



USAID
FROM THE AMERICAN PEOPLE

JAMEED SUBSECTOR ANALYSIS AND PRODUCT DEVELOPMENT

December, 2008

This publication was produced for review by the United States Agency for International Development. It was prepared by Reem Goussous / Al Jidara

JAMEED SUBSECTOR ANALYSIS AND PRODUCT DEVELOPMENT

USAID JORDAN ECONOMIC DEVELOPMENT PROGRAM

CONTRACT NUMBER: 278-C-00-06-00332-00

BEARINGPOINT, INC.

USAID/JORDAN ECONOMIC OPPORTUNITIES OFFICE (EO)

DECEMBER, 2008

AUTHOR: REEM GOUSSOUS / AL JIDARA

DELIVERABLE N^o: 5.14.4.26.14.4

DISCLAIMER:

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

CONTENTS

INTRODUCTION	2
Background	2
About Jameed	2
SWOT ANALYSIS.....	3
Strengths.....	3
Weaknesses.....	4
Opportunities.....	4
Threats	4
Justification for Support	5
JAMEED SUB-SECTOR ANALYSIS.....	6
Fodder.....	6
Milk production	7
Milk collection and distribution	10
Jameed Processing	11
Drying / Storage	14
Transport – Product Delivery	14
Local retail market.....	15
Urban market	15
MAIN PRODUCTION UNITS.....	16
PHASE I – UPGRADE/SUPPORT CURRENT PRODUCTION FACILITIES.....	24
PHASE II – CREATE A NEW UMBRELLA ENTITY	26

INTRODUCTION

The objectives of this assignment are to:

1. Diagnose the dairy subsector jameed product in Karak and the requirements needed to sustain production levels of jameed and enhance its quality
2. Identify partner associations / stakeholders (production units) and mechanism for collaboration.
3. Identify the minimal technical and general health requirements for the production units.
4. Assess the equipment, training and marketing needs of associations under each unit in order to fulfill the minimum standards required to produce quality jameed
5. Identify the legal umbrella for an overarching entity that will overlook the management and implementation of the project.

The report was prepared with the collaboration of two technical experts, Engineers Za'al Kawalit and Lama Majali. Mr. Kawalit is an expert in the production of dairy products, and runs a semi-automatic dairy facility in the Ader locality which he leases from the Karak Sheep Breeders Association. The facility is considered the only one that produces jameed and other milk by-products on commercial basis. Ms. Majali is the president and founder of Shafa Al-Khair Association, which was established for the purpose of producing homemade food products including jameed.

BACKGROUND

ABOUT JAMEED

The making of jameed has been a Jordanian tradition for hundreds of years. It has a long history with the Bedouin life style and had long been known for its easy preparation and storage for future use. Jameed is made from sheep milk¹ and is a main ingredient used in Jordan's traditional dish, the mansaf. Today, mansaf is not considered to be of utmost authenticity unless it is cooked using jameed from Karak.

Jameed is also used in other dishes popular in Karak such as Al Rshouf soup or Al Madkouka (ground wheat, lentils and jameed) and fatteh (includes toasted pieces of bread, jameed, tomatoes and ghee).

The taste of jameed differs from one governorate to the other. It varies as a result of the variations in weather conditions, and the diet of the sheep and goats (availability of fodder). Sheep raised in arid conditions, such as Karak, produce milk that is more acidic. Karak's weather and diet apparently generate the best tasting jameed!

¹ Sheep milk is denser than goat milk and thus produces better jameed. Some however make jameed from goat milk; it is considered of lower quality.

There is one jameed producing factory in Ader that is owned by the Karak Sheep Breeders Association. The facility is leased to Eng Za'al Kawalit against an annual fee. Smaller production units are in Shreif, Shafa Al Kheir, and Muhayy.

At present there are no official statistics on the total quantity of jameed produced in Karak since many households produce jameed for their own consumption at home. Expert interviews indicated that total production of jameed is estimated at 140 tons per annum, 10% of which is produced by the Ader Factory.

Between 80-90% of jameed is produced by women at home using traditional methods of production. Most home producers get their milk supply from their own herd of sheep and goats. Additional quantities are obtained from friends, neighbors and relatives. Milk in most cases cannot be supplied from distant locations because it is often transported in vehicles that are unhygienic and are not equipped with the needed chillers to keep the milk fresh and low in acidity. There are no large-scale farms that operate on commercial levels.

The production season of jameed usually extends from the beginning of March till end of June (with the best quality of milk produced between March and May).

Amman is the largest market for jameed capturing around 70% of total sales. The USA and Gulf Countries are by far the best potential export markets to target, given the large Jordanian and Arab communities in both regions.

SWOT ANALYSIS

STRENGTHS

- 1- Karak is already famous for its jameed not only locally, but also regionally and internationally. The name is already 'branded' and the product is easily marketable and highly sellable.
- 2- Almost every household has a skilled jameed producer, a skill that has been passed on from one generation to another. Therefore, the availability of a skilled workforce is abundant.
- 3- There is high demand for jameed that far exceeds supply. The local market alone can absorb ten times the current supply.²
- 4- Weather conditions in Karak produce milk that results in the best tasting jameed.

² Based on interviews with a number of home producers.

WEAKNESSES

- 1- Difficulty in the collection, transportation, and supply of milk due to the lack of hygienic and properly refrigerated means of transport.
- 2- Weak marketing capabilities
- 3- Employment of basic production techniques and minimal adherence to health and safety standards.
- 4- Home production at small levels – not making use of economies of scale
- 5- Producers and suppliers depend on oral agreements. Such non-binding agreements do not guarantee to the producer the supply of milk at the agreed times and quantities. Suppliers of milk go with the buyer that is willing to pay the highest price.

OPPORTUNITIES

- 1- Increasing production of by products including ghee, butter and serum that is used in the production of fruit juices.
- 2- Diversifying the product range. Shafa al Khair cooperative for example mixes thyme with the jameed. Another suggestion was to produce powdered jameed to make exporting it much easier as it takes less space.
- 3- Networking between cooperatives and women producers to increase production levels
- 4- Growing demand abroad including Gulf countries, the US and UK.
- 5- Organizing an annual jameed festival at the historic Karak Castle to act as a market outlet and a tourism hotspot where visitors would get a chance to see how jameed is made and taste a number of food dishes made using jameed as the main ingredient.

THREATS

- 1- Drought is estimated to slash the number of sheep and goats by 35-50% thereby substantially reducing the amount of milk produced per annum.³
- 2- Prices of animal feed are on the rise and have adversely affected the number of livestock, and thereby the production of milk – jameed's main raw material
- 3- Production of jameed depends on the rainy season. If there is drought there is little milk and subsequently little jameed
- 4- A number of producers jeopardize quality to sell on a commercial level. This includes mixing goat milk with sheep milk, and even mixing water with milk. This will tarnish the reputation of Karak's jameed.

³ Based on visit brief by Mr. Hassan Istaitiyah, Sr. Field Coordinator with the Lebanese-based ACDI VOCA, July 2, 2008.

- 5- Rising competition from the cheaper Syrian and Turkish jameed. Cheaper, but lower quality!
- 6- A substantive number of households in Karak depend on the income generated from the production and the sale of jameed. Therefore, the anticipated reduction in the supply of milk will have adverse effects on the level of income of those families.

