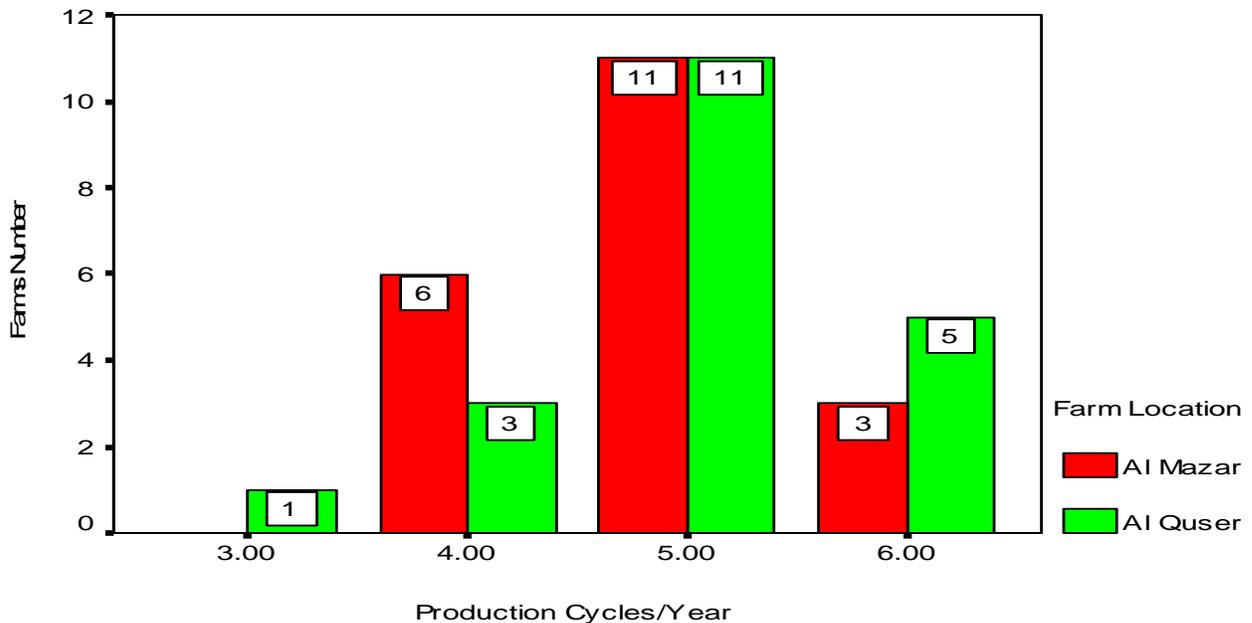


Figure 5: The average of the production cycles in the two districts

4.1.3 The average farms land size (dunam) in the two districts

The average farmland area owned by broiler farmers in the two districts shows an equal in both parts as shown in Table 4 and by Figures 6.

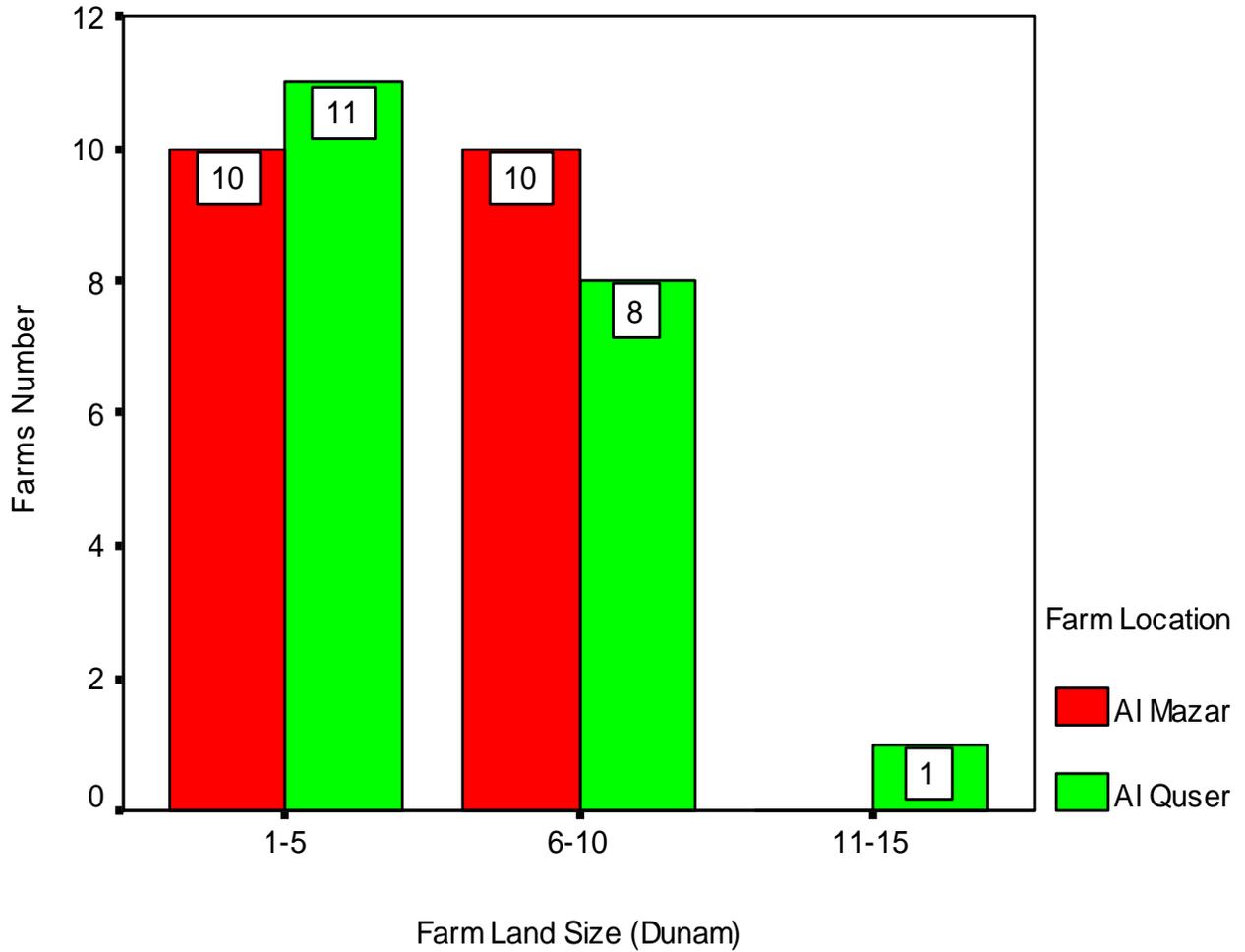


Figure 6: The average of farms land size in the two districts

4.1.4 Effect of location, age and education level on the farmers FCA Acknowledgment, establishing views of FCA and satisfaction with pricing system

There is no any significant effect ($P>0.05$) of farmers location on the FCA acknowledgment, View, and satisfaction according to the One-Way ANOVA analysis test as shown in table 5 and figures 7, 8 and 9. The farmers in the two districts have the same percentage of responses about the FCA acknowledgment, satisfaction and almost the same trend of the FCA establishing view.

Table 5: Location influence on farmers acknowledgment, views and pricing satisfaction

	Location		P-value
	South part (Al Mazar)	North part (Al Quser)	
	Mean \pm SD		
FCA Acknowledgment	1.500 \pm 0.513	1.500 \pm 0.513	1.000
FCA establishing View	1.700 \pm 0.733	1.700 \pm 0.865	1.000
Pricing System Satisfaction	1.950 \pm 0.224	2.000 \pm 0.0001	0.324

