

AMERICAN UNIVERSITY OF BEIRUT

EXPLORING THE DETERMINANTS OF AN
AGRICULTURAL ANOMALY: THE CASE OF THE
DAMASK ROSE (*ROSA DAMASCENA*) VALUE CHAIN IN
QASARNABA, LEBANON

by
ALIAA AHMAD AL DIRANI

A project
submitted in partial fulfillment of the requirements
for the degree of Master of Science in Environmental Sciences
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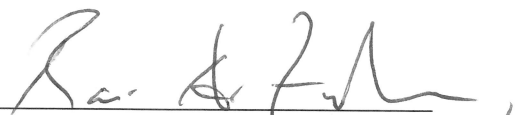
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AN ABSTRACT OF THE PROJECT OF

Aliaa Ahmad Al Dirani for Master of Science in Environmental Sciences
Major: Ecosystem Management

Title: Exploring the Determinants of an Agricultural Anomaly: The Case of the Damask Rose (*Rosa damascena*) Value Chain in Qasarnaba, Lebanon

Background: Although the origin of *Rosa damascena* is highly controversial, its aesthetically appealing pink flowers and distinctive aroma have been agreed upon globally. Currently, it is being cultivated in Bulgaria, Turkey followed by Iran, India, Morocco, and Lebanon.

Material and Methods: A combination of in-depth semi-structured interviews and focus groups were conducted in Qasarnaba in March 2016: (1) to examine the value chain actors and their functions; and (2) to identify the key features that have contributed to sustaining *Rosa damascena* cultivation to our present day in Qasarnaba and limited it to this geographical area leading to an agriculture anomaly.

Results: Although the origin of the *Rosa damascena* was highly debatable, there was a consensus that it provides financial support for around 80% of the villagers in Qasarnaba who benefit from either selling the rose itself or processing it. Moreover, five key actors in the rose value chain were identified: the growers, harvesters, wholesalers, processors, and retailers. Those actors were highly interdependent creating a complex value chain that is composed of several processes namely: cultivation, harvesting, wholesaling, processing and marketing. The study also examined critically the sustainable livelihood assets and the constraints found along these value chain processes to recommend relevant interventions and solutions that can empower the main value chain actors. Finally, although the financial, social and environmental assets are key pillars by which this horticulture has been sustained till these days, this agricultural anomaly is keenly preserved because *Rosa damascena* is deeply embedded in the cultural heritage and collective identity of Qasarnaba's society.

Conclusion: Technical, financial and institutional support is needed to assist the value chain actors in Qasarnaba to improve their livelihoods and ensure the sustainability of *Rosa damascena* cultivation in Qasarnaba, thus preserving this agricultural anomaly for more years to come.

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CHAPTER I

INTRODUCTION

1.1. Background Information

Since ancient time of human civilization people have always been fascinated by the aesthetic sense and pleasant fragrances of flower. Roses were the most appreciated and had been considered a symbol of beauty and love, and hence they were named the Queens of Flowers (Das.et al., 2012). This plant is perennial in nature and belongs to the genus *Rosa*, within the family Rosaceae (Cairns, 2001). There are over 200 species under the genus *Rosa* and more than 18000 cultivars form of the plant have been identified which are cultivated in various parts of the world (Gudin, 2000). Throughout the history of plant gardening numerous amounts of cultivars and types of rose plants were generated by both professional and amateur gardeners (Das.et al., 2012).

1.2. Scope and significance of the study

The field research that was carried out dealt with the social dynamics and processes integral to *Rosa damascena* growing-dependent livelihoods as it also aimed to tackle the *Rosa damascena* value chain in Qasarnaba. The main motivation to elect this topic was that there has been no significant agro-economical, scientific, or socio-anthropological research revealing how social, economic and cultural developments

have affected *Rosa damascena* growing in the Beqaa valley. Yet, there is controversy regarding the *Rosa damascena* cultivation in the studied region where it is not homogenously planted in nearby villages. To be precise, based on the 2010 census, few villages in the Beqaa had a reasonable percentage of framers who plant *Rosa damascena*. The timing was good as it was the period prior to the rose harvest in order not interfere and cause harm to the participants. The studied village that was decided on is Qasarnaba; the Damask rose capital; because it is inhabited by a large number of rose producers. The goal was to gather a comprehensive data from all individuals, whose livelihoods comprise *Rosa damascena*, thus having a clear view of the entire value chain. The methodological approach used is a qualitative research strategy in which a large sample from the studied village stakeholders was involved through in-depth interviews and focus groups. This aimed to explore the changes that occur on the micro-level of the individual farmers as well as the interventions on the meso- and macro-levels.