JUSTIFICATION FOR SUPPORT

Many families in Karak depend on the production of jameed as a supporting source of income. It is produced by women at home and sold primarily to family and acquaintances in Karak and Amman. Karak's jameed is internationally acclaimed to be the best-tasting. It needs no branding, and basically markets itself. Demand exceeds supply, and is anticipated to do so for the years to come. What is therefore the justification for supporting this home industry?

There are four supply factors that are seriously straining the production levels of jameed, even threatening the livelihood of this traditional industry. These are: livestock, rainfall levels, fodder, and transportation. The first three factors are intertwined. Last year, the price of fodder increased as a result of the general global rise in food prices and the lift of subsidies on fodder by the government. This rise in the cost of feeding the animals had major adverse repercussions on the population of livestock in Karak. Coupled with drought, the population of livestock is believed to have dropped by half as many poor breeders were unable to feed their sheep and goats.

The reduction in the population of livestock will translate into a reduction in the supply of milk, and subsequently in the quantity of jameed produced. This was felt during the year 2007's production season, where the supply of milk was lower than it was in the previous year.

This is further exacerbated by the lack of proper means to transport milk from the more remote areas to the various production units.

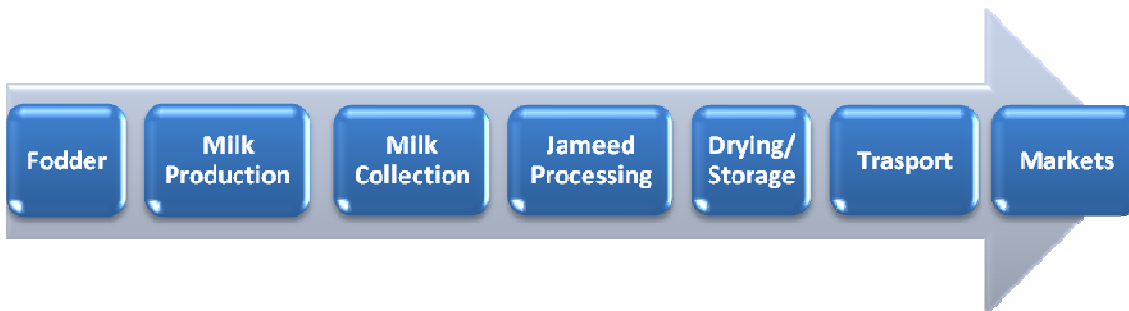
From the demand side, the main straining factor is cash. As the price of milk increases every year due to the drop in supply, women's purchasing power of milk diminishes, thereby translating into lower production levels of jameed.

In order to better identify the challenges faced by the jameed production industry, the following subsector analysis will aim to shed light on the various functions related to the jameed production process. From this analysis, intervention/support measures can be identified to overcome those challenges.

JAMEED SUB-SECTOR ANALYSIS

The analysis of the jameed subsector will examine the following ‘functions’ that impact the production of jameed. These begin with fodder, milk production, milk collection, jameed processing, storing/aging, transport, local retail market, urban market, and end with export market. The objective of this analysis is to shed light on the challenges facing this subsector and identify intervention measures in each function.

Figure: ‘Functions’ of Jameed Subsector



FODDER

Main fodders in Karak include:

- Barley (الشعير): this is the main fodder used to feed sheep and goats;
- Bran (النخالة): purchased from mills after grinding wheat;
- Beans (البقوليات): grown in limited amounts; they include clover (البرسيم), common vetch (الكرسنة), and viciae album (الببيقيا);
- Hay (التبن): obtained after wheat is harvested. It is then mixed with bran.

Viciae Album is the most suitable animal feed⁴. It is grown in arid areas that receive annual rainfall between 200-250 ml (see box 1).

Fodder, and mostly barley, is grown in the peripheral areas of Karak where rain fall does not exceed 200ml per annum. Limited amounts of common vetch and viciae album are grown in Karak.

Fodder is mostly imported by the government, and primarily barley. Locally grown feed is done by sheep and goat breeders who rent lands for this purpose.

Box 1: Main advantages of Viciae Album

- Endures draught
- Enriches soil with nitrogen and increases its fertility
- High in nutritional value with protein content of 22%. It is also a good source of vitamins and minerals.
- Planting barley after viciae album is harvested yields a good harvest
- Increases sheep's milk production by 30%
- Increases sheep's meat by 250 gm per day
- Improves the health of sheep due to its high nutritional value

⁴ Source: Engineer Za'al Kawalit, sheep breeder and jameed producer

Purchase of fodder is made directly between field owners/growers to sheep and goat breeders. In case fodder is not suitable for harvest, sheep and goats graze directly for a timed period. If fodder is harvested, it is stored, sold to the government, or directly to breeders.

Fodder Production in Karak

Area in dunums, and production in tons

District	Wheat		Barley		Common Vetch	
	Area	Production	Area	Production	Area	Production
Karak	15,000	1,200	9,700	582	500	21
Qaser	25,000	3,750	10,600	1,272	135	7
Fuqou'	6,500	650	5,500	715	-	-
Mazar	17,700	1,638	14,200	1,100	1,900	175
Ayy	2,500	150	3,800	304	500	35
Total	66,700	7,388	43,800	3,973	3,035	238

Source: Ministry of Agriculture

Demand for fodder far exceeds supply, and market prices differ from one season to the other. The government currently provides breeders a subsidy that is equivalent to 10kg of barley per head of sheep or goat per month.

- ➔ **Need to spread awareness regarding the use of suitable animal feed that would increase milk production given the current drought conditions.**

MILK PRODUCTION

- Milk is produced by sheep and goat breeders; a job that is dominated by women.
- Milk production from goats is higher than that from sheep with a ratio of up to 4:1 depending on the breed. Production from some of the enhanced breeds can reach up to 2 kg/ day per head of goat compared to only 0.5 kg/day per head of sheep.
- Sheep milk is considered the best and most favored milk for producing jameed because of the high content of dry material in the milk, which is double that of goat and cow milk – sheep milk is denser. Moreover, when cooked, sheep milk is more cohesive and does not break up like other milk. It also has a more distinguished (preferred) taste.
- Sheep and goats consume between 5-7 liters of water per day depending on the temperature. Consumption of animal feed also depends on the availability of natural pastures (i.e. rainfall).
- There are multiple uses of milk. Most jameed producers use milk to produce ghee as well. Production of jameed and ghee is easy and does not require many tools and

equipment such as those required by the making of cheese for example. Factories are better equipped to produce - in addition to jameed - cheese, labane⁵, and butter. Many breeders keep some milk for drinking and especially goat milk because it is lower in fat.

- Milk production can be doubled by introducing high-producing breeds into the herds. Feeding 'green' fodder to sheep also increases milk production substantially.
- Milk is sold directly by the producers (sheep and goat breeders) to the buyers. Buyers are either individuals/families that purchase the milk to produce jameed at home, or small-scale factories. Purchase agreements are mostly done verbally. Sometimes contracts are signed that specify price of milk and delivery quantity and period.
- Price of sheep milk ranges between JD0.75-0.8 per kg. As for goat milk, it ranges between JD0.45-0.5 per kg. Sheep milk is more expensive because it is the preferred milk due to its high density.
- Main constraints to milk production can be summed as follows:
 - Drought causes reduction in pastures for grazing. The less greenery sheep feed on, the less milk they produce.
 - The recent hike in the prices of fodder has limited the ability of the 'poor' breeders to provide sufficient amounts of feed for the sheep and goats, thereby reducing the amount of milk produced.
 - Existing breeds of sheep are of low-milk producing types. Need to inject enhanced breeds.