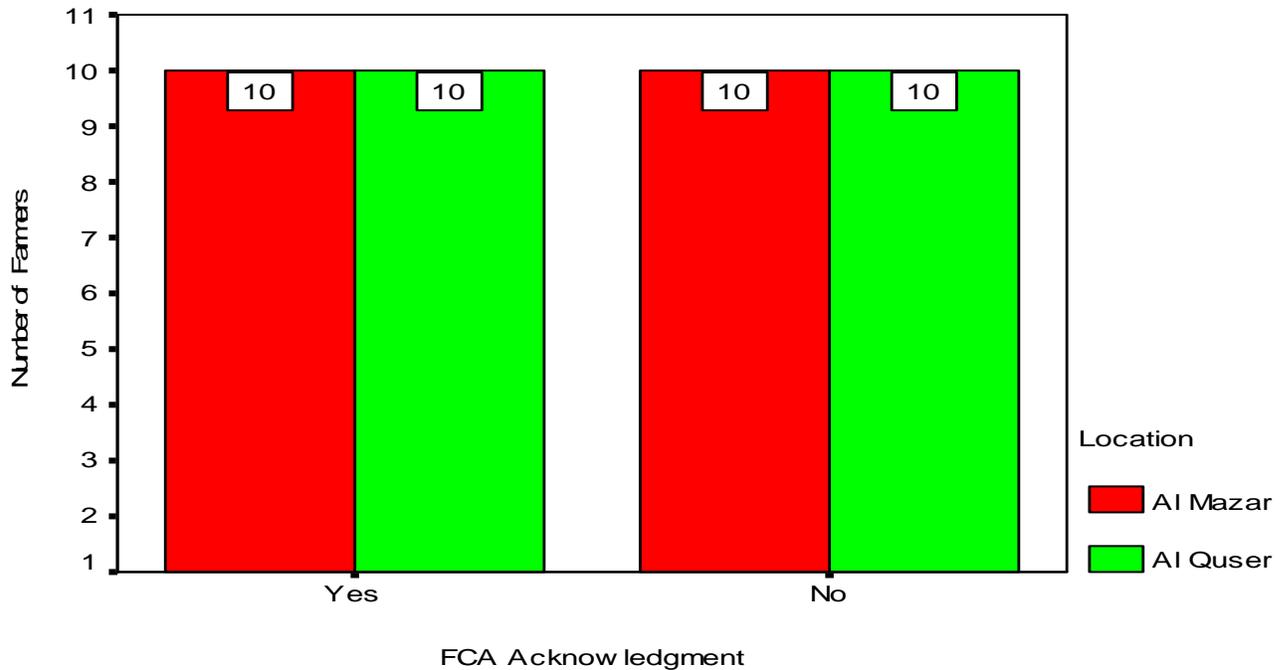


Figure 7: The FCA acknowledgment comparison in the two districts

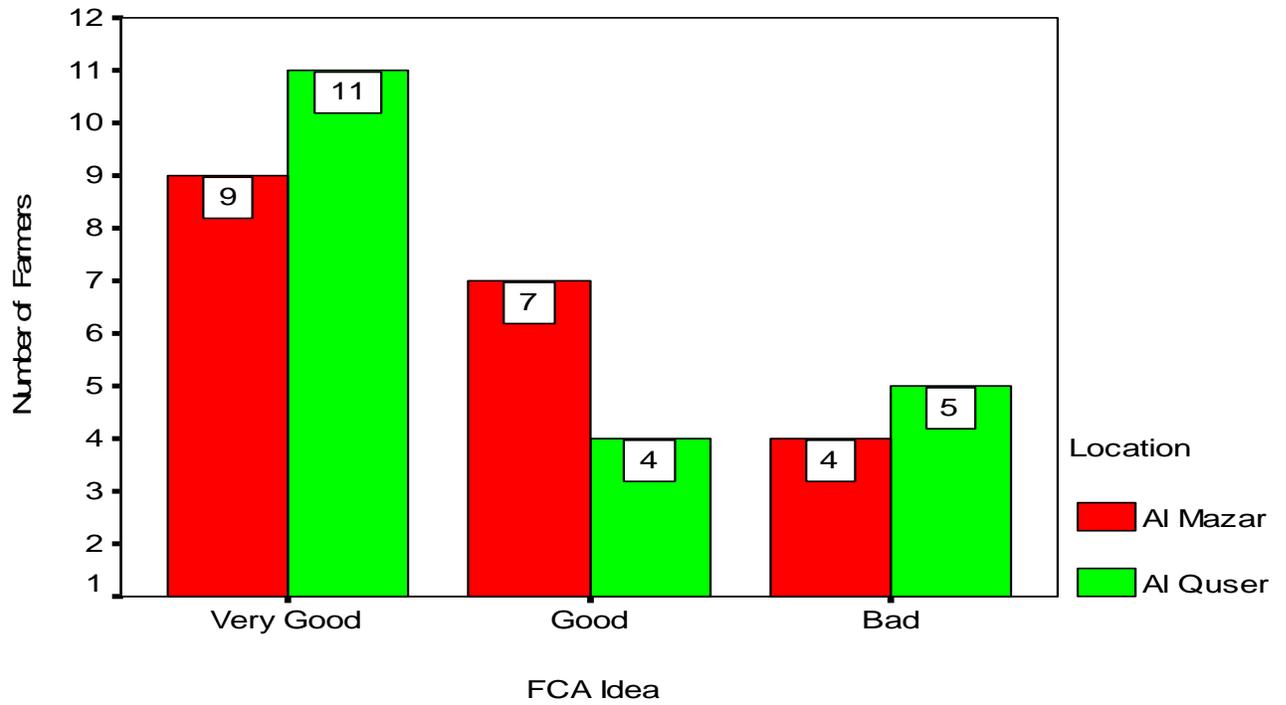


Figure 8: The FCA Views comparison in the two districts

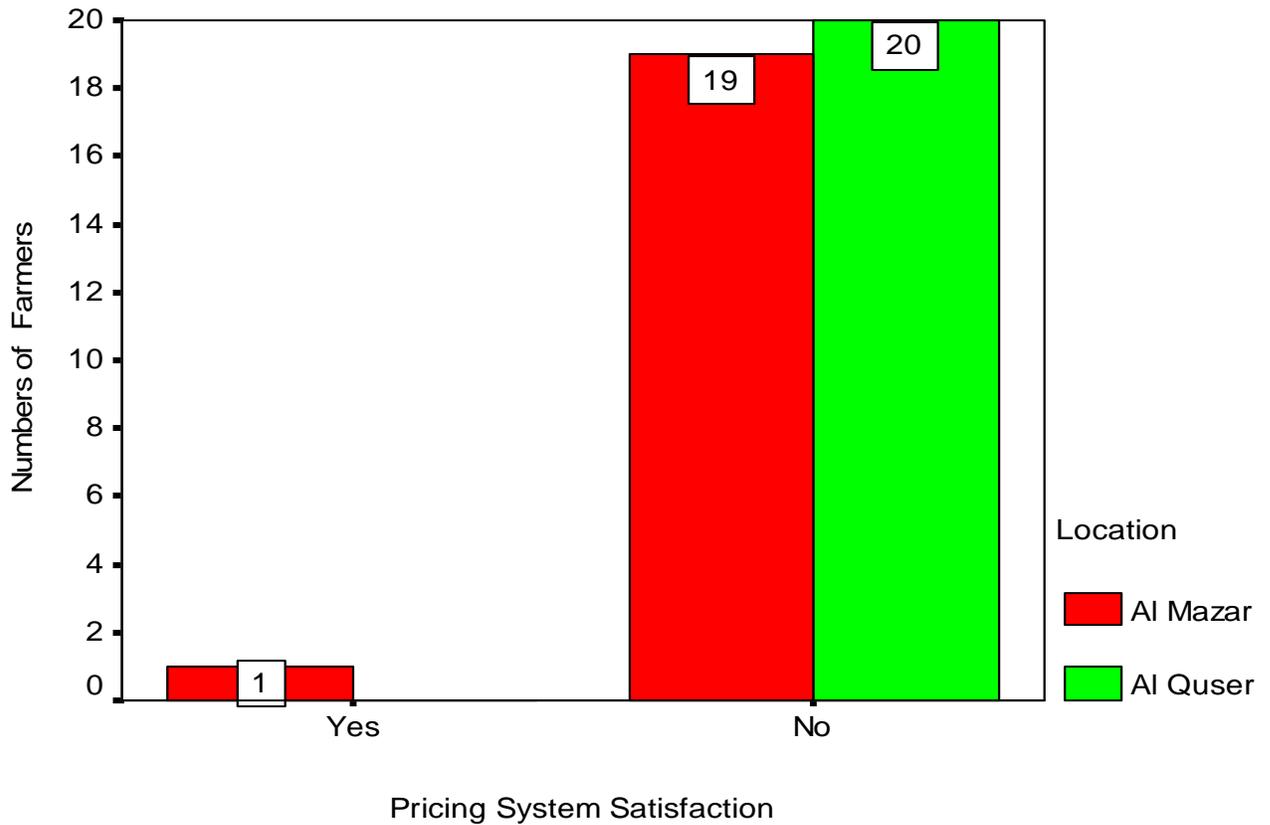


Figure 9: The farmer satisfaction comparison in the two districts

Table 6, shows the effect of farmer age on the three dependent variables (FCA acknowledgment, FCA establishing view and pricing system satisfaction). The results indicated that, there is no any significant effect ($P>0.05$) of farmers age on the FCA view and acknowledgment, but a significantly higher effect was detected for the farmers pricing satisfaction ($P<0.0001$). The farmers of different ages in the two districts were not satisfied with the pricing system, except one farmer (65 year old) as shown in table 6 and figures 10, 11, 12.

Figure 10, shows the number of farmers that have a good information regard the FCA system. Most of the farmers with age fallen between 31-40 years old have a great awareness of the FAC and their benefits to the broiler producers, when compared with other groups of ages. The older farmers (from 41-70 years old) have a little or no information regarding the importance of the FCA system.

Figure 11 shows the response of farmer to the idea of establishing the FCA in the governorate. It is very clear from the data collected that more than 80% of farmers support the idea (50%, 30% very good and good respectively) of establishment the FCA. On the other hand, only 20% of the total farmers from the two districts rejected the FCA establishment idea and consider it as a bad idea. Moreover, the majority of broiler farmers (97.5%) is not satisfied with the recent pricing system in the two districts and considers it unprofitable and unfair (Figure 12).

Table 6: Farmer age influence on acknowledgment, views and pricing satisfaction of farmer

	Farmers Ages (Year)					P-value
	20-30	31-40	41-50	51-60	61-70	
	Mean \pm SD					
FCA Acknowledgment	1.500 ± 0.707	1.375 ± 0.500	1.500 ± 0.522	1.625 ± 0.518	2.000 ± 0.001	0.510
FCA Establishing Idea	1.500 ± 0.707	1.438 ± 0.629	1.750 ± 0.866	2.000 ± 0.926	2.500 ± 0.707	0.279
Pricing System Satisfaction	2.000 $\pm 0.001^a$	2.000 $\pm 0.001^a$	2.000 $\pm 0.0001^a$	2.000 $\pm 0.001^a$	1.500 $\pm 0.707^b$	0.0001