1.2.1. Specific Problem:

- i. In Lebanon, *Rosa damascena* is merely popular in the Beqaa villages. Based on the 2010 census, the total number of *Rosa damascena* farmers in Lebanon are 413 farmers of whom 32% are from Qasarnaba.

- ii. In Lebanon, according to census, 141.05 ha are land on which *Rosa damascena* are cultivated where approximately 30 % of land under *Rosa damascena* cultivation is centered in Qasarnaba.
- iii. Accordingly, an anomaly must be explored to know why in this particular village *Rosa damascena* cultivation is popular, while in neighboring villages it is not well practiced or even not found. Yet, other type of crops is occupied in larger area mainly, *hashishi*.

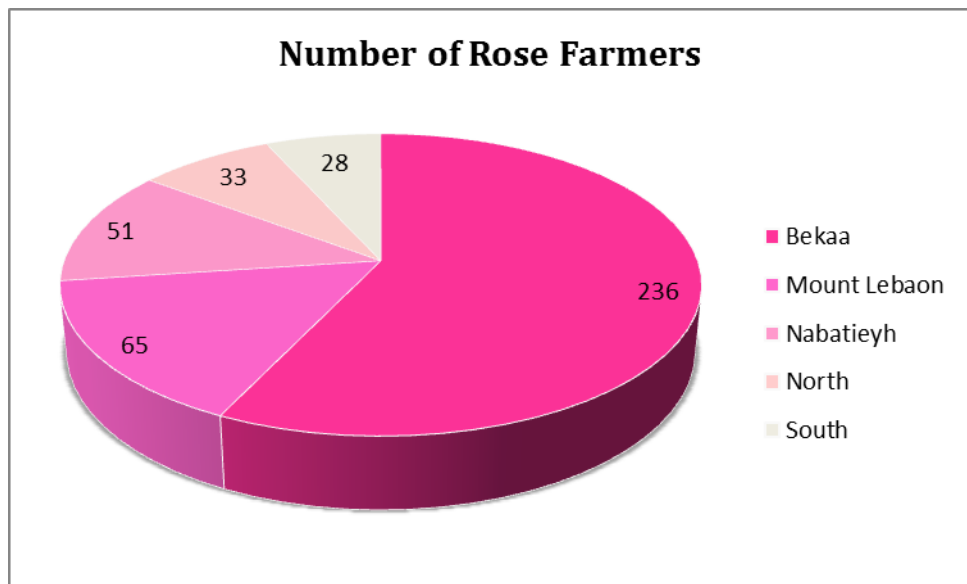


Figure 1- Distribution of Rose Farmers in Mohafazat

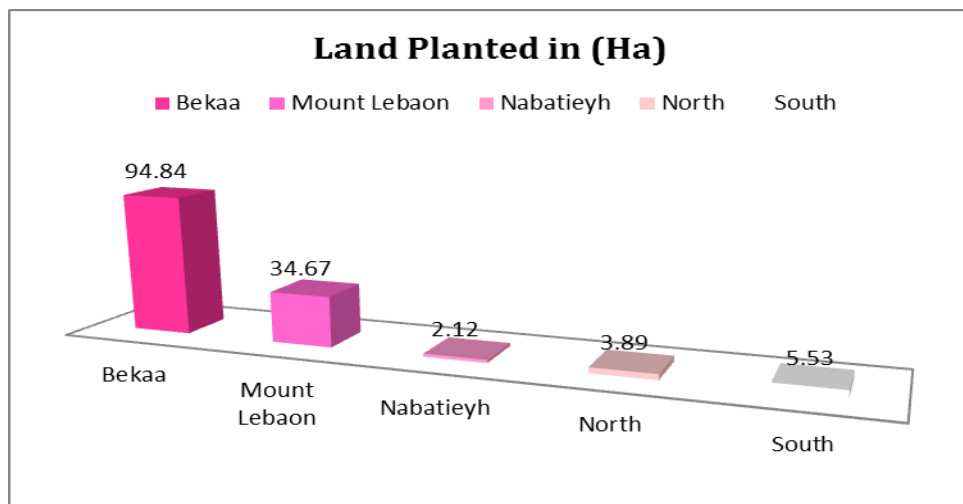


Figure 2- Land Planted Rose (Ha) in Mohafazat

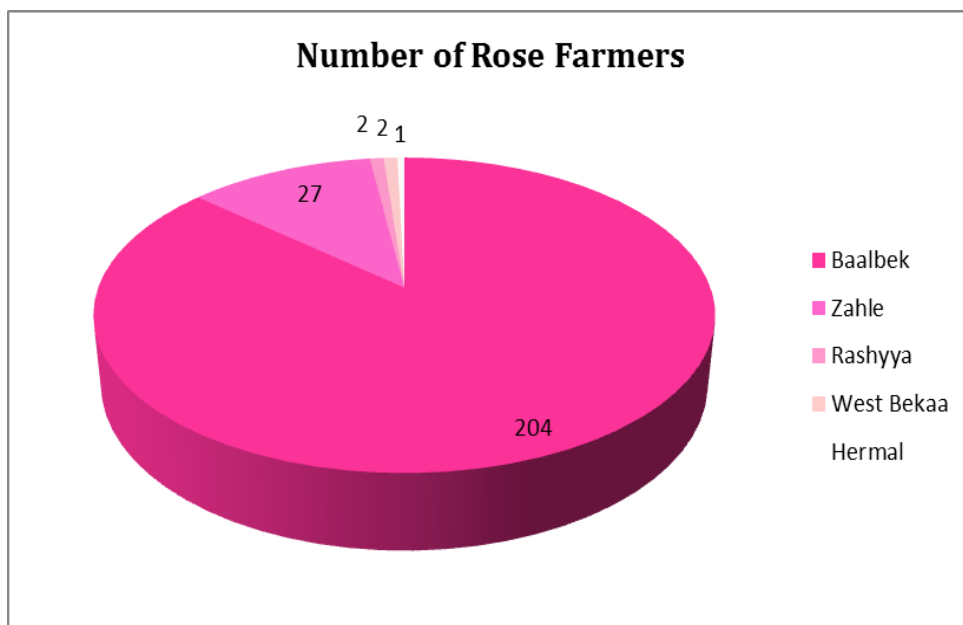


Figure 3- Distribution of Rose Farmers in Bekaa's Caza

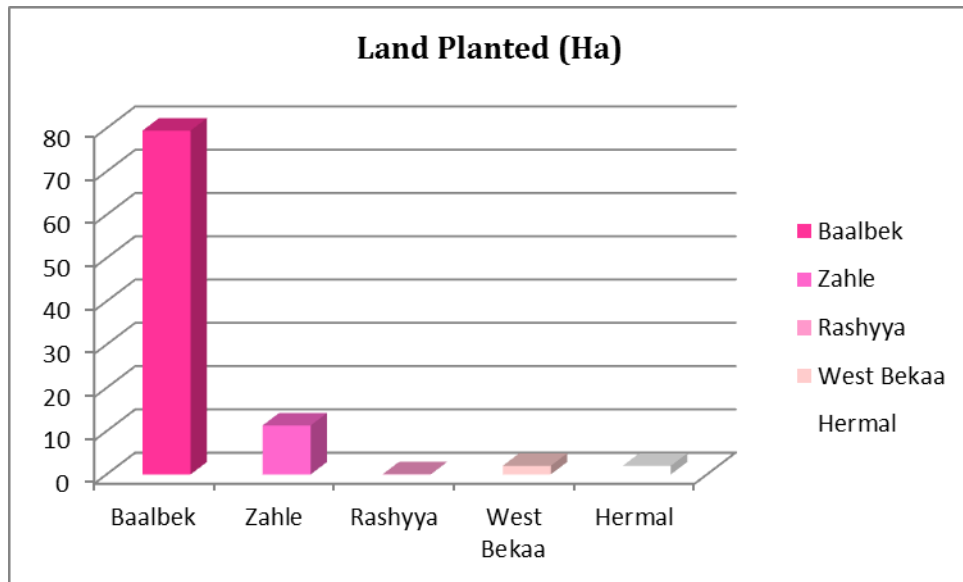


Figure 4- Land Planted Rose (Ha) in in Bekaa’s Caza

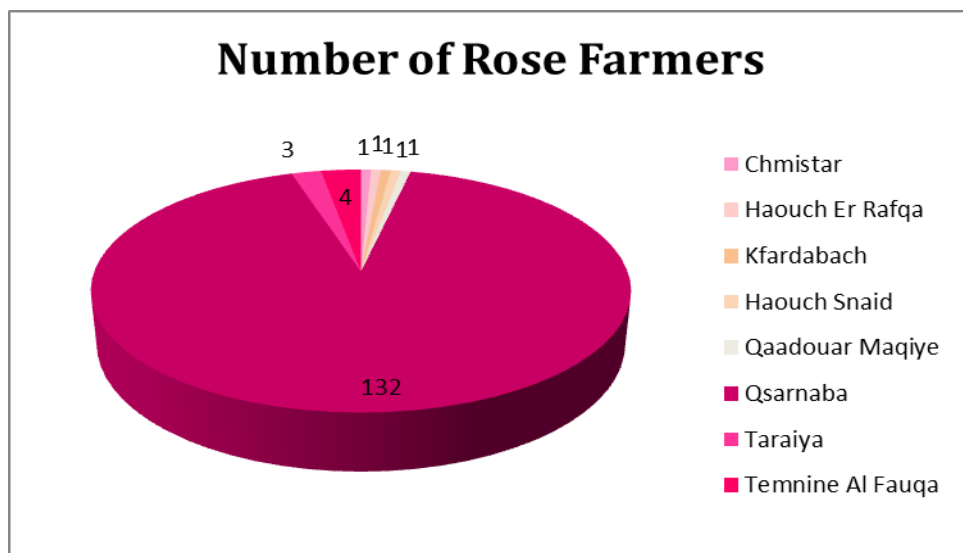