Estimating Production Capacity

- It is very difficult to estimate the total production capacity of milk in Karak. Many breeders living in the neighboring Governorates of Ma'an and Tafilah send their herds to graze in Karak especially during the spring season. Therefore, the number of sheep and goat changes from one season to the other. Moreover, many home producers purchase milk from suppliers in the southern and middle badia, where many sheep and goats are bred, in addition to other governorates as well.
- Sheep milk production extends over a period of 4 months during the year on average (March-June). Total annual production of sheep milk is estimated to range between 60 kg/head when pastures are green, and drops down to 40kg/head in draught years.
- There is an estimated 355,838 heads of sheep in Karak based on official statistics. These are mostly concentrated in Al Qasabah (31%), Al Mazar (22%), Qatraneh (13%) and Al Qaser (16%) as illustrated in the table below. The large sheep comprise 75% of the total number.

⁵ Soft cheese made from strained yogurt.

District	No of Breeders	Number of Sheep		
		Large	Small	Total
Al Qasabah	1,213	84,981	25,476	110,457
Al Qatranah	432	53,260	15,127	68,387
Al Qasr	584	40,805	17,683	58,488
Al Mazar	989	60,215	17,907	78,122
Ayy	177	4,387	2,169	6,556
Fuqou'	411	16,898	7,373	24,271
Ghor Al Saifi	373	7,993	1,564	9,557
Sub total	4,179	268,539	87,299	355,838

Source: Department of Agriculture

- In order to estimate total milk production in Karak, the following assumptions will be made:
 - Only 65% of large sheep produce milk every year.⁶ This is due to the fact that some sheep are pregnant during the milking season (spring), while other sheep might not have milk due to poor feeding conditions.
 - Each head produces an estimated 50kg per year (average between good year and draught)
 - Only large sheep is milked, small is eliminated.

Subsequently, the total estimated amount of milk production, broken down by district, is shown in the table below:

District	Total Number of Large Sheep	Number of Sheep Available for Milking ^a	Estimated Annual Milk Production (tons) ^b
Al Qasabah	84,981	55,238	2,762
Al Qatranah	53,260	34,619	1,731
Al Qasr	40,805	26,523	1,326
Al Mazar	60,215	39,140	1,957
Ayy	4,387	2,852	143
Fuqou'	16,898	10,984	549
Ghor Al Saifi	7,993	5,195	260
Sub total	268,539	174,550	8,728

^a 65% of the total number of large sheep

^b Number of sheep available for milking multiplied by 0.05 tons

Total milk production is therefore estimated at around 8,700 tons in the Governorate of Karak.

- ➔ **Need to spread awareness regarding the use of suitable, clean and hygienic containers for storing milk, in addition to awareness regarding milk storage methods.**

⁶ Technical team estimates

MILK COLLECTION AND DISTRIBUTION

- Milk is primarily transported in plastic containers by the breeders' private vehicles (car or pick-up). Buyers sometimes buy directly on site and transport the milk in their own vehicles. In both cases, there is a high risk of a rise in the acidity of milk because the vehicles are not equipped to preserve the freshness of the milk. Moreover, plastic containers are not the most suitable for transporting milk.
 - Ader Factory uses aluminum containers. Milk is delivered by the breeders early in the morning and at night. This factory has the needed equipment and tools to test the milk (its freshness and Ph level). It is also equipped with chilled storage facilities to keep the milk fresh and in a good condition to be made into jameed the next morning.
 - The Ader Factory buys milk from the Ader locality, and from main producers who deliver the milk themselves to the factory. These large producers are located in the Qatraneh and Qaser Districts. The Ader Factory is not equipped with transportation vehicles, and thereby relies on milk producers to deliver the milk to the factory. The factory has the needed storages facilities and can therefore receive milk at any time, store it and process it in the morning.
 - Smaller production facilities, such as Shafa Al Khair Cooperative, used to rent a vehicle to collect the milk. Nonetheless, this option is highly dependent on the price of diesel. This year, and due to the hike in oil prices, the rental option was not viable because it translated into high transportation costs. Moreover, the vehicle, which was not equipped with the needed chillers, was not able to travel for long and collect the milk from more than one source.
 - Breeders do not have proper storage facilities. If milk is not transported to buyers in the evening, it is stored in plastic containers overnight (not in fridges), and transported the next morning. This milk usually becomes high in acidity.
 - Quality control methods vary between factory and home producers of jameed. Factories have special tools to measure the acidity and density of milk, in addition to employing their expertise by smelling the milk. Home producers rely on their experience in smelling and tasting the milk to check for its freshness.
 - **The main challenge in the milk collection and distribution process is the lack of proper storage and transport facilities.** This includes fridges, chilled pick-ups, and stainless steel containers. The lack of the aforementioned hinders the ability of milk producers to sell the milk to areas outside their neighborhoods/villages. If the transportation process is lengthy, milk will turn sour. **This also limits the ability of collecting milk from more than one source (due to longer travel time) in order to sell the milk on a more commercial basis.**
- ➔ **Need to organize the logistics of purchasing and distributing milk from the small breeders. Need to also spread awareness regarding proper storage and transport methods that would help preserve the freshness and quality of the milk for longer periods of time.**

JAMEED PROCESSING

- It is estimated that 10 kg of milk produce around 1kg of jameed and 0.5 kg of ghee. The 10kg of milk are purchased for JD8, and the 1kg of jameed and 0.5kg of ghee are sold for JD8 and JD3 respectively. Subtracting production costs of around 5%, profit is estimated at around 30%. Production costs in factories are higher, but are compensated for with the higher production rates.
- Home production is traditional and employs the use of simple tools. More advanced tools and equipment are used in factories, particularly when the milk is pasteurized. It is sanitized from germs using proper equipment, and is treated at the correct temperature. This way, factory producers can expand their range of products to include jameed, butter, cheese, labaneh, yogurt, liquid yogurt (لين مخيض) and ghee.
- It is estimated that home production exceeds 100 tons per annum and comprises around 70% of total jameed production in Karak.
- Jameed production of cooperatives and the Ader Factory is estimated at 40 tons per annum, comprising around 30% of total jameed production in Karak.

Table: Who is Producing Jameed?

Producer	Average annual production	Price (JD/kg) ⁷	Source of raw material	Buyer
Women at home	More than 100 tones are produced annually	8-10	<ul style="list-style-type: none"> Own domestic sheep Relatives sheep From other areas located at the outskirts of the governorate starting from Al Jeezah to Al Qatraneh districts. 	<ul style="list-style-type: none"> 60- 70% from Amman (mostly families) 10% for Karak 30% for other governorates
Cooperatives	Together, the cooperatives and factories produce a total of 40 tones annually.	8-10	<ul style="list-style-type: none"> Own domestic sheep Relatives sheep From other areas located at the outskirts of the governorate starting from Al Jeezah to Al Qatraneh districts. 	<ul style="list-style-type: none"> 60- 70% from Amman (mostly families) 10% for Karak 30% for other governorates
Factories		8-10	<ul style="list-style-type: none"> Own domestic sheep Relatives sheep From other areas located at the outskirts of the governorate starting from Al Jeezah to Al Qatraneh districts. 	<ul style="list-style-type: none"> 60- 70% from Amman (mostly families, supermarkets, it is important to mention that most of the families end up sending Jameed to their relatives in Saudi Arabia and United States of America) 10% for Karak 30% for other governorates

Source: Expert Interviews

⁷ The price of jameed this year varied, ranging from JD8-10 per kilo depending on the quality of the product. This range was up from last year's JD5-7 per kilo because of the drought that limited milk production, thus hike in its price, in addition to the removal of subsidies on fodders, which raised their price as well.