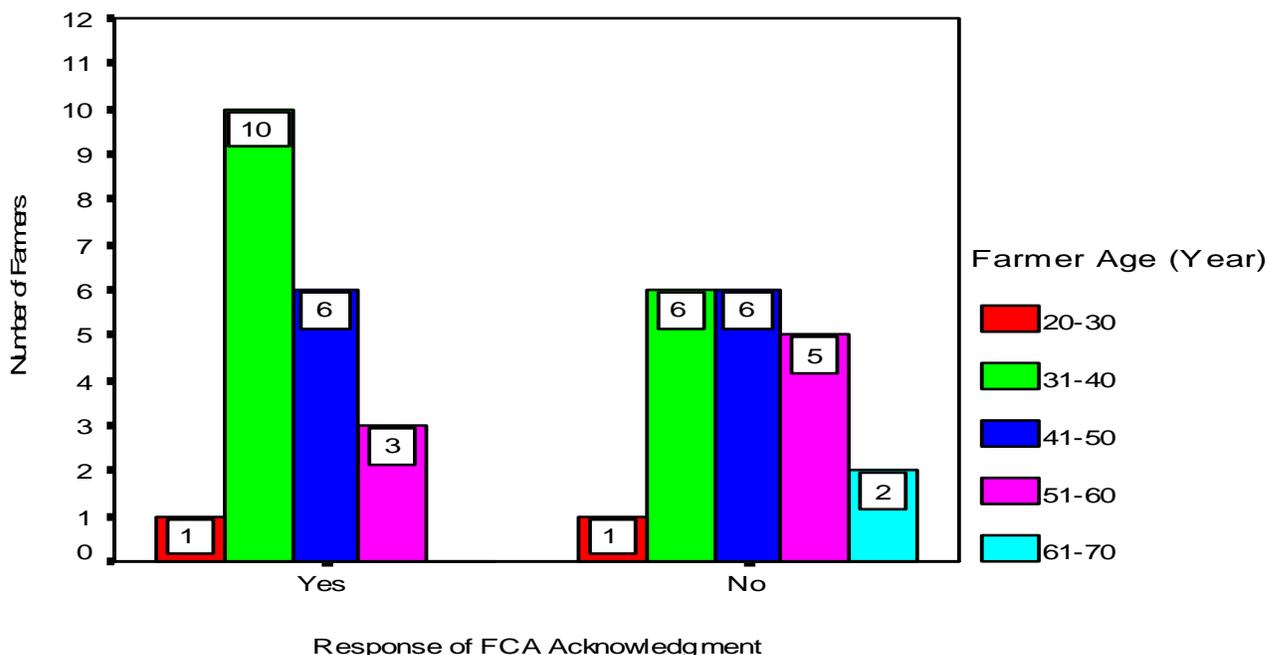


Figure 10: The FCA acknowledgment depending on the farmer age

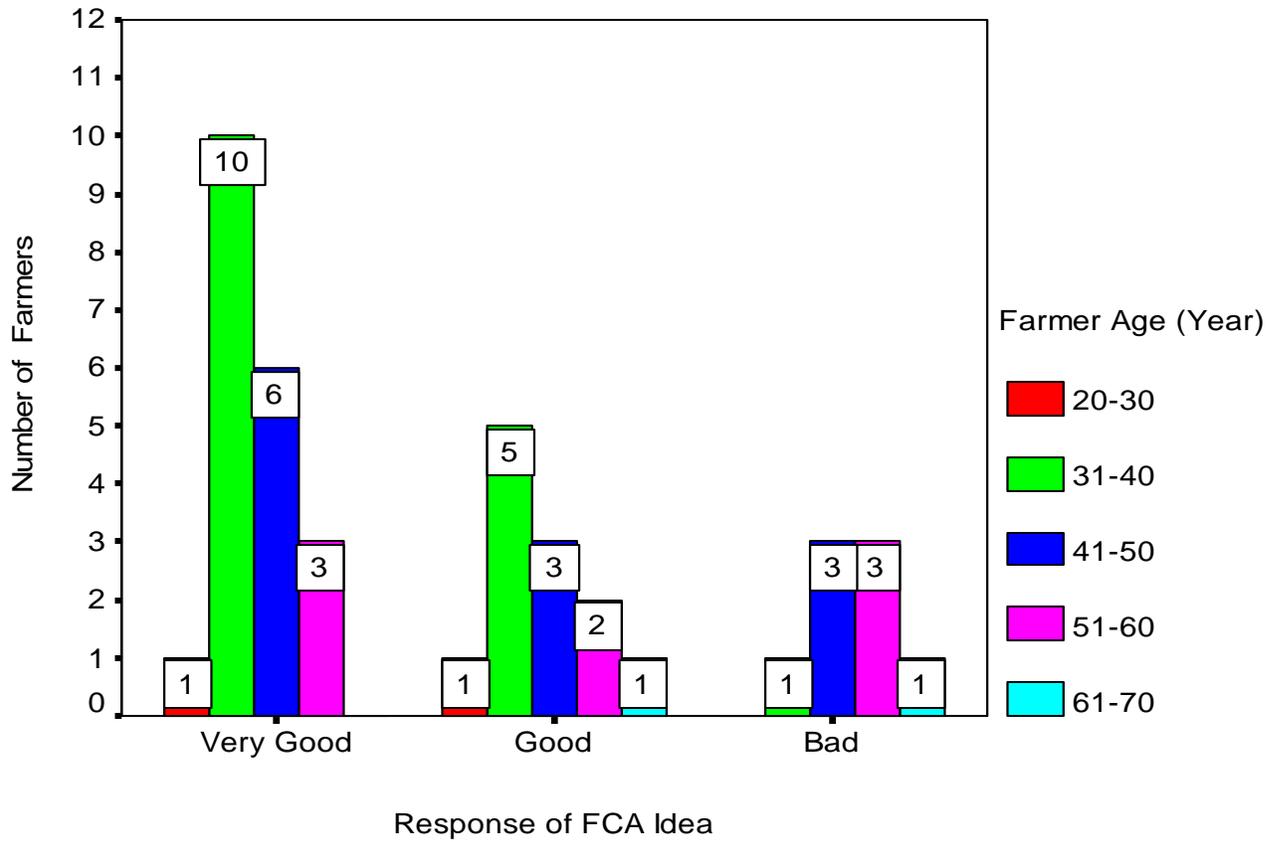


Figure 11: The FCA views depending on the farmer age

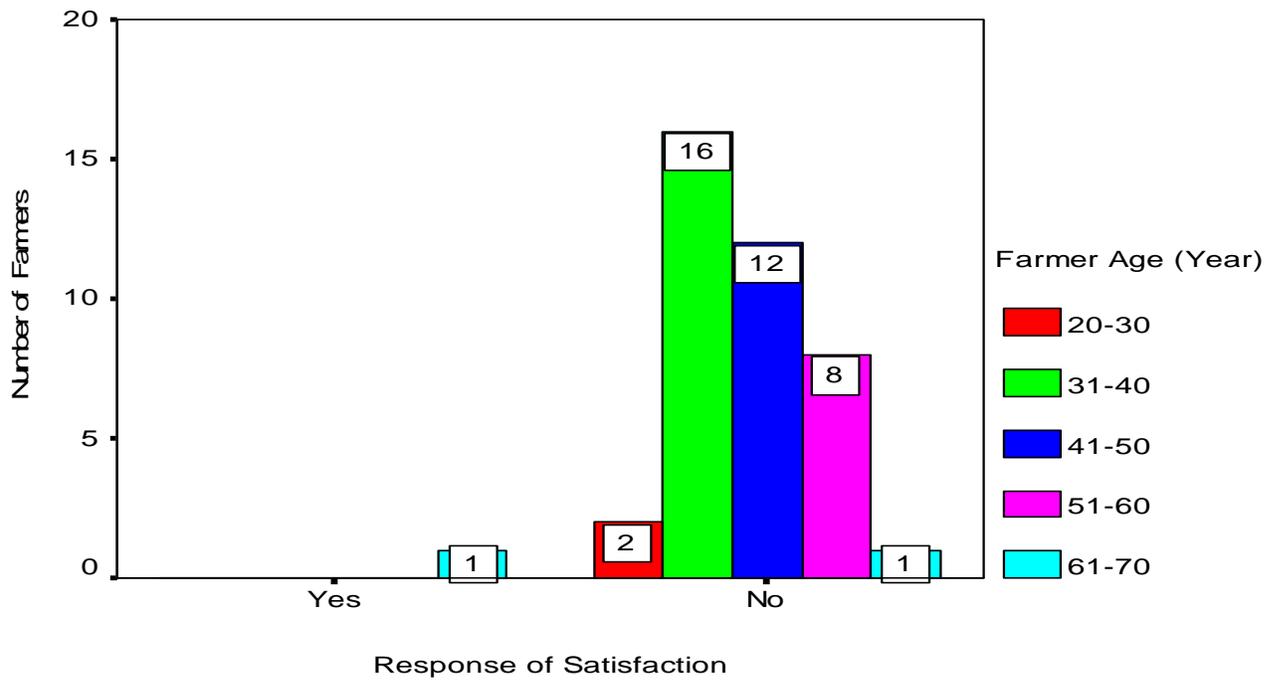


Figure 12: The pricing satisfaction depending on the farmer age

The Farmers education level (FEL) is considered as the most important independent variable which may affect the knowledge and acceptability of the farmers on the FCA system. According to the One-Way ANOVA test analysis of the collected data, there is highly significant effect of farmer education level on the FCA acknowledgment ($P < 0.0001$) and view ($P < 0.001$) as shown in table 7. Fifty percentage of farmers from the two districts knows about the FCA system and most of them (65%) are well educated farmers (Diploma or above). Furthermore, about 55% of the farmers those do not have idea about the FAC system from the primary educated level group as shown in the figure 13.

Regarding the farmers views of the FCA system, more than 80% of farmers with secondary education level are strongly supporting the idea, and only 20% with primary education level rejected the idea of the FCA establishment as shown in figure 14.

Figure 15, shows the satisfaction of the broiler farmers with different education level in the pricing system. About 97.5% of the broiler farmers (39/40) are unsatisfied of the pricing system in the two districts and consider it unfair, but only one farmer (2.5%) considers it fair.

Table 7: Effect of farmer Education Level on FCA Acknowledgment, View and Pricing Satisfaction

	Farmers Education Level			P-value
	Primary	Secondary	Diploma & Above	
	Mean \pm SD			
FCA Acknowledgment	2.000 \pm 0.001 ^a	1.500 \pm 0.519 ^b	1.133 \pm 0.352 ^c	0.0001
FCA Establishing Idea	2.364 \pm 0.505 ^a	1.643 \pm 0.745 ^b	1.267 \pm 0.704 ^b	0.001
Pricing System Satisfaction	2.000 \pm 0.001	1.929 \pm 0.267	2.000 \pm 0.001	0.406