Figure 5- Distribution of Rose Farmers in Bekaa’s Village

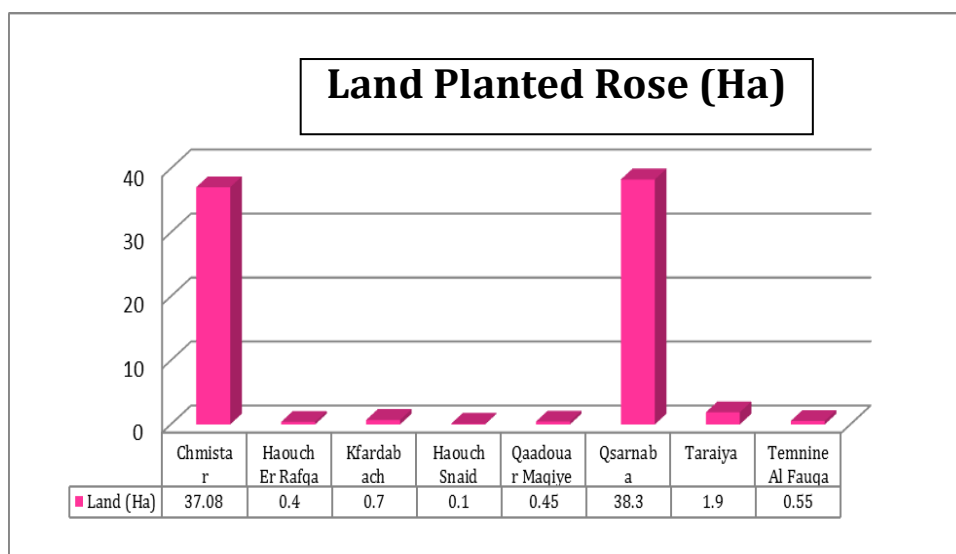


Figure 6 - Land Planted Rose (Ha) in in Bekaa's Village

1.2.2. Objective of the study

In general, why is the *Rosa damascena* value chain in the Beqaa region, especially growing and processing, highly concentrated in Qasarnaba? And why has it not diffused to other nearby regions? In order to answer this question, this study will aim to:

- i. Explore and characterize the *Rosa damascena* value chain in one of the Beqaa village, Qasarnaba.