- The team of consultants conducted one-on-one interviews with a number of experts⁸ in the production of jameed in order to document the technical requirements and processes needed to produce jameed according to the minimum accepted safety and hygienic standards. These are presented in the table below:

Table: Technical Elements of the Jameed Production Process	
Raw Material	<ul style="list-style-type: none"> ▪ Sheep milk (not mixed with goat milk), which has to be clean from impurities, fresh and has low acidity levels ▪ Cool water ▪ Pure table salt without iodine
Tools and Equipment	<ul style="list-style-type: none"> ▪ Milk transportation pots ▪ Cloth for straining milk ▪ Stainless steel or aluminum pots for heating milk ▪ Large gas burners ▪ Cooling pots ▪ Basin for placing serum separation bags ▪ Fridge for cooling the milk ▪ Freezer ▪ Weights ▪ Stainless steel plates ▪ Shaker ▪ Kneader ▪ Drying racks (stainless steel) ▪ Thermometer ▪ Acidity meter ▪ Drying bags
Production Process	<ol style="list-style-type: none"> 1. Strain the milk from impurities using a special soft cloth 2. Boil milk or pasteurize it to 90°C using a pasteurizing machine 3. Cool the milk to 42-45°C 4. Add liquid yogurt (2-4% of total volume) to the cooled milk and mix well in the mixing pots 5. Seal mixing pots for at least three hours to transform to yogurt 6. Place yogurt in the fridge to cool for 24 hours. This will stop the acidity and freeze the fat that can be separated and used in the making of butter 7. Place the cooled yogurt in the shaker/separator machine, and add salt (2-3% of total volume). During the shaking process, very cold water is added to the yogurt to freeze the fat and separate it from the yogurt. Place the collected fat in freezing water, and then squeeze well to remove any remains. 8. Place yogurt in special pots and heat on low fire up to 55°C and until the serum is separated from the yogurt 9. Cool yogurt to reach room temperature

⁸ Experts included Engineer Za'al Kawalit, Engineer Ahmad Sagheer from Mutah University, Engineer Lama Majali, and Dr. Malik Hadadin, professor at the University of Jordan.

Table: Technical Elements of the Jameed Production Process

	<ol style="list-style-type: none"> 10. Place yogurt in special cloth bags for 24 hours to strain the yogurt and separate the serum fully. 11. Add salt to strained yogurt (5-7% of total volume) and mix well 12. Place salted yogurt in cloth bags with smaller pour and place weights on the bags to strain further and for another 24 hours 13. Take out yogurt paste and mold into jameed balls and add some salt 14. Place jameed balls in the shade for 48 hours without exposing it to 15. Dry under indirect light, in special ventilated bags.
Expiry date	2-3 years depending on the level of salinity, moisture level and proper storage conditions
By-Products	<ul style="list-style-type: none"> ▪ Butter ▪ Ghee ▪ Serum
Quality Control Measures	<ol style="list-style-type: none"> 1. Pre-Processing Stage: <ul style="list-style-type: none"> – Overall cleanliness of production room – Clean and high quality milk and salt – Clean water – Clean pots, machines and other tools/equipment/machines – Cleanliness of worker (need to follow general health requirements – see below) 2. Processing Stage: <ul style="list-style-type: none"> – Adhere to the 15 steps of the production process (above) – Adhere to specified ingredients and quantities – Adhere to specified temperatures during the various stages of production – Adhere to general health and safety requirements (see below) 3. Post Processing Stage: <ul style="list-style-type: none"> – Use clean and proper technical procedures to package and dry the jameed
General Health Requirements	<ol style="list-style-type: none"> 1. Workers: <ul style="list-style-type: none"> – Obtaining a ‘disease-free’ certificate – Wearing clean work uniform – Assuring personal hygiene 2. Production Unit / Site: <ul style="list-style-type: none"> – Tiled floor and walls with ceramic tiles – Proper water drainage system to avoid formation of pools – Washing basin for workers – Proper ventilation – Installing screens on doors and windows to prevent insects from flying in – Production units must be isolated from the preparation and milk

Table: Technical Elements of the Jameed Production Process

	receiving stations
	– Manholes must be firmly sealed at an incline
	– Clean water tanks
	– Production unit must be sterilized weekly
	3. Equipment and Tools:
	– Stainless steel or aluminum tools
	– Straining cloth must be washed after every use
	– Equipment and tools must be sterilized after each production process

Source: Technical Expert Interviews

- ➔ **Two main challenges face jameed producers at home during this stage. The first one is the lack of tools and equipment needed for the proper handling and processing of milk. The second challenge is the predominant production under unhygienic settings. Many producers have their own sheep in their backyard, and this attracts many flies. Personal and household hygiene is also lacking.**

DRYING / STORAGE

- Jameed has to be dried after it is produced and before it is stored in order to prevent it from molding. Moreover, if the ratio of salt is low, it might also trigger molding.
- The most suitable way to store jameed after drying it is to place it in a cloth bag, and then place the cloth bag in a plastic bag. The plastic bag is then placed inside a plastic container and covered. Jameed should be checked at least once a month. Jameed should not be allowed to dry further during storage, as this will change its color and taste.
- Due to the high demand for jameed, it is rarely stored by the producers.

TRANSPORT – PRODUCT DELIVERY

- Buyers usually go to the producers to purchase the jameed. Sometimes the producer delivers the jameed to the buyers.
- Product delivery to areas outside Karak can be cumbersome to both the buyers and the producers since most producers do not have personal cars to deliver the products. Public transportation is primarily used by a young male member of the producer's family to deliver the product to buyers in faraway place (ex. Amman).

- ➔ **Need to pool resource of individual producers and arrange the logistics of transporting and delivering their products to the various market outlets.**

LOCAL RETAIL MARKET

- Karak consumes around 10% of its production, while the rest is sold to Amman and other outlets.
- Selling prices in the local market are considered to be the same as those in other markets. Transport costs are sometimes added.

➔ **Organizing an annual jameed festival can turn into a tourist attraction.**

URBAN MARKET

- Amman is Karak's main urban market. Other markets include expatriate communities in the Gulf and the United States.
- The majority of the production is sold to family members, friends, acquaintances, friends of friends, families of friends, etc. Personal networking through word of mouth is the main marketing channel.
- Buyers in Amman set their orders ahead of the production season to 'reserve' their share. Product is delivered throughout the production season, especially if the quantity requested is high.
- Jameed is delivered in plastic bags and in approximate weights to what is requested.
- Restaurants and catering businesses in Amman seek 'cheaper' jameed in order to increase their profit margin. A phone interview was conducted with sales manager of Deeritna, one of the largest Jordanian food catering services company in Jordan. According to the company source, the process of jameed sourcing is a cumbersome endeavor. As a company, Deeritna cannot deal with a large number of small producers because they require between 5-7 tons of jameed per annum. The restaurant deals with jameed 'brokers' who secure the required amounts from various locations. There are no traders that the company can deal with directly, which is their preferred mode.