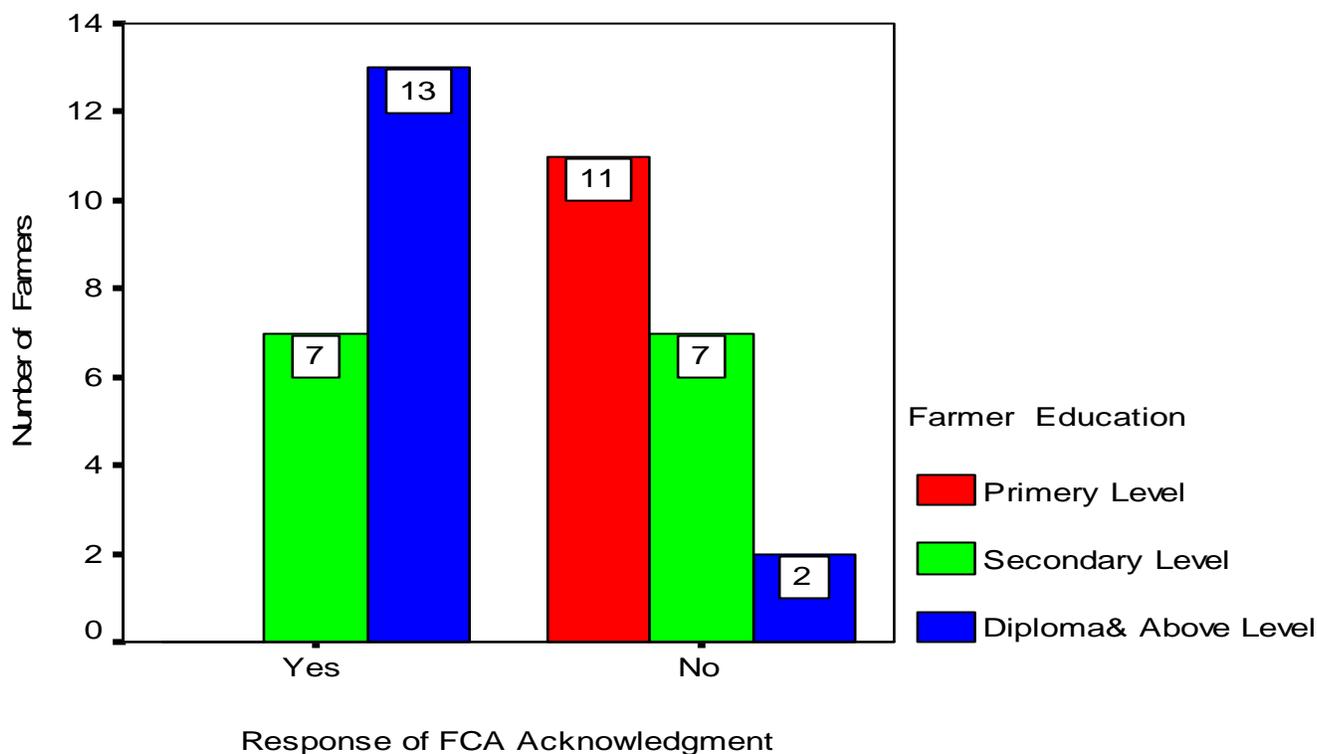


Figure 13: The FCA acknowledgment depending on the FEL

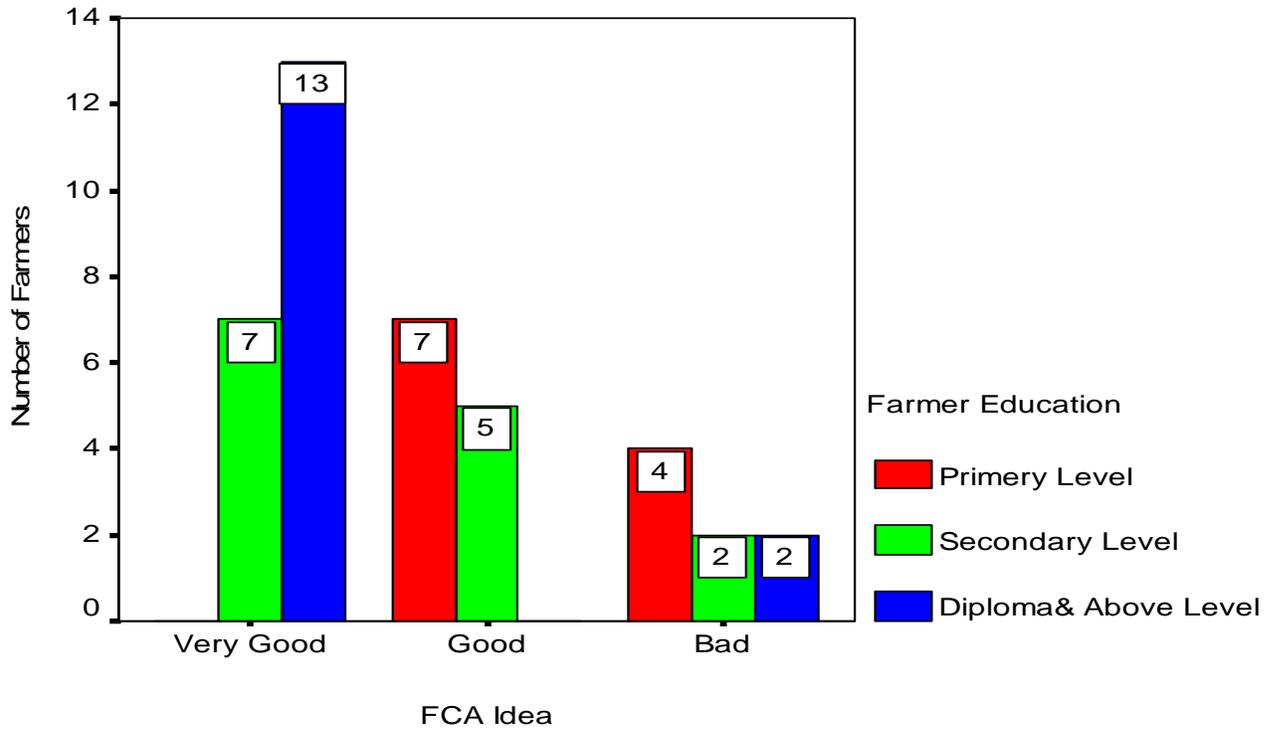


Figure 14: The FCA view Depending on the FEL

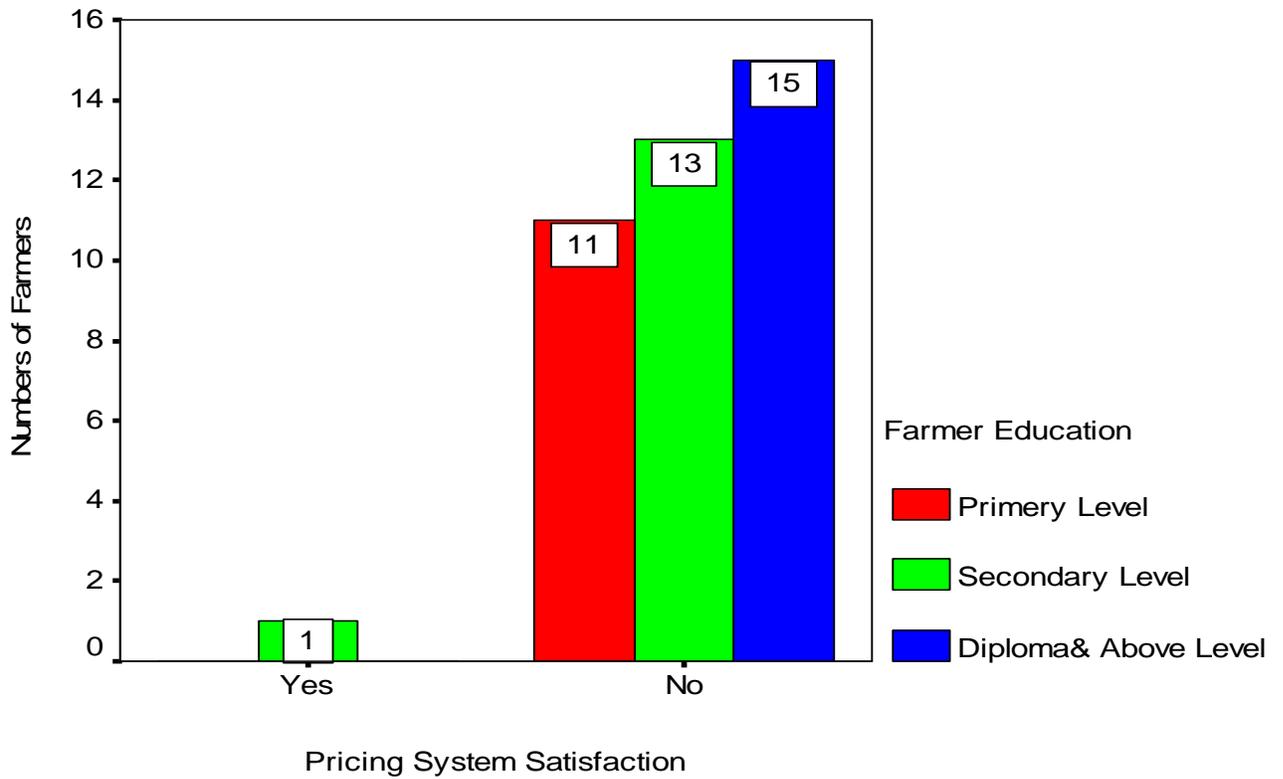


Figure 15: The pricing system satisfaction depending on the FEL

4.1.5 Reasons for supporting or non-supporting the idea of FCA establishment

Each farmer has his own justification and reasons for supporting or unsporting the idea of FCA system. All positive or negative responses by farmer regarding the FCA establishment and acceptability were collected and summarized in the main heading shown below.

Reasons for supporting the idea of FCA establishment

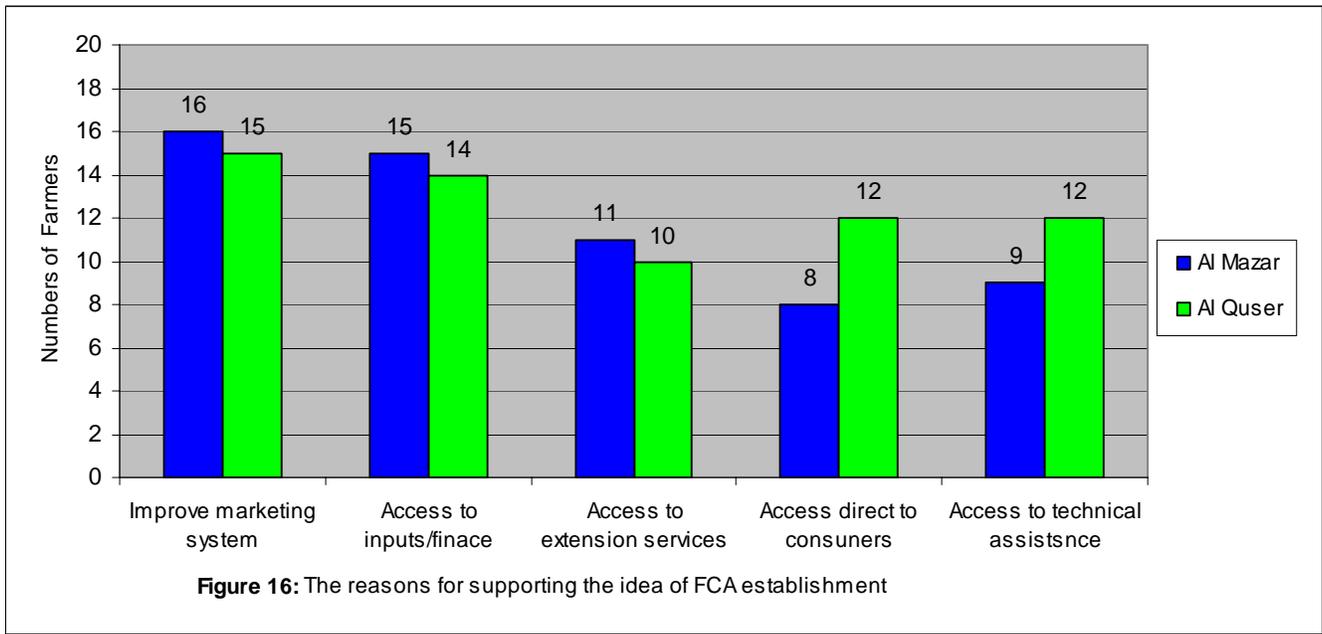
The summary of the following reasons below were mentioned by the farmers to justify their positive decision regarding the FCA establishing idea:

- Organize and coordinate the farmers to improve the production and marketing process by sharing experiences and information about supply, demand, price, quality and quantity required by potential markets
- Improved access to inputs / financial services through the association and decrease the incident of uninsured risks (as security)
- Access to services like the veterinary and management extension through obtain these services from its resources or providers easily
- Ability to sell their products direct to the retailers or consumers and access other markets through the association without involvement of intermediaries who raise the transaction cost without adding value to the products
- Promote innovation through science and technology (Technical assistance) to increase and improve the productivity, quality and decrease the production cost as a result will increase the competitiveness and profitability.