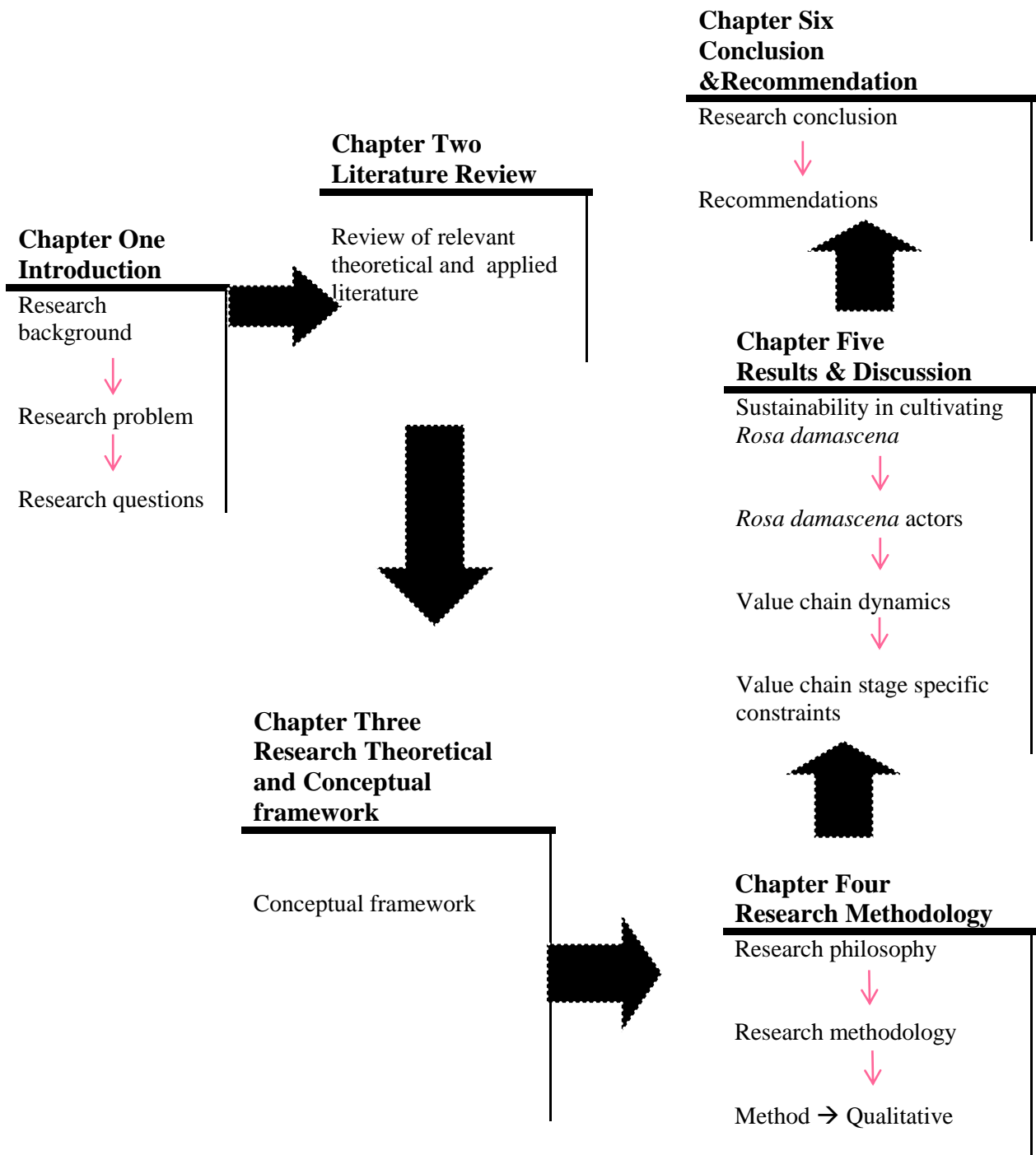
- ii. Identify the key features that have contributed to sustaining this rose cultivation and limiting it to this geographical area which helped it survive to our present day leading to an agriculture anomaly.

Studying the value chain is a key frame work that allows the researcher to understand the way the product moves from the producers reaching the consumers. Exploring the value chain leads to a clear understanding of the different business relationships, mechanisms for increasing efficiency, and ways to enable the increase in business productivity. Therefore, the project primary objective is to sketch the value chain map that will lead to a better understanding of this rose, its popular products, and relationships between the various stakeholders.

1.2.3. Organization of the study

The study is organized into six chapters. The introductory chapter consisting of background information, scope and significance of the research were it states the research problem along with the key questions and objectives and concludes with the organization of the study. In the second chapter, some pertinent reviews are presented in consonance with the study objectives. The third chapter is the conceptual framework that discusses two theories and their concepts which are the basis of the thematic analysis later on. Chapter four is devoted to the research methodology applied in this study where it describes main features of the study area, sampling framework, analytical

tools employed in the analysis, ethical consideration throughout the research process. Based on the knowledge gained from review of literature and primary data, chapter five synthesizes the main findings and discusses their relevance for value chain development. Sixth chapter highlights the study limitations and summarizes the whole research work carried out to derive conclusion from the research findings followed by, policy recommendations and areas for further research.



1.2.4. Studied site

According to the Lebanese cities and village's dictionary the name of Qasarnaba was derived from Nabo Palace (Municipality of Qasarnaba, 2013). Nabo is the name of an old Ashourian God and is carved on a rock in the village's castle (Municipality of Qasarnaba, 2013). Qasarnaba is rich in archeological ruins: it is home to a fort dating back to Roman times, a temple with a small colonnade, known for its pristine staircase and the pilasters along the external walls (Municipality of Qasarnaba, 2013).