According to Eng. Zaal Kawalit, restaurants and food catering businesses buy the cheaper Syrian jameed. He also indicated that Jabri, which is another large food business in Jordan with branches throughout the country, makes its own jameed.

➔ **Need to support with branding and packaging jameed. Customers in Amman and potential export markets are willing to pay a higher price for jameed if, through branding and packaging, they are assured of higher quality and adherence to health and safety standards during the production process.**

MAIN PRODUCTION UNITS

There are a limited number of facilities in Karak that are equipped to produce jameed on a commercial basis, are close to milk sources, and adhere to the minimally acceptable hygienic conditions. Based on consultations with Engineers Majali and Kawalit, and in collaboration with the SABEQ office in Karak, four associations were identified as the main jameed production units in Karak and are listed in the table below. Location in Karak is indicated on the map on the next page.

Main Production Units		
District/Locality	Association	
Al-Qasabah/Ader	Karak Sheep Breeders (co-op)	جمعية مربّي أغنام الكرك التعاونية
Qaser/Yarout	Shafa Al Khair (co-op)	جمعية شفا الخير التعاونية
Al-Qasabah/Msheirfeh	Shreif Co-op Society (co-op)	جمعية الشريف التعاونية
Mazar Janoubi/Myhayy	Muhayy Ladies	جمعية سيدات محي الخيرية

Desk research also indicated that the above associations are located in populated areas and are close to sources of milk. Based on statistics gathered mainly from the Department of Statistics and the Ministry of Agriculture, the following was revealed:

1) Population:

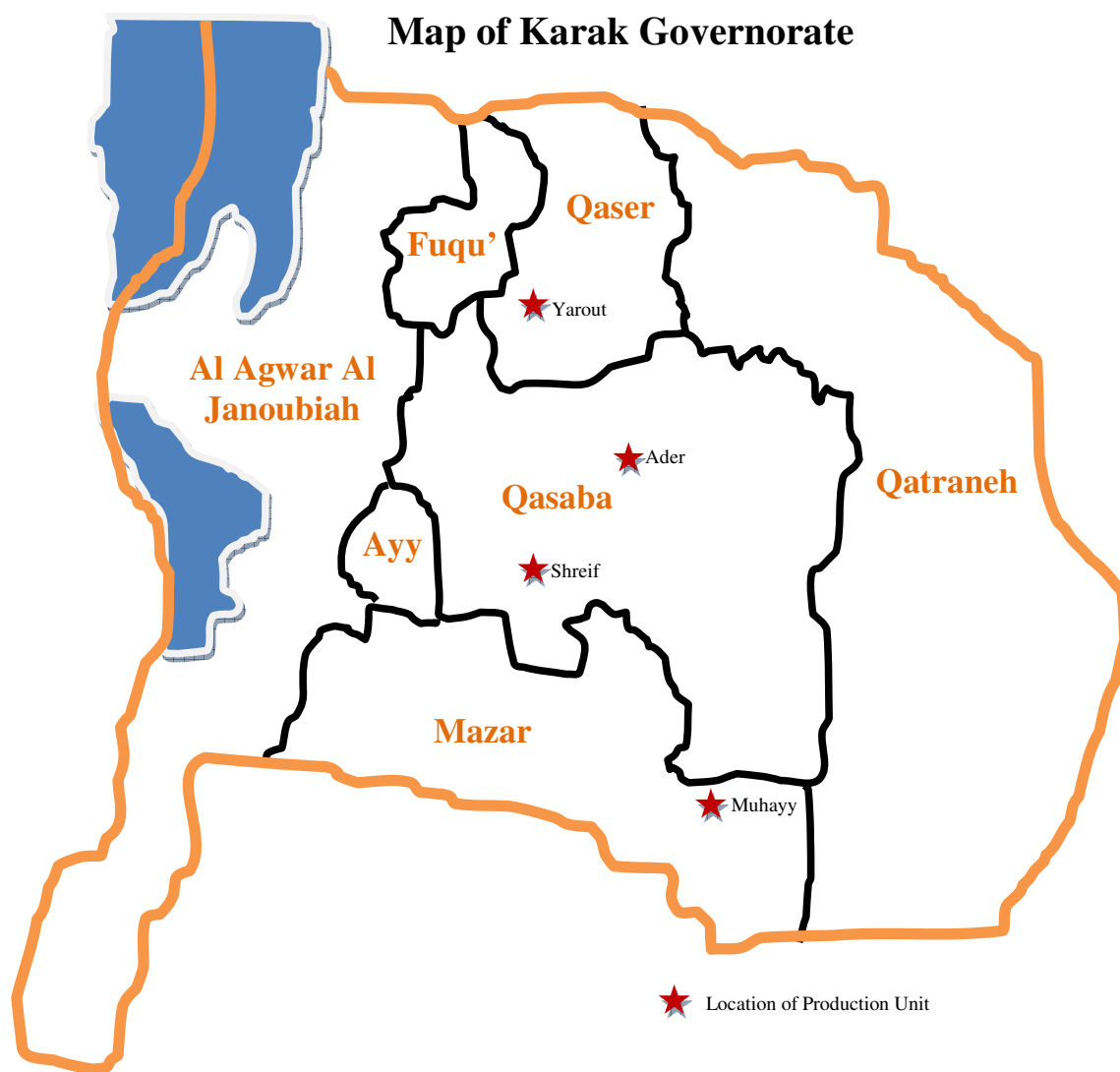
- Around 70% of the Governorate's population resides in Al Qasabeh, Mazar, and Qaser Districts.
- Around 60% lives in the first two.

2) Livestock:

- An estimated 89% of the Karak Governorate's sheep are in Al Qasabeh (31%), Mazar (22%), and Qaser (16%) districts.
- An estimated 70% of the Karak Governorate's goats are in Al Qasabeh (27%), Mazar (18%), and Qaser (15%) districts.
- Animal feed (wheat and barely) is mainly grown in Al Mazar and Al Qaser Districts
- The primary source of milk is therefore in the Qasabah District followed by Al Mazar District. The secondary source of milk is in the Qaser District.

3) Breeders:

- An estimated 77% of the Karak Governorate's sheep and goat breeders reside in Al Qasabeh (29%), Mazar (24%), and Qaser (14%) districts.
- Ghor Al Safi has the least number of breeders, with a share of 4%.



1. KARAK SHEEP BREEDERS ASSOCIATION (ADER FACTORY)

This association is located in Ader/Qasaba District. It was established in 1984 and has 120 members (sheep breeders). It serves the following objectives:

- Provide small loans to breeders to purchase fodder
- Provide training in various areas related to the breeding of livestock.
- Produce jameed and other milk by-products including ghee, butter, yogurt, and cheese.