According to the statistical analysis of the above farmer groups, there is no significant difference ($P > 0.05$) in reasons for supporting the idea of establishing FCA between the farmers in the two districts as shown in Table 8 and figure 16.

Table 8: Reasons for supporting the Idea of FCA establishment

		Reasons for saying very good and good Idea				
		Improved marketing	Access to inputs/finance	Access to extension	Access direct to consumers	Technical assistance
District	Al Mazar	16	16	11	8	9
	Al Quser	15	14	10	12	12
Total from both districts (40)		31 (78%)	30 (77%)	21 (53%)	20 (50%)	21 (53%)



Reasons for non-supporting the idea of FCA establishment

The main reasons for non-supporting of the FCA establishment idea by the broiler farmers in the two districts (8 farmers) are:

- Increase the cost of production due to the taxes.
- Lack of trust between farmers and probability of corruption.
- Exploiting the cooperative by leaders to serve their political and social ambitions.
- Individualism and independence at work and the lack of cooperative spirit.

4.1.6 Problems faced by broiler farmers in the supply chain

According to the results of the survey in the two districts, the main problems that facing the broiler farmers are reported in table 9 and figure 17. It is very clear that higher levels of consensus reported for all farmers and range from 73 to 100%.

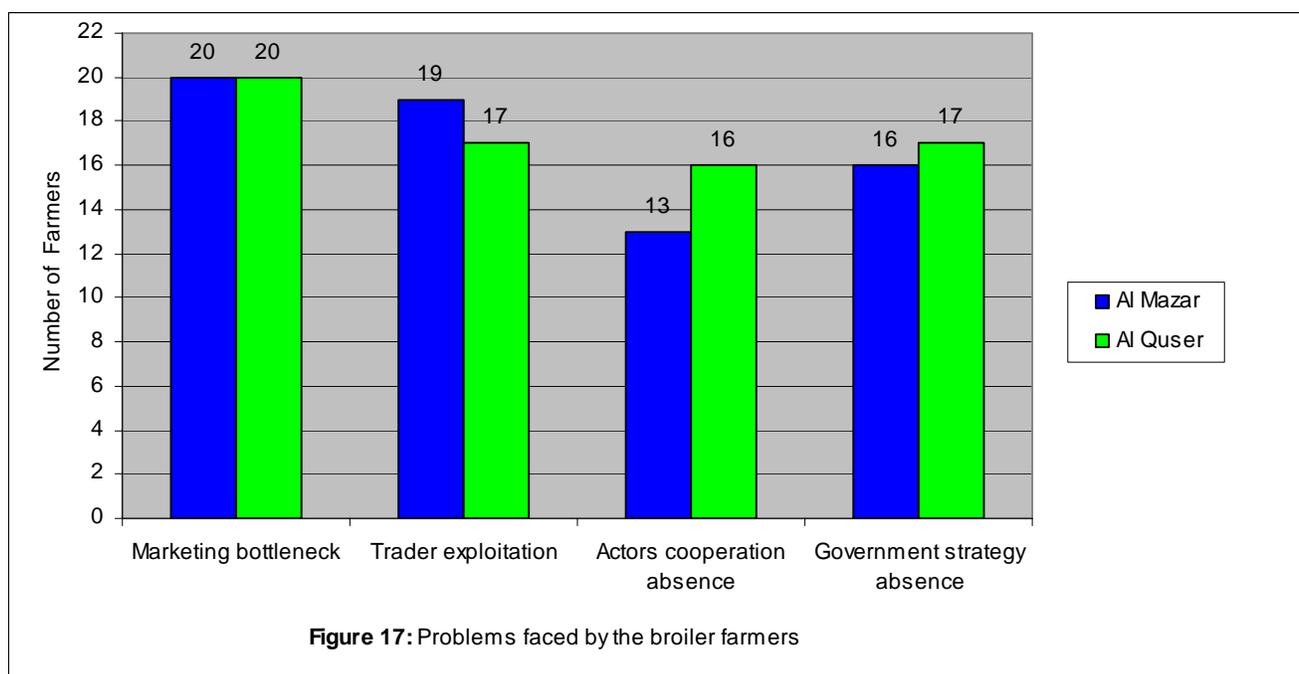
In general, the summary of the main problems facing the broiler production system in Al-Karak Governorate are:

- Inadequate information on the market needs in terms of quantity (supply and demand), prices and quality, leading marketing bottlenecks due to imbalance between supply and demand, and often supply higher than demand and as a result reduce the selling prices at the farm gate.
- Traders' exploitation. The traders are using many tactics to deceive the farmers to maximize their profits by weight manipulating, rounding and getting bonus 1.10% instead of mortality during transport and 2.5 kg per each cage (12 birds). They also delay in payment to invest this cash with other purchasing process. The broiler farmers said that traders take about 600 kg as a total bonus per 5000 birds (small broiler house) and the farmers compelled to accept this condition because there are no other choices for marketing their product. Furthermore, farmer cannot keep the birds more than 50 days due to the high production cost and difficult marketing after this age because birds will exceed a desired weight.

- The absence of any cooperation and coordination between the farmers themselves and other actors in the supply chain due to the absence of contracts between the farmers and traders as well as with the inputs suppliers who monopolize the production inputs particularly feed ingredients which imported and controlled by 5 large companies consequently rapid and sudden price fluctuation of the inputs (feeds and DOC) is expected because it mainly depends on supply, demand, import and export activities.
- The absence of an effective agricultural strategy from the government in terms of sufficient and effective awareness and cooperative extension service to the farmers on a voluntary action, organization, coordination to improve and develop the production and marketing systems.

Table 9: Problems faced by broiler farmers

		Problems			
		Marketing bottlenecks	Trader exploitation	Actors cooperation	Government strategy absence
District	Al Mazar	20	19	13	16
	Al Quser	20	17	16	17
Total from both districts (40)		40 (100%)	36 (90%)	29 (73%)	33 (83%)



4.1.7 Farmers' suggestions to overcome the barriers

The following are some suggestions from farmers to overcome the barriers:

- Government intervention in controlling the production and marketing process through the application of production coordination system and creation an efficient market information system.
- Find a special body organizes, supervises and develops livestock sector independent of the Ministry of Agriculture and supported by the government. This special body must control over the quality of feeds, medicines and vaccines traded in the market and improve the animal health services by

establish a number of laboratories and diagnosis diseases centres for poultry diseases with a specialized veterinarians and technical standard of staff. This will lead to shorten the time and effort and reduce the production cost by rapidly diagnosing and identify effective treatment of disease.

- Establishment of cooperative associations which are governing the work of the farmers.
- The conclusion of annual contracts between the farmers and traders as well as with the input suppliers on the basis of cost price with a fair profit margin for each actor.
- Establishment of a slaughterhouse to produce the fresh broiler meat and marketing to the local consumers, hotels and restaurants in general and transform the surplus production to the long shelf life differentiated products. Conversion of Natafat shops to display and sale of fresh poultry meat after the processing in the slaughterhouse under high quality control system.

4.2 Results of the stakeholder interviews

4.2.1 The view of broiler traders on the idea of FCA establishment

Four of the five traders explained that no need to initiate cooperative because the broiler price is determined by supply and demand, when the demand is more than supply, the farmers impose the selling price and they get high profits, and the traders get a little profit, in some cases just cover the costs or less. The traders realize that the cooperative will terminate their role in this business because they knew the cooperative will compel them to stop exploitation by organizing the farmers, and improve the marketing system by supplying the products to the consumer directly. Moreover, the FCA can prevent the surplus production by coordinating and transforming or storage. The traders' role must be shifted to be responsible for the transporting and distributing broiler products to the retailers (stores and supermarkets).

4.2.2 Problems faced broiler traders in the broiler chain

Five main traders in the area were interviewed and all of them were given the same constraints as follow:

- The unwillingness of the local labourers to work with the same salary of foreign labourers, working in Natafat (small processing unit) and loading and unloading during the process of procurement and distribution as it takes place in the night and continue until the early morning.
- The government put a difficulties or costly conditions to bring in the foreign workers who are specialized to work in Natafat.
- High value of irregularities or fines and the closure of Natafat which are contrary to the terms of the health, marketing, and the lack integrity of the editors who issue these irregularities.
- Lack commitment of farmers to the agreements signed with the traders who finance them and sell their birds to any trader pays more.
- Speculation among traders, especially when the supply is more than demand.

4.2.3 Why farmers did not come together for initiating farmers association

From the interviews with the livestock division manager, Al-karak cooperative manager and the veterinarians who act in the governorate illustrated the following information:

- Lack knowledge of farmers regarding the idea of the cooperative associations in term of its goals, objectives and the benefits will come from the FCA establishment.
- Lack of volunteers in the area of the establishment of cooperative associations in the poultry sector
- Mislead traders to the small farmers that these associations will increase the production cost and it would serve only farmers who are trying to initiating them.

- Indebtedness of the small farmers for the traders and their inability to repay the debt immediately if requested by traders and fear of the prosecution and seizure of property.

4.2.4 How the government should help small-scale farmers come together

The interview with Al-karak cooperative manager provided us with the following information:

- Government should encourage broiler farmers to get organized in groups and form Al-karak broilers farmers association by the intensive extension aware them about the importance and benefits of cooperative for producing and marketing the products and provision of the support services. This is achieved by establishing a specialized farmers association to coordinate the producing and marketing process of broiler meat.
- Government should formulate policies for the domestic trade that are favourable to the broiler framers to provide them with an opportunity to access the consumers directly without the involvement of traders through contract for broiler slaughtering and primary processing.
- Government should ensure price transparency consequently encouraging fair competition.

4.2.5 Roles and functions of the Jordan Cooperative Corporation (JCC) in supporting ACA

Al-Karak directorate cooperative manager informed us that the Jordanian Cooperation law number (18/1997) focuses on organising and supporting the agricultural cooperative associations (ACA), their members and leaders/ managers with:

- Registration and supervision of the cooperative associations and the cooperative unions.
- Implementation of a specialized training courses, seminars or workshops of management, accounting, economical feasibility study, management of cooperative associations and human resource development for the leader/managers and the members to create and improve their capacity management in the negotiation skills with buyers/traders, government and donors. All these courses, seminars and workshops are done in specialized institutions (The Co-operative Institute and The Bookkeeping monitoring Union).
- Provision of technical support to the cooperative association and unions (economical feasibility study of proposed projects) to facilitate contact with donors and to establish quality cooperative accounts to financing their projects.
- Represent the cooperative sector with the associations and the cooperative unions in the Arabic, regional and international official and private organisations.
- Provision of cooperative extension service.
- Bookkeeping monitoring and ratification accounts and budgets of the cooperative associations to prevent corruption, fraudulent, exploitation and the conflict between the members
- Provision of machinery and technical services to the farmers
- Provision of production inputs to farmers
- Cancel the registration of the stalled cooperative
- Facilitate the payment of debts to the members of cooperative
- Rescheduling of debt to the members of cooperative.
- Removing the mortgage.