Qasarnaba is a small town of the central Békaa area, Baalbek District, an administrative division of Baalbek-Hermel Governorate /Mohafazah (Municipality of Qasarnaba, 2013). The municipality is member of Federation of Gharbeh Baalbek Municipalities. Qasarnaba is located at the shoulder of the Western Lebanese Mountain range, just to the East of Mount Sanine, overlooking the central parts of Békaa valley (Municipality of Qasarnaba, 2013). Qasarnaba, an area of 623,495,6 m², is 65 Km away from the capital Beirut, 25 Km away from Baalbeck city and 15 Km away from Zahlé (Municipality of Qasarnaba, 2013).. It lies at an altitude of 1250m. Qasarnaba population is about 5400 persons as summer residents and 5000 winter residents (Municipality of Qasarnaba, 2013).

Field crops occupy the flat lands of the plain, where wheat, barley and rain legumes are planted in rotation of the deep brown soils typical of the Békaa. On highlands, flocks of goats graze the grasslands rich in thorny and aromatic plants. On

the middle elevations, around the village, vineyards and rose fields grow on stone walled terraces. People in the village are traditionally farmers famous for growing vineyards and wild rose flowers for rosewater extraction, in addition to many other traditional horticultural crops (Municipality of Qasarnaba, 2013).