The association has a fully equipped factory for the production of jameed and a number of other sheep and cow milk by-products. The factory, established in 1998, was leased to Eng. Zaal Kawalit to operate against an annual fee. It is considered the only successful commercial dairy production operations in Karak because of the operator's high technical expertise and due to the fact that it is operated as a private business. Annual production of jameed at the Ader facility is estimated at 10-12 tons per season.⁹ Full capacity can go up to 20 tons of jameed per season. Therefore, it is currently operating between 50-60% of its capacity due to decline in milk production and the lack of transport logistics to collect milk from the more distant locations (broader coverage). The Ader factory receives its milk mainly from three 'large' sheep breeders in the Qatranah (30 tons/year) and Qasaer (25 tons/year) Districts.¹⁰ The sheep breeders deliver the milk themselves.

The number of sheep in the nearby vicinity is estimated at 40,000¹¹ which translates into 1,300 tons of milk production per year as shown in the table below.¹²

District	Sub-District	Locality	Population	Estimated No. of Sheep	Estimated Milk Production (tons/yr)
Qasabat Al-Karak	Karak	Ader	4,855	40,000	1,300
		Manshiyyet Abu Hammour	4,097		
		Jadiedeh	3,103		
		Rakeen	3,475		
		Battier	1,544		
		Samra	848		
		Bathan	307		
		Ainoon	238		
		Wadi Ibin Hammad	117		
		Sakka	657		
		Rashdiyyeh	1,430		
		Waseiyeh	2,127		
		Lajoon	21		
		Qraifleh	427		
		Total	23,246		

Source: DOS and expert interviews

⁹ Jameed production season begins at the beginning of February and ends at the end of June. Sometimes it extends till the middle of July.

¹⁰ From the Qatranah District, the Ader facility receives milk from Mr. Eid Hajaya who owns 1,500 heads of sheep, and Mr. Awwad Al-Shbeiki who owns 1,800 heads of sheep. From Qaser, Ader receives milk from Mr. Abdul Wahab Majali who owns 1,200 heads of sheep. All three breeders have pickups to deliver the milk directly to Ader.

¹¹ Estimated by Eng. Za'al Kawalit. No official data available at the locality level.

¹² 40,000 sheep of which 65% produce milk. Assumption is that each head produces 50kg per annum.

In sum, the Ader Factory enjoys the following advantages as a jameed production unit:

- Has fully equipped facility and produces at commercial levels.
- Currently producing 10-12 tons of jameed per year comprising around 10% of total production in Karka. Production capacity can go up to 20 tons.
- Close to sources of milk estimated at 1,300 tons per year.
- Close proximity to a population of over 23,000 persons, around 50% of which are females¹³; therefore, close to a pool of workers.
- Managed and operated as a private business.
- Has access to a trained workforce
- Has market contacts and solid networks with both breeders and jameed customers.
- Produces a wide range of milk by-products

2. MUHAYY LADIES ASSOCIATION (MUHAYY FACILITY)

The association was established in 1988 and currently has 80 members. The association carries out a number of activities which include:

- Training for women in the areas of hair styling, make-up, embroidery, and weaving. It is fully equipped with the needed tools and equipment to carry out the latter.
- Kindergarten with a capacity to accommodate 40 children.
- A fund that extends small loans.
- Holding lectures on various topics of interest to rural women (ex. health awareness).

The association has recently purchased some tools needed to produce jameed and can process up to 0.5 tons of milk per day, which translates up to 6 tons of jameed per season. Tools include a gas burner, aluminum pots, and milk containers. Moreover, 42 ladies were recently trained by the Directorate of Agriculture in Karak on the production of jameed.

Some of the ladies in the village rent the facility for their own production. This activity however is limited in scope. There is no production of jameed at the association level.

Muhayy is a village located 30 minutes away from Karak city. As shown in the table below, it has a population of around 3,300 persons, 70% of which are livestock breeders. The number of sheep in the nearby vicinity is estimated at 40,000¹⁴, and the area is known for its milk production, estimated at around 1,300 tons per year¹⁵. Jameed production is done at home for personal use and for sale to friends and family members.

Nearby villages with sizeable numbers of sheep are listed in the table below.

¹³ Based on official population census data from DOS.

¹⁴ Number was estimated from a number of Muyahh residents. Confirmed by Eng. Zaal Kawalit. No official statistics available at the locality level.

¹⁵ 40,000 sheep of which 65% produce milk. Assumption is that each head produces 50kg per annum.

District	Sub- District	Locality	Population	Estimated No. of Sheep	Estimated Milk Production (tons/yr)
Mazar Janoobee	Mazar Janoubi	Muhayy	3,374	40,000	1,300
		Shqaira El-Gharbiyyeh	1,755		
		Shqaira El-Sharqiyyeh	141		
		Sool	2,881		
		That Ras	3,150		
	Mo'aab	Faisaliyyeh	1,394		
		Husseiniyyeh	4,040		
		Kaderiyyeh	17		
		Khaldiyyeh	1,332		
		Omariyyeh	1,876		
		Um Hamat	1,941		
	Total		21,901		

In sum, the Muhayy facility enjoys the following characteristics as a production unit:

- Located in a village that is known for sheep breeding and milk production.
- Close proximity to milk production of around 1,300 tons per year
- Trained workforce of a minimum of 42 ladies
- Close proximity to a population of around 22,000 persons, 50% of which are females; therefore, it is close to a pool of workers.
- Site meets the basic health and sanitary requirements, and has the basic needed tools and equipment
- Interviews with some of the villagers indicated that livestock breeders there would much rather have one entity buy their entire production of milk, and not have to deal with delivering it to consumers given their distance and the lack of transport facilities.

3. SHAFAL-KHAIR ASSOCIATION (YAROUT FACILITY)

The association is located in Yarout / Qaser District. It has 22 members, all of which are females. The association was established with the objective of producing homemade food products including jameed, yogurt, butter, pickles and ghee, in addition to sweets from ghee.

The association has the basic needed equipment and tools to produce jameed including four gas burners, four aluminum pots, a shaker, and one small fridge. It employs female senior citizens from the Yarout locality to produce jameed and sell on small commercial basis. Around 80% of the jameed production is sold to the ladies of the Inner Wheel Club in Amman, and the rest to residents of nearby locations.

On average, the association produces around 1.5 tons of jameed every year. Last year it did not produce any jameed because it could not arrange for transportation to collect commercial amounts of milk. Due to the hike in gas and diesel prices, transportation costs became a heavy burden and a high cost item that made jameed production unfeasible. In the past, the Yarout facility used to rent a car to collect milk from the more distant locations. Even with that option, the car could not collect milk from more than one source because

once the milk was collected it had to be transported back immediately to be processed so that it would not turn sour.

The facility is close to a number of populated localities. The estimated number of sheep is 40,805 heads as shown in the table below.

District	Sub- District	Locality	Population	Estimated No. of Sheep	Estimated Milk Production (tons/yr)
Qaser	Qaser	Qaser	4,859	40,805	1,326
		Rabbah	5,001		
		Smakiyyeh	1,692		
		Yarout	1,550		
		Demnah	1,430		
		Hmoud	435		
		Shihan	626		
		Rawdah	657		
		Rashaydeh	190		
	Moujeb	Mghayyer	1,119		
		Riha	580		
		Mes'ar	508		
		Abu Trabah	378		
		Jada'	2,973		
		Moujeb	190		
		Aliyah	612		
	Total		22,800		

4. AL SHREIF COOPERATIVE SOCIETY FOR MULTIPLE USES (MSHEIRFEH FACILITY)

The cooperative was established in 2000 with the main objective of producing jameed and ghee.