4.3 The broiler production system in Al-Karak, Jordan

According to the collected information from the surveys, interviews, official documents and the field study that were described the characteristics and the supply chain of the current broiler production system by the traditional commercial and not well organized supply chain as mentioned below:

4.3.1 Characterisation of the broiler production system

The broiler production system is traditional commercial broiler farms which are characterized by the following features:

Production system: The broiler farmers rearing commercial breeds (which are selected for rapid growth) in the ordinary broiler houses (opened sides' house) with minimum to low biosecurity. The production system depends on the natural ventilation which raises the mortality rate and reduces chicken weight gain in the sudden hot waves in the summer season when the environment temperature exceeds 35 °C. The farmers use the manual feeders which increase the feed waste and lost time and effort. Inadequate number of laboratories and diagnosis diseases centres for the poultry diseases with specialized veterinarians to give best solution with reasonable time for the health problems faced by flocks. All these aspects lead to raise the production cost and reduce the farmers' profits.

This production system is suffering from the absence of any technical way to keep the live birds after the finishing period or transforming the main product to other products with a long shelf life and high quality. This will limit accessing other markets outside Al-karak governorate to overcome the marketing bottlenecks when the supply is more than the demand.

Housing: the broiler farms in Al-Karak are made of concrete structure of opened sides' houses with double layered insulated metal sheets roofs. The sheds have provision of natural ventilation. The sheds lighting system is a natural and by using electrical or butane gas pulps. The heating system is depending on the butane gas brooders which cost 0.25JD/kg of live bird in winter season.

Feeds: The farms are supplied with feed from feed factories (private companies); in some cases the farmers buy the ingredients and prepare the feed in the farm by using a small vertical mill and mixer. The total feed consumption per bird (BW: 1.8-2.0kg) about 4 kg during the production cycle (40-45 days). The cost of feed is fluctuating and depends on the supply and demand which ranged from 320-400JD/tonne in the first half of this year (2010). The broiler birds are provided with ordinary cone-shaped or V-shape feeders and red round drinkers.

Management: The farms are managed by owners themselves who are not necessarily specialized. The owners in many cases employ unskilled foreign labour. The broiler farming starts from DOC raise up to 40-45 days old of economically viable period of fattening. The birds are sale at the end of production period when the birds' weights become more than 1.5 kg and less than 2.0kg. The system in the broiler farms is all-in-all-out system.

Marketing: The small and medium-scale broiler farmers in Al-karak governorate sell their live birds to the traders directly. The traders distribute the live chicken to their small processing units (Natafat) and then to the local consumers. The local marketing capacity in Al-karak is about ten thousands birds/day. The average consumer price in the first half of current year (2010) was 1.35JD/kg of live bird and the off farm price was 1.23JD while the cost price was 1.18JD according to the chain actors interviews (farmers, trader and processors). The gross margin of the farmers was five piaster (100 piaster=JD) while for the traders and processors was six piaster and the cost of transporting and processing was six piaster. The marketing system is depending on the local consumer only and suffering from the marketing bottlenecks especially when the supply more than the demand, also suffering from the

absence of organized and effective information system to coordinate the production according to the demand and makes balance point between supply and demand.

Logistics: The broiler sheds provide shelter for the broiler birds. The sheds have natural and butane gas brooders heating system, natural ventilation system only with a provision of electricity for lighting. The broiler sheds are fitted with sufficient manual feeders and automatic drinkers to provide feed and water. The broiler birds are transported to the retailers in cages expand to 12 birds/ cage by the opened sides trucks. Feeds are made available from the feed producers. Seldom, the feed ingredients are purchased to formulate feed locally by the broiler farms to save cost. The feeders and drinkers are bought from the agent supplying poultry equipments. The veterinary medicines and vaccines including health related inputs and services are provided by private markets and Animal Health Department, Ministry of Agriculture. The farmers receive the technical information from the inputs supplier (sellers) and almost pay for the veterinary service. The broiler farmers access to the credit through the commercial banks, ACC and private finance.

Quality management: The live birds produced are graded for quality based on birds' weight. The demanded weight is ranged from 1.5 to 2.0 kg/bird. The price is fixed based on the birds' weight and the health of flocks. The quality of the meat is influenced by the flocks' health, transporting stress, medicine treatment and the quality of feed and water. There is no application of the quality control system for treatability and traceability of the broiler meat after selling the birds from the farms. The bio-security of broiler farms is weak in Al-Karak. The reason is that the farms or farm households are located close to one another within a radius of less than 3km. This increases thoroughfare of people and other animals into the broiler farms. The diseased birds disposed-off properly after checking for diseases in the special firing container.

4.3.2 The broiler chain structure, roles of actors and supporters in the chain

According to the collected information from the surveys and the interviews that broiler supply chain in Al-Karak governorate consists of inputs suppliers, farmers, traders, processors, and consumers as actors. The government represented by MoA, MoH and the Agricultural Credit Corporation as supporters.

- Broiler producers execute both activities of traders and retailers.
- Local middlemen purchase broiler from broiler producers and sell the broiler meat to the rural and pre urban consumers through Natafat.

Stakeholders of the broiler chain are the input suppliers, producers (broilers farmers), broiler middlemen (traders), processors and retailers (small processing units/Natafat), and the consumers. The government of Jordan through the ministries of agriculture (Districts Agricultural Directorates), health, municipals affairs and the industry and trade, and also the Jordan Credit Corporation, and the local government are the main supporters of the broiler farmers as shown below.

Input suppliers: They supply all necessary inputs required by the broiler farms. The inputs for broiler farms include day old chick (DOC), feeds, equipments (drinkers, feeder, and brooders), vaccines and medicines. The broiler farmers purchase these inputs from the private companies in Amman (capital city of Jordan). Other inputs for the broiler farms are new poultry technologies (Ministry of Agriculture) and finance (Financial institutions-Banks).

Producers: They are all the broiler farmers that produce the live broiler birds currently in Al-Karak. At present, there are about 180 farmers operate in Al- Karak. They are buying the DOCs from the inputs suppliers and rearing and fattening them in the semi open houses (conventional systems) and selling the live broiler birds of 45 days age after reached (1.8-2.2kg) to the traders at the farm gate. The

producers are access to basic required facilities like the motor able roads, public and private transport and telecommunication facility.

Traders: They buy the broiler live birds direct from the broiler producers. The broiler traders transport and distribute the live birds in suitable trucks to the small processing units (Natafat) which owned by them.

Processors (Butchers): They work in Natafat where the consumers come to choose the live bird according to the weight and general situation. The butcher slaughter the live bird and clean it from the feather with a small machine or remove the feather and skin manually as the consumer preference then wash the carcass with water and remove the internal organs. The carcass is cut as consumer order also. Natafat play two roles processing and retailing.

Consumers: They are the last actors in the chain who buy the broiler meat from the retailers (Natafat). More than 70% of population or the local consumers favour to eat fresh broiler meat come from Natafat, because the consumer chooses and preview the birds before slaughter and make sure it slaughtered by the Islamic way. Some consumers prefer to consume the chicken meat without skin, and others preferring to processing and cutting in a particular way which is appropriated to the type of the cooked meals, while the remaining consumers use a frozen chicken meat include the hotels and the restaurants.

Supporters:

i) Government of Jordan (GoJ) and Al-karak Governorate Local Government (AGLG) support the broiler chain by applying the following functions:

- To ensure that farms carry out at minimal the standard operating procedure for biosecurity (farms with birds kept indoors continuously; strictly preventing contact with other poultry or wildlife and the distance among the farms should not be less than three km)
- To give licenses to farms that meet the conditions of public health
- To control and prevent the poultry diseases through diagnoses of diseases and the suitable medicines treatment by using sensitive tests, clean and disinfect the farms and apply a proper disposal way of the diseased birds
- To control and monitor the hygiene situation and waste disposal ways in Natafat
- To inspect the live birds and its meat
- To provide the extension services (Veterinary services)
- To license the poultry input suppliers, traders and the butchers
- To provide the infrastructure such as the roads, water and the electricity
- To monitor the weighting process, accuracy of the balances (in Natafat) and showing of price list.

ii) Jordan Credit Corporation (JCC):

It supports the producers and the processors by providing them with loans to start or expand their production and processing projects with long time and low interest than the commercial banks.

i) Agricultural Engineering Association and Jordanian Veterinary Association:

It plays an important role to improve the productivity of livestock sector by spreading the agricultural awareness through introducing a modern production and protection technical methods and also through spreading the new research findings to keep up the farmers with new developments through conferences, seminars and field visits consequently, this will reduces the production cost, improve the quantity and quality of product, competitiveness and increase profits.