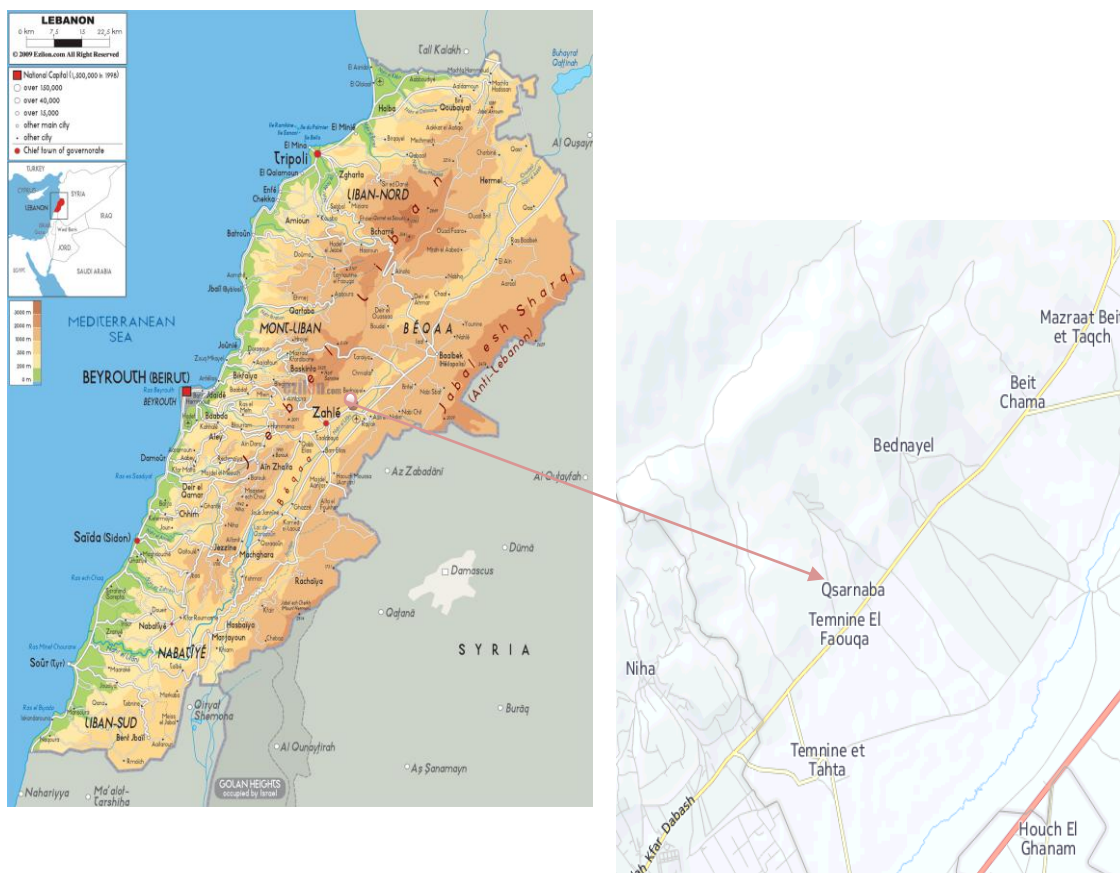


Figure 8- Location of Qasarnaba on the Map

CHAPTER II

LITERATURE REVIEW

2.1. *Rosa damascena* Botanical Characteristics

Based on the botanical characteristics roses are grouped and categorized into grand floras, climbing, polyanthas, hybrid teas, miniatures, floribundas, shrub, old roses, but only a few species are aromatic (Gudin, 2000). Where the scented roses comprise of *Rosa damascena* Mill., *R. chinensis* Jacq., *R. moschata* Herrm *R. bourboniana* Desportes., *R. centifolia* Linn., *R. alba* Linn and *R. gallica* Linn. (Ginova et al., 2012). While other rose species are used for oil production these includes *Rosa damascena* Mill, *Rosa moschata* Herm, *Rosa centifolia* Linn. and *Rosa gallica* Linn. (Tucker & Maciarelo, 1988). *Rosa damascena* Mill. is a beautiful aromatic flower with immense horticultural importance, this unique rose is also known with different names for instance, “Damascus Rose”, “Kazanlık rose”, “Isparta rose”, “Pink oil rose”, “Oil Rose”, “Rose of Castile” and also known as Gole Mohammadi in Iran. *Rosa* × *damascena* is a hybrid rose derived from *Rosa gallica* and *Rosa moschata* (Boskabady et al., 2011a).

Based on Hurst taxonomy, in 1941, Damask rose is classified according to their flowering habit into two foremost types: summer Damask and autumn Damask. The

summer Damask rose is known as *R. × damascena* nothovar. *damascene* (Hurst, 1941). The summer Damask have a short flowering season, and blooms once in early summer, while the autumn Damask is named *R. × damascena* nothovar. *Semperflorens*. This type is not distinguishable from the summer Damask, yet it blooms in the autumn and has a longer flowering season and with some repeat flowering ability (Hurst, 1941). Also, the summer Damask has a strong fragrance. As well, it has a light pink bloom with flowers varying in color from almost white to dark pink. Its bloom loose is loose and borne in small to medium clusters (Hurst, 1941). The summer Damask is a deciduous shrub growing to seven feet tall, its leaves are pinnate, the foliage are gray-green with five and rarely seven leaflets, the stems densely armed with stout, curved prickles and stiff bristles (Hurst, 1941). Conventionally, this type of roses is cultivated in commercial rose gardens. However, the autumn Damask rose is one of the most historic old European roses it goes back to the roman or earlier where some claims that it is the plant that writers in antiquity described as the Four Seasons Rose of Paestum (Hurst, 1941). This rose has a moderate fragrance. It has medium pink with flowers borne singly or in small clusters. The autumn rose is hardy shrub in spring, followed by scattered blossoms through the summer and fall; as well it shares the same characteristic with the summer Damask foliage that is light gray-green with five to seven leaflets (Hurst, 1941).

Rosa damascena is broadly scattered in Northern hemisphere subtropical habitats. *Rosa damascena* is believed to be originated from Middle East where it was

later introduced into Western Europe (Ginova et al., 2012). After the expansion of the Ottoman Empire, in the 16th century, the cultivation of oil – bearing rose was initiated in Bulgaria (Topalov, 1978). The world main producers of rose oil are Turkey, Bulgaria, and Iran with a less extent India, China, France, and Northern Africa (Ginova et al., 2012). The major cultivation areas in the three major producers are as follow in Turkey Isparta, Denizli, Burdur, Afyonkarahisar, the Kazanlak valley in Bulgaria, and in Iran Shiraz, Meshed, Azerbaijan, Fars, and Kashan (Ginova et al., 2012).

There are numerous chief prospects for production of *Rosa damascena*. It can be transferred into attar and other essential oils in the perfume industry, and/or rose water (Lavid et al., 2002). However, the rose petals are used for preparation of jams, conserves, liqueurs, and jellies. Also, it is used as an ornamental plant in parks and gardens in various countries (Ginova et al., 2012). Even the distillation waste can be used for livestock feed and composting (Ginova et al., 2012). *Rosa damascena* was used in traditional medicine of the ancient Chinese, Indians, Persians, Arabs, etc. For centuries pure rose oil has been used for harmony, romance, enjoyment and treatment. For that, roses were grown in monastery gardens for their healing qualities.