The association is equipped with a semi automatic dairy production unit funded by a US\$14,000 grant from the International Fund for Agricultural Development (IFAD)¹⁶. The facility was assembled under the supervision of a specialist team from the Ministry of Agriculture and the Directorate of Agriculture in Karak. Twelve persons were also provided training. The total area of the facility is 160m², and has a production capacity of 6-7 tons of jameed per season¹⁷. The facility was operated for one year and was stopped due to lack of a dedicated management.

The production unit is located in Msheirfeh; a locality that is not heavily populated as shown in the table below, but is very close to other residential areas that are known for their milk and jameed production such as the Zahoum locality. The estimated number of sheep heads in the nearby vicinity is 20,000.

¹⁶ A specialized agency of the United Nations.

¹⁷ Source: Interview with president of association.

District	Sub- District	Locality	Population	Estimated No. of Sheep	Estimated Milk Production (tons/yr)
Qasabah	Karak	Adnaniah	3,232	20,000	650
		Thaniyyah	3,627		
		Ghweir	2,202		
		Median	1,415		
		Merwed	1,692		
		Zahoum	3,236		
		Msheirfeh	662		
		Ma'mouniah	428		
		Houyeh	1,483		
		Mraigheh	22		
		Total	17,999		

The Msheirfeh facility enjoys the following advantages as a jameed production unit:

- Equipped with a semi-automatic dairy facility.
- Has 12 professionally trained persons.
- Close to the Zahoum¹⁸, a locality most famous for the production of jameed in Karak

¹⁸ 3km away from the village.

CONCLUSIONS AND NEXT STEPS

Production of jameed is an individual effort in Karak, and is therefore plagued by a number of inherent weaknesses:

1. Inability to produce at commercial levels and benefit from economies of scale
2. Lack of facilities to transport and store commercial quantities of milk
3. Unreliability of milk quality and quantity (main raw material)
4. No quality control measures enforced / unhygienic production conditions / Limited adherence to the basic health and safety requirements
5. Use of basic tools in the production process at homes
6. Limited marketing capabilities of home producers.
7. Limited technical training and know-how.

The main objectives are to help nourish and develop this national heritage; utilize the abilities, capabilities and creativity of women in the local community to enhance the quality of their lives; equip local women with the training and skill-sets to sustain this national heritage; improve competitiveness of the Karakian jameed by enhancing its quality and branding it; expand and diversify market outlets.

To achieve those ambitious and far-reaching objectives, it would be imperative to establish an overarching entity that would pool the scattered individual resources; facilitate the logistics of collecting and distributing milk; provide technical assistance at the various levels of the production chain; improve access to finance and/or barter arrangements to help small producers increase their production capabilities. Such endeavor will require the collaborative effort of a number of stakeholders at both the individual and association levels. These include – in addition to jameed producers – sheep breeders, milk producers, animal feed producers, and related government entities. While supporting this national home industry has been identified by all stakeholders in Karak as a priority, much effort is still need to rally the support of those stakeholders behind this ambitious initiative. Moreover, establishing a new entity will require lengthy and cumbersome legal procedures. It will also need a location for its headquarters and dedicated and autonomous management team, which will entail additional costs. A valuable lesson was learned from the Msheirfeh facility. Even though the facility was fully equipped and the manpower was professionally trained, it was doomed to failure because it was poorly managed. Stakeholder support and the assignment of a dedicated management team will be critical for the success of this endeavor.

It is therefore recommended by the team of consultants that the creation of the umbrella entity be tackled over the long run, or as a 'phase II' of the support process, and until stakeholders in Karak show serious measures towards realizing this initiative.

In the short term however, support can be extended to two associations that are successfully producing at varying commercial levels, namely the Karak Breeders Association (Ader Factory), and Shafa Al-Khair (Yarout Facility). Muhayy and Shrief, although equipped, could be supported at a later stage due to the lack of dedicated management to oversee the jameed production process.

PHASE I – UPGRADE/SUPPORT CURRENT PRODUCTION FACILITIES

Although four potential partner associations met the criteria set for selection, only two are viewed to be managed successfully. These are the facilities at the Karak Breeders Association (Ader Factory), and the Shafa Al-Khair Association (Yarout Facility). The Msheirfeh facility, although fully equipped is currently suffering from the lack of a dedicated management to run the jameed production and sales operations. Jameed production at the Muhayy facility is also poorly managed.

As such, it is recommended to provide the following support prior to the next production season, which begins in March:

- 1- Develop and expand the Ader facility, which has proven to be a successful privately-operated model, to increase its production levels from the current 10-12 tons of jameed per season (1 tons of milk / day) to its full production capacity of 20 tons (around 1.7 tons of milk per day):
 - a. Upgrade the current facility with the equipment needed to enhance its production operations. This includes two additional shakers to accommodate the increase in the quantity processed; milk testing equipment, an electricity generator to overcome regular interruptions in electric supply, and a water filtering system to ensure the use of clean water in the production process.
 - b. Improve its capabilities to collect milk and distribute to other potential partners. This includes providing the facility with a refrigerated chilled vehicle in addition to a number of stainless steel milk containers. The vehicle and containers will have the capacity to transport 1.5-2 tons of milk a day. Around 0.7 tons will be used to double the current production levels to reach 20 tons of jameed per season, and the other 0.75 ton will be distributed to other partner associations. 50 containers will be needed to transport the milk, and another fifty for storing it.
 - c. Enhance its ability to package the jameed in order to sell it to commercial outlets, and potential export markets for a higher value. This includes providing a vacuum sealing machine.
 - d. Provide training to 8 new employees on the scientific methods of jameed production and adherence to health and safety measures. This will be provided by Eng. Kawalit at no cost.

Total estimated cost of the above support will be JD36,000 as broken down in the table below.

Table: Cost Breakdown of Tools and Equipment to Ader Factory

Item	Qty	Cost per Unit (JD)	Total Cost (JD)
Refrigerated chilled vehicle equipped for the collection and transport of milk	1	18,000	18,000
Stainless Milk Containers	100	60	6,000
Shakers	2	400	800
Milk Testing Equipment			
Density Detection Machine	1	1,200	1,200
Acidity Detection Machine	1	300	300
Electricity Generator	1	6,000	6,000
Water Filtering System	1	3,500	3,500
Vacuum Sealer – jameed packaging	1	200	200
Total			36,000

This support is anticipated to:

- Create 8 job opportunities (6 in the factory, and 2 for the collection and distribution of milk and final product).
 - Increase milk sales by 1.5-2 tons of per day for a total revenue of JD144,000 to 192,000 per season¹⁹ for an estimated 37-49 milk producers.²⁰ This translates into an average earning of JD3,900 per breeder per season.
 - Double the profit of the Ader Factory.
- 2- Develop the current facility at Shafa Al-Khair Association and provide it with the needed tools and equipment to double its production capacity from the current level of 1.5 tons to 3 tons per season.²¹ This includes:
- a. Adding an additional shaker with a capacity of 1,000 liters
 - b. Doubling the number of aluminum pots (from 4 to 8)
 - c. Doubling the number of gas burners from 4 to 8
 - d. Providing 10 stainless steel containers to store milk instead of the current plastic ones that are being used.
 - e. A large fridge to store larger quantities of milk
 - f. A mixer and a stainless steel basin that will be used to strain the jameed. The straining process is currently being done directly on the floor and is considered unhygienic.
 - g. The site needs to be upgraded to meet the health and safety specifications, and this includes, tiling the floor and walls of one of the production rooms, and installing a simple drainage system (pipes).