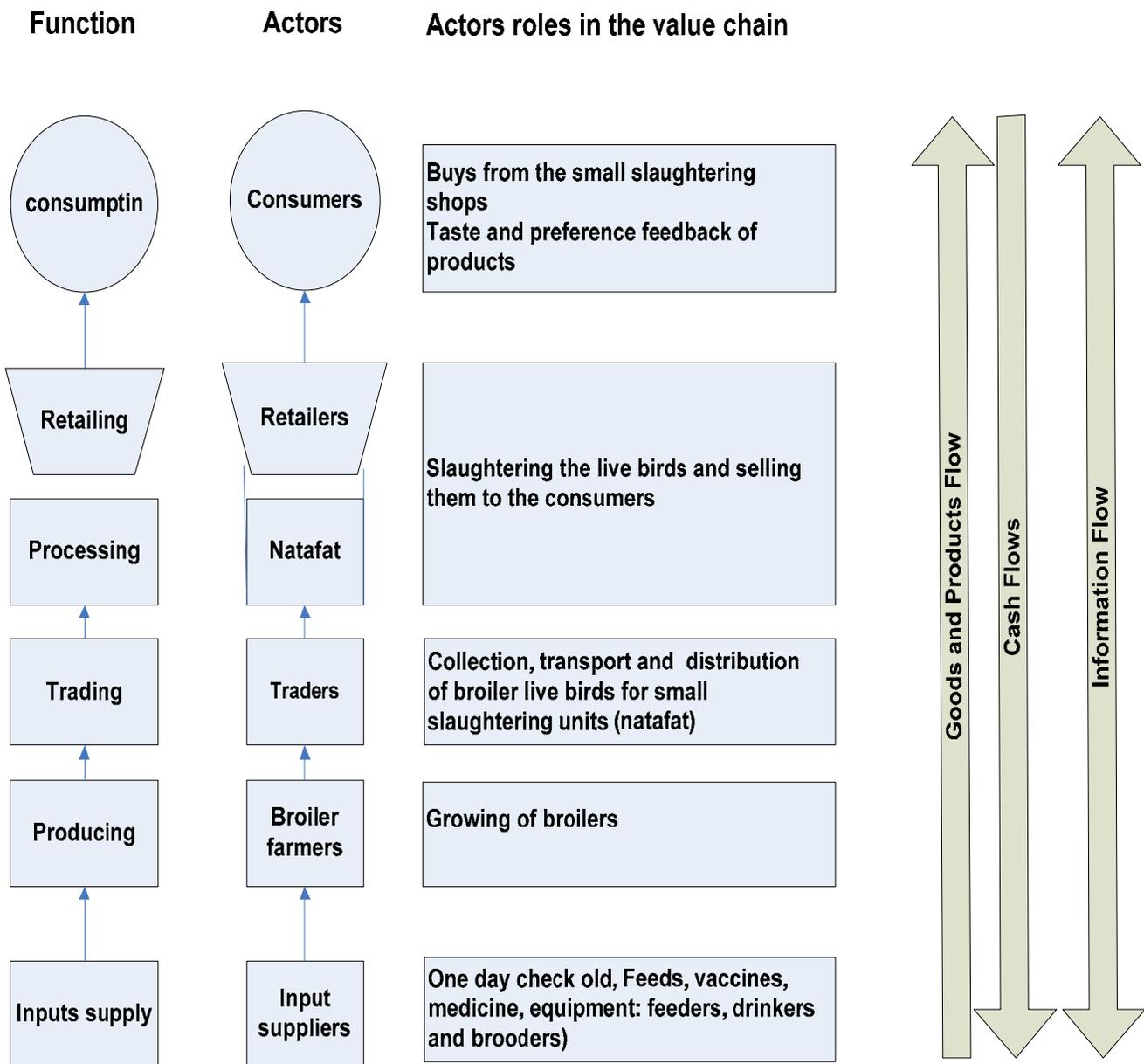


Figure 18. The broiler supply chain in Al-Karak Governorate (small farms)

Source: AGAD report 2009

4.3.3 SWOT analysis of broiler meat market, Al-Karak Governorate, Jordan

This analysis portrays the strengths, weaknesses, opportunities and threats of the broiler sector in Al-karak governorate. Applying effective production, marketing and quality systems (pooling members' products and grading, branding, and certifying the product to meet quality assurance standards) are the main barriers facing the broiler farmers in the chain. The farmers' cooperative association should capitalize on the strength and opportunities, avoid or reduce weaknesses and threats as much as possible through organize and coordinate the broiler farmers by serving them with access to the technical, extension service and the financial support easily.

Internal	Strengths <ol style="list-style-type: none"> 1. Private land for expansion 2. Skilled/experienced family laborers 3. Existing broiler houses 4. Suitable climate 5. Existence of assured market 6. High price of competitive products (beef, mutton and fish meat). 7. Low level of capital investment. 	Weaknesses <ol style="list-style-type: none"> 1. Low production capacity of farms 2. Delay payment of the financial support (Traders). 3. Farms not fully mechanized (traditional systems) 4. Depend on manual labour 5. Low selling price at farm gate 6. Brand name and level missing 7. Inexistence of farmers' cooperative association 8. Quality level 9. Inadequate number of laboratories and diagnosis diseases centres 10. Lack of production and marketing information 11. High mortality rate (20%) 12. One type of products (no product differentiation)
External	Opportunities <ol style="list-style-type: none"> 1. Export and national market for broiler meat 2. More people consume broiler meat 3. Inputs (check, feeds, equipments) 4. Foreign laborers (low wage) 5. Training and advisory Services (Research & Extension) 6. Technology (Poultry) 7. Supportive govt. policy (Agri. Policy) 8. Financial institutions (JCC and commercial banks) 	Threats <ol style="list-style-type: none"> 1. Out-break of poultry diseases 2. Increase of input cost 3. Legislation changes 4. Consumers' preference changes

The problems picked from the existing broiler farm supply chain are:

- The information on quality, prices and value share are not shared among the supply chain actors
- The value focus is on costs and price, and not on improving the quality and the value addition
- No differentiated product commodity
- Relationship is supply pushed
- Organisation is independent
- Philosophy is self optimization

CHAPTER 5: Discussion, Conclusions and Recommendations

5.1 Discussion

5.1.1 Structure of the broiler chain and the roles of the stakeholders

The actors of the broiler chain in Al-karak governorate consist of independent broiler producers, broiler traders, Natafat with Butchers and consumers. According to the surveys, interviews and field study, the broiler supply chain is not well organised due to the weak links and coordination among the actors activities. The mutual information of production and marketing within the broiler chain actors is insufficient. The well organised value chain has strong links and information flows (quality, price, reliability, quantity, supply and demand) within the chain actors which start from the inputs suppliers until consumers as well as chain supporters (Richter 2005).

The marketing systems are more complex for small commercial producers. The production system depends on direct sale to the broiler traders who have the ability to market the whole flock of live birds within a short period of time, typically 1- 3 days through the small slaughtering shops (Natafat) which is found across Al-Karak governorate and owned by the traders then to the final actors (local consumers) without any further processing and products differentiation.

This broiler supply chain is characterized by many producers, a few traders and the same products. So the broiler meat production is driven by quantity regardless the cost prices and with fluctuated selling price.

Many broiler producers do not have an individual influence on the price of broiler chicken. They are only volume adapters. The major traders are controlling the broiler market price. In general, the farmers received price level depends on the total demand and supply. Oversupply leads to low farm gate prices and shortage supply leads to the high farm gate prices. On the other hand, the traders who are determining the broiler selling price to consumer. They take the major share of the broiler chain generated value added. The marketing margin of the traders (middlemen and retailers) was about 54.5% which is more than that for the farmers as shown in table 10.

Table 10: Net marketing margins distribution depends on the average prices at period (01/01-31/07/2010) in JD/kg.

Marketing margin	Producer	Trader & Retailer (Natafat)
Revenue	1.23	1.35
Purchase price	-	1.23
Costs	1.18	0.06*
Net marketing margin	0.05	0.06
Margin share (%)	45.50	54.50

* (0.01 JD for transport & 0.05 JD for processing)

Source: Prepared by researcher based on research survey and interviews

The broiler farmers are complaining that the traders are exploiting them for the reason those farmers had cash barriers and no clear and fair agreements with the traders to sell their birds. It means that the relationship between farmers and traders is not organized or coordinated and can be described as confrontational or adversarial relationship. Most of the broiler producers in Al- karak governorate claimed that the traders do not follow business morals and tried to obtain maximum profit from business transaction. They use many ways such as manipulating and juggling with weighing scale, weighing rounding, under counting and under weighing to mislead the broiler producers (Al-Masad et al 2010).

The results of the field study and the interviews show that due to lack of farmer's cooperation and a weak coordination with other actors in the chain. However as a result of this the broiler farmers are facing the marketing bottlenecks due to the imbalance between the supply and demand, and often the supply is higher than demand and it will lead to reduce the selling prices at the farm gate. The information flow within the broiler chain is insufficient and ineffective.

Furthermore, the majority of the broiler farmers informed that the production inputs (feed and DOC) are monopolized by five big integrated companies which mainly produce the DOC and import the feed ingredients for owned farms and sell them through mediators to the farmers. The integrated companies raise the selling price suddenly to the double in some time to get more profit particularly when increasing exports to the neighbours' countries like Iraq and some gulf countries. In some cases the DOC selling prices reach to 0.5JD instead of 0.25JD and the feed cost raise from 320JD to 420JD. This is happening due to the absence of contracts between the farmers and these companies as a result of lack cooperation and coordination among farmers.

According to the previous barriers, the small broiler farmers in Al-karak claim that the traders and integrate companies play a negative role in the broiler supply chain in terms of cooperation and coordination.

5.1.2 The establishment possibility of the farmers' cooperative association

This survey focuses on the main problems facing the broiler farmers in Al-karak governorate, the southern part of Jordan and the possibility of solving these problems through establishing FCA or other possibilities.

The acceptability of the broiler farmers with the above solutions can be affected by many factors such as the location, age and education level of farmersetc.

The results of this survey showed that there is no influence of location on the FCA acknowledgment (farmers who know what the farmer cooperative association is), farmers' view to initiating of FCA and satisfaction of farmers with the price system in the two locations ($P > 0.05$). The farmers receive extension services from the same resources and deal with the same traders and veterinarian markets. Because of that, no significant changes and responses are expected among the locations within Al-Karak governorate.

On the other hand, the relationship among the farmers age and the FCA acknowledgment and the farmers view was not significant ($P > 0.05$), but with farmers price satisfaction was highly significant because all the farmers response with no except one farmer in the Al Mazar district at 61-70 year old scale which includes only two responses ($P < 0.0001$). Furthermore, the average age of the broiler farmers in the two districts shows that broiler farmers age in the Al Mazar district was about (44.9 ± 10.96) years when compared with those in the Al Quser district which was about (43.6 ± 9.64) years.

Furthermore, there are 15 farmers (37.5%) who got diploma or higher, 14 farmers (35%) got secondary and 11 farmers (27.5%) got primary education level. Thirteen farmers from diploma and above group and seven from the secondary educated group have previous knowledge on FCA. In contrary, all the primary educated farmers do not have any knowledge about the FCA. On the other side 13 diploma or above educated group, 12 from the secondary educated group and only seven from the primary educated group support the idea of establishing FCA. The farmers that showed a negative response to FCA acknowledgment are (27.5%) from the primary educated farmers, 17.5% from secondary and 5% from diploma or above.

The results of the research regarding the average age and the education levels can be considered positive features since most of the broiler farmers fallen within the proper age and education level to be very active and positively respond to the new ideas. Compared with the research from other developing countries, Apantaku (2006) reported that 74% of poultry farmers sample in Nigeria has fallen in the 30-50 year old scale, with an average age of 46.2 year and explained that age scale is usually more active and can be an asset to farmers' participation in the participatory poultry research and development. He also pointed that 85% of farmers have a secondary education and above which will help the farmers to participate effectively in the participatory poultry research and development. Adebayo et al (2005) reported a significant relationship between the educational level and the average production which could be due to the sound knowledge and an efficient management required of the poultry farmers to ensure profitability in the poultry business. This means that the broiler farmers in the southern part of Jordan (Al-karak governorate) can be easily responded to the new technical ideas with high efficiency.

It is very clear from the results of this study that 50% of the farmers do not have any knowledge about cooperative associations, their role and the benefits come from establishing it. The farmers did not know how to organise and coordinate themselves and with the other actors in the broiler chain because of lack extension, awareness and training program about the FCA system that must be supported by other specialized stakeholders. So the farmers need certain processes to form FCA voluntarily according to the government legislation and policy regime in the country to operate as a defined farmers group or membership to serve them with the benefits. These processes are awareness, understanding, commitment, and action (CSC 2005).