Total estimated cost of the above support will be JD5,208 as broken down in the table below.

¹⁹ Assuming the price of milk is JD0.8 per kg, and 120 working days per season.

²⁰ 1.5-2 tons of milk daily will translate into 180-240 tons per season assuming 120 working days. Assuming that the average breeder has 150 heads, this translates into an average production of 4.88 tons of milk per season per breeder (150x65%x50kg). Dividing the total amount of milk demanded by the average production of each breeder gives the stated estimated of the number of breeders.

²¹ It will receive 250 kg of milk per day from the Ader Factory. Based on the assumptions that there are 120 working days per season, and that every 10kg of milk produces 1kg of jameed, this daily supply will enable the Yarout Facility to reach its production level target.

Table: Cost Breakdown of Tools and Equipment to Yarout Facility

Item	Qty	Cost per Unit (JD)	Total Cost (JD)
Shaker (capacity of 100 liters)	1	400	400
Stainless Milk Containers	10	60	600
Aluminum Pots (100 liters)	2	60	120
Aluminum Pots (80 liters)	2	55	110
Gas Burners	4	55	220
Fridge	1	1,000	1,000
kneader	1	400	400
Stainless Steel Basin for straining jameed	1	500	500
Site development ^a	1	800	800
Tiling (floor and walls = 64 m ²)		7/m ²	448
Workers		2/m ²	128
Construction material		3/m ²	192
Pipes (drainage)			100
Washing basin + faucet	1	100	100
Total			5,208

^aPreparation of a 4x4 meter room to meet minimal production standards.

This support is anticipated to:

- Create 4 job opportunities.
- Guarantee a steady supply of quality milk through signing an MOU with the Ader Factory.
- Double the profit of the Yarout Facility.

PHASE II – CREATE A NEW UMBRELLA ENTITY

The main objective of creating a ‘credible’ umbrella entity is to bring together the scattered individual efforts that are related to the jameed production process. This grouping will strengthen individual producers and bring them together with associations, ‘factories’ and production centers to create a true partnership between producers at all levels. This grouping will also bring in other players into the jameed market. This includes, and not limited to, producers of embroidery, and clay (used for packaging jameed), and herbs (used to develop variations of the classic jameed that is currently produced).

The team of technical consultants recommends that a new ‘cooperative’ association (جمعية) be established and not a cooperative union (اتحاد تعاوني). The legal form of the former would allow for individual and cooperative memberships. Members of charity associations can become members as individuals in the new entity. The cooperative union requires member associations to transfer 15% of any donations they receive, which can be undesirable for member associations.

The umbrella entity would serve the following tasks related to the challenges faced under each 'function' of the jameed production process:

a. Animal Feed:

- i. Support an advocacy program in conjunction with the Directorate of Agriculture in Karak to promote the use of 'green fodder' to feed sheep, and more specifically promote the use of viciae album.
- ii. Prepare leaflets and hold training sessions (technical assistance) for breeders.

b. Milk Production:

- i. Make available suitable (clean and hygienic) stainless steel/aluminum containers for storing milk.
- ii. Make available special cloth to be used as filters to clean the milk from impurities when transferring milk from one container to another
- iii. Spread awareness regarding milk storage methods (temperature, sunlight exposure, storage time, etc.)

c. Milk Collection and Distribution:

- i. Organize the logistics of purchasing milk from small breeders that are located throughout the Governorate, even in remote areas. This would be facilitated by equipping the entity with the needed transport logistics, which include a **refrigerated chilled vehicle** that would make several rounds a day to collect milk from as many producers as possible. This will minimize waste.
- ii. Organize the logistics of distributing milk to member jameed producing individuals/associations. This will also require the availability of a chilled storage facility for the collected milk. Selling milk to jameed producers can be made on cash, barer, or future payment basis to encourage more production.
- iii. Make available proper milk containers that block sunlight in addition to covers when milk is being transported.

Instituting the mechanism of buying and distributing milk will encourage many breeders to take the risk of buying more sheep/goat to increase their milk production. Many interviewed breeders indicated that they would much rather deal with one entity to sell all the milk production to, than to deal with a number of small buyers here and there. Selling milk is a major burden for most breeders.

d. Jameed Processing:

- i. Spread awareness through brochures, leaflets, and training programs to adopt scientific methods in the production process²²
- ii. Specify quality standards and specifications, and spread awareness amongst producers at home
- iii. Make available the basic tools and equipment needed for the production of jameed through barter or favorable financing schemes. These include:
 - Stainless steel or aluminum pots for heating milk
 - Gas burner
 - Fridge for cooling/storing milk
 - Shaker
 - Thermometer
 - Density thermometer
 - Acidity meter
 - Scale
 - Cloth for straining milk

e. Transport – Product Delivery

- i. Organize transport logistics to deliver products to customers in distant locations – same vehicle used to collect milk can also be used for this purpose.
- ii. Organize preset transportation schedules in order to ‘pool’ the production of various producers and send them to distant locations in one trip.

f. Local Retail Market:

- i. Organize a local food festival, with jameed as the main item. This will be an attraction hot spot particularly for foreign tourists who will have a chance to see how jameed is made and taste some of the local dishes.

g. Urban Market:

Producers can obtain higher prices for their products if they are branded and packaged. Effort should therefore be focused on:

- i. Branding and packaging.
- ii. Promoting the new branded and packaged jameed as a product with high quality.
- iii. Taking part in agricultural fairs and others, including JARA market for example to introduce producers to potential traders/investors.

²² As described in details in the subsector analysis section

Over the course of 2009, and in preparation for the 2010 production season, the following measures could be taken to support the establishment of the umbrella entity and promote the jameed industry:

- 1) Hold a meeting for potential stakeholders, including members of the Economic Council, to build and rally support for the new entity.
- 2) If action measures are taken by the stakeholders, SABEQ can support with devising a two-year action plan to prioritize areas of support (drawn from tasks stated above).
- 3) Support the organization, set up and marketing of the jameed festival to be held in May at the Karak Castle as part of an overall 3-day food and crafts festival:
 - a. Establish an organizational committee or select an entity that would adopt the organization of the event annually:
 - i. Select participating individuals / entities based on products to be displayed, and set participation fee (even if a token fee).
 - ii. Devise program of entertainment (folklore dances, music and singing; food preparation demonstrations; children entertainment corner, etc).
 - iii. Set a food court area and select vendors.
 - iv. Contact potential sponsors.
 - v. Decide on safety and security measures.
 - b. Support the promotion of the event in local newspapers, radio stations, and with travel agencies.
 - c. Seek official patronage for the event to gain wide publicity.

USAID Jordan Economic Development Program
BearingPoint, Inc.
Salem Center, Sequleyah Street, Al-Rabiyeh
Amman, 11194 Jordan
Phone: + 962-6 550-3050
Web address: <http://www.SABEQ-Jordan.org>