Furthermore, it is an important assumption underlying the training materials that the farmers have the skills and capacity for developing the farmers associations, once they are established can be run successfully. Although claims are often made that the farmers lack the required expertise and education to take decisions in this type of association, experience published report that these allegations are incorrect. The farmers with a limited formal education have the capacity for establishing and running successfully FCAs but with the provision of an appropriate training and support (CSC 2005).

5.1.3 The role of the Jordanian Government to support the broiler farmers

The Jordan Government is working hard to solve the problems that facing the livestock producers by developing an eight year strategy plan. The agricultural national strategy 2002-2010 plan under the sub-sector of the Livestock and Rangeland stated the following objectives and implementation strategies concerning the poultry sub-sector:

- Objective 8: Improve Animal Health Services by raising the number and technical standards of staff working in animal health and establishing a research centre for poultry disease and a laboratory for the quality control of veterinary vaccines and medicines .
- Objective 11: Support Livestock Breeders' Organizations and encourage the establishment of councils or specialized breeders associations for production and marketing of produce and provision of support services. This is achieved by establishing specialized breeders associations or councils for the production and marketing of poultry meat.
- Objective 12: Protect local products from illegal competition in accordance with the provisions of Free Trade Agreements. This is achieved by providing all required staff, laboratories and administrative units for the effective protection of local products from unfair competition according to the WTO agreements, namely arrangements for protection from damage, anti-dumping measures and protection from subsidized exports. Establish an effective mechanism for the protection of Jordanian traders and consumers from fraudulent trade practices according to the WTO agreements, namely

Technical Barriers of Trade Agreement, Health and Livestock Health Agreement, and Sanitary and Phytosanitary measures.

- The government of Jordan is calling for tenders to erect a multi-species abattoir including a poultry processing line to improve the production efficiency of the poultry sector. The abattoir will sign contracts with the broiler producers for slaughtering and processing of their product which will provides the farmers with an opportunity to access the consumers directly without the involvement of middlemen and traders (MoA 2009).

The ministry of agriculture notices the importance of establishing the associations for the cooperative work among the livestock farmers since they mentioned it in the strategy plan, but unfortunately establishing the poultry sub-sector associations faced with many problems in Jordan. According to the result of the survey, interviews and field observations give an explanation of the slow progress of the broiler sub-sector association.

It is very clear, the cooperation work is very crucial to broiler farmers since it can help them by accessing the credit to expand in production, reduce the mortality rate (morbidity and heat stress), reducing the medicines using and improving of feed conversion through applying an effective rearing programs and developing and improving the farm system (feeders, drinkers, heating, ventilation or cooling) which lead to increase the productivity with high quality and biosecurity level and reduce the production cost through an extension service and financial support. Moreover, The mortality rate is increased significantly due to the heat stress in the sudden hot waves exceeds 30 °C in summer, in some cases the mortality exceeded 40% of the broiler birds at marketed age during a heat wave when the environmental temperature reached to 40 °C and lasted for 3 to 7 days, also the rise of environmental temperature more than 25 °C has a negative affect on the broiler birds performance consequently increases the cost of production due to the absence of an effective ventilation and cooling system (Al-Fataftah et al 2007).

On the other hand, the cooperative association can be the first step to access to the international and national donors and get investment through the ministry of planning to improve the marketing system by establishing a modern processing system which will produce differentiated and high quality broiler meat products with a competitive price. This will help the farmer to access directly to the consumers without compelling to pass through the broiler traders.

5.2 Conclusions

The current production system is traditional commercial system and characterized by producing one type of product, poor quality control assurance system, lack of agricultural management practices and sustainability process due to insufficient credit, technical assistance and extension services to convert from conventional production system, which depends on the environmental conditions to the modernize production systems (artificial controlled production systems) to raise the level of biosecurity, reduce the mortality rate resulting from the morbidity, as well as a result of high environmental temperature during sudden hot waves in the summer season.

All the farmers' samples in this research were a small-scale broiler producers and the farms capacity ranged from 4 to 24 thousand birds per each production cycle, about 50% with capacity less than ten thousands, 35% between 10 to 20 thousands and 15% of farms with capacity from 20 to 24 thousands. The production cycle average of those farms is five cycles/year.

The broiler supply chain in Al-karak is not well organised and still remains in a conventional position due to the weak links and coordination among the actors' activities. The production and marketing mutual information flow within the chain actors and the financial support are insufficient consequently; the broiler farmers are facing the marketing bottlenecks due to imbalance between the supply and

demand and could not reach to the local consumers directly without passing through the intermediaries (traders and retailers).

Most of the broiler producers in Al- karak governorate claimed that the traders do not follow the business morals and tried to obtain the maximum profit from business transaction, they use many ways such as manipulating and juggling with weighing scale, weighing rounding, under counting and under weighing to mislead the broiler producers. The broiler farmers are complaining that the traders are exploiting them because the farmers had cash barriers and no clear and fair agreements with traders to sell their birds. This means that the relationship between farmers and the traders is not organized or coordinated well; it can be described as a confrontational or adversarial relationship.

The small broiler farmers in Al-karak informed that the production inputs (feed and DOCs) are monopolized by the five integrated companies which are selling the inputs to the traders or other intermediaries and determining the selling price according their benefits without give any attention to the farmers. Therefore the broiler trades and integrated companies have a negative impact on the developing and organising the broiler chain among the country.

The farmer education level plays an important role in getting the FCA acknowledgment and supporting the FCA establishing idea. This means that the farmers need to understand, awareness and training programs (informal education) to building their management capacity of establishing and maintaining the FCA with progress way and effective actions to serve the members for achieving their purpose.

The majority of the broiler farmers in this research are high willing to participate in FCA, about 80% of farmers supported the idea of FCA establishment in contrary, most of the traders unwilling and did not support the idea of FCA establishment.

The constraints that militate against the FCA establishment are lack knowledge of farmers regarding the idea of the cooperative associations, lack of volunteers in the area of the establishment of cooperative associations in the poultry sector, mislead traders to the small farmers about the goals of FCA, indebtedness of the small farmers for the traders and their inability to repay the debt immediately if requested by traders and fear of the prosecution and seizure of property and the absence of serious applying of government policy to awareness and guide the farmers to organize themselves into agricultural cooperative associations for helping them in solve the problems facing the production and marketing process, and linking them with the national and international donate or investment to set up a modern slaughterhouse for poultry to reduce the excess supply and transform the main product to other products with high quality and a long shelf life either by freezing or transforming such as Siniora and Showerma and Sausages.

5.3 Recommendations

The Government (MoA, Livestock Production and Veterinary Affairs Departments) should develop an applicable national strategy to organise and coordinate the broiler production and marketing and encourage the small broiler farmers to come together to organise themselves in cooperative system to develop the broiler industry in terms of productivity, quality, quantity, logistic and marketing and achieve fair profit for all farmers and satisfy the consumers with qualified and differentiated broiler meat products. Moreover, the assurance of functional and sustainable of broiler cooperative association is very crucial.

The Government (Agriculture, municipality affairs, environment and planning Ministries) should also take initiatives to develop laws which can help the farmers to reach their products directly in the market. Finding means of direct linkages between the producers and the consumers will provide chance to producers to understand the consumer's behaviour. This will result in better conditions in broiler marketing process. Encouraging investment to develop the infrastructure is so important to

develop the broiler industry. The provision of credit to the producers will allow them to sell their product directly to the consumers without passing through the broiler traders.

Supporting poultry farmers in terms of extension and finance to get renewable energy, where it is available in Jordan (solar, wind and biogas) to reduce energy costs and thereby reduce the production costs and increase the environmental conservation. For instance, the solar system is available in Jordan nowadays with twenty years operational life and cost only five thousands JD.

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Appendices

Appendix A: Survey questionnaires for small-scale broiler farmers

1. Farmer Age

2. Location:

Village.....Town.....

District

3. Educational standard

Level of education	Answer
Never been to school	
Primary level	
Secondary level	
Diploma level& above	

4.What is the total area of farm in dunam (1000m²)?

Total area	Answer	Farm capacity	Cycle/ year	Cost price / Live kg	Selling price at farm gate
Less than one dunam					
1-2 dunam					
3-4 dunam					
5 dunam and above					

5. Who purchases your chicken?

Type of dealer	Answer
Broiler traders	
Small processing units (Natafat)	
Slaughterhouses	

7. Why do you choose this dealer in question 8?

8. Are you satisfied with the price of broiler per Kg, if no, how do you look to improve it (pricing system)?

9. How can broiler marketing be improved (farmer vision)?

10. Do you know what the agricultural cooperative associations are? If yes mention.

If not after you did know; what is your opinion on the Idea of establishing a small-scale broiler farmers association, Al-Karak province?

The Choosing	Answer
Very good Idea	
Good idea	
Bad idea	
Very bad idea	

11. What are the reasons for the given answer in question 10?

12. Who provides you with market information?

The source	Answer
Government(Extension office)	
Broiler middlemen	
Small processing units (Natafat)	
Slaughterhouses	
Veterinary office	

13. What type of market information do you get from the answer you have answered in question 12?

Type of information	Answer
Quality	
Price	
Number/ Volume	
None	

14. What are barriers faced you in selling your birds?

15. What are your suggestions to exceed these barriers?

16. What is your opinion with the roles of the broiler traders and the poultry integrated companies?

Appendix B: Interview checklists

B.1 Checklist for the broiler traders (Middlemen)

1. What the challenges do you face in the broiler chain?
2. What are the measures to be taken to minimize these challenges?
3. What is your opinion on the Idea to establish small-scale broiler growers association?
 - Give reason(s) for your opinion.

B.2 Checklist for the broiler butchers

1. What was the average selling price in the first half of 2010?
2. Who is the owner of this processing unit?
3. What is processor salary?
4. What is the quantity of live birds do you sell per month?
5. What is the operating cost of the processing unit?
6. Who is determining the selling price?
7. Why does the consumer prefer to purchase broiler live birds?
8. Who is taking responsibility to quality control?

B.3 Checklist for the consumers

1. Do you like to purchase live bird from Natafat? If yes, why do you like that?
 - Quality and tasty
 - Freshness
 - Processing way (halal way, type of cutting).
 - Price.

B.4 Checklist for the district livestock and Cooperative directorates' managers

1. What should be done to initiate and legally register for the small-scale broiler association?
2. What the government has to do in order to help small farmers come together?
3. Why the small broiler farmers did not come together to initiate FCA?
4. What are the roles, functions, management and capacity building requirements of broiler growers association?
 - Roles and functions of FCA.
 - Capacity building support for FCA.