2.2. The significance of rose in religious, spiritual, and cultural traditions

Similar to any ancient fragrant flower, *Rosa damascena* has been venerated for centuries by almost every culture that has had access to it delightful aromas. This

particular rose specie had an old history with Middle East nations were they lived with this flower for centuries hence it became a holy plant to them. It inspired kings and sultans to establish gardens and artists to create masterpieces because of its beauty and fragrance.

The history of the rose antecedes that of human existence. It is estimated that roses were found 20-40 million years ago, as they were found in numerous fossil beds (Altıntaş, 2010). However, the oldest record about rose was found in Mesopotamian clay tablets, dating from 5000 years ago (Altıntaş, 2010). Many archeologists and historians believe that ancient civilizations such as Babylonia were producing and using rose water (Altıntaş, 2010). As well, ancient Egyptians were also interested in roses as the oldest Egyptian hieroglyph associated with rose dates back to 1400 B.C (Altıntaş, 2010). Rose drawings were found in almost all image of the Cleopatra era. Cleopatra's love for roses was revealed in various historical occasions such as she shed rose petals under Marcus Antonius' feet, she had roses sprinkled in her famous milk baths, and used roses her aphrodisiac recipes (Hüsni Can Baser et al., 2013).

Rose is the flower of the goddesses, in Greek mythology. Cloris, who was the goddess of flowers, wears a wreath made of roses (Altıntaş, 2010; Hüsni Can Baser et al., 2013). Also, rose was the symbol of the goddess of love and beauty, Aphrodite (Altıntaş, 2010; Hüsni Can Baser et al., 2013). After Aphrodite gave a rose to the god of love, Eros, the rose became a symbol for love and desire (Altıntaş, 2010; Hüsni Can Baser et al., 2013). And when Eros presented the rose to the god of silence,

Harpocrates, the rose became a symbol for silence and secrecy (Altıntaş, 2010; Hüsni Can Baser et al., 2013). It is interesting that when Aphrodite was transferred to Roman mythology as Venus, her symbol also was the rose (Altıntaş, 2010; Hüsni Can Baser et al., 2013). Attributing to its prominent standing in mythology, the Greek poet Sappho (600 B.C.) was the first to call rose “the Queen of Flowers” (Altıntaş, 2010).

The famous Greek historian Herodotus (490-420 BCE), wrote about the fragrant rose gardens of four-petaled roses of Midas, the Phrygian King, who lived in Central Anatolia near Eskisehir in 700 BCE (Altıntaş, 2010; Hüsni Can Baser et al., 2013). Midas brought his roses to Macedonia after his defeat by the Persian army (Altıntaş, 2010; Hüsni Can Baser et al., 2013). Midas’s roses were believed to be *Rosa damascena* var. *semperflorens* where it is still grown in certain parts of Anatolia and it was later named “King’s rose.” (Altıntaş, 2010; Hüsni Can Baser et al., 2013). Also, Herodotus referred to the 60 petaled roses he had seen in Anatolia (Altıntaş, 2010; Hüsni Can Baser et al., 2013).

The Romans learned about the rose from the Greeks. Roma was well known for its irrigation canals and rich farming lands, beside there wheat fields and fruit orchards they used to cultivate huge rose gardens (Hüsni Can Baser et al., 2013). Romans appreciated the rose and particularly in Neron’s era where they used extraordinary amounts of roses for different occasions such as in their meetings, feasts, and parties (Hüsni Can Baser et al., 2013). Also, because of its exquisite fragrance women in that time used rose in their cosmetic recipes, and they washed their hands

with rose water and loved to use it in their baths that is because they were aware of the antiseptic and the antibacterial properties of the rose (Hüsnü Can Baser et al., 2013). Accordingly, the cultivation and trade of roses took a manifest place in Roman economy (Hüsnü Can Baser et al., 2013).

Almost all the ancient civilizations used rose water in their religious and spiritual rituals. In the early Christianity, Christians repudiated rose as a pagan symbol (Vecera, 1989). Yet, after some time, it became a symbol in the Christian religious too; not only was Virgin Mary dubbed “the thornless rose” also the blood of Jesus and the other martyrs who died under torture was symbolized in the red rose (Vecera, 1989).

Rose is of a highly esteemed value in Muslims traditions and believes. Similar to other religious roses, in Islam it represents different symbols. It symbolizes Divine Beauty and Prophet Muhammad. The deeply rooted traditional significance of the rose in the Muslim world can be inferred from a famous saying: "To smell a rose is a God-rewarded deed" (Altıntaş, 2010). Also, the scent of rosewater is said to be the smell of the sweat of the Prophet Muhammad and hence it is often used in purification rituals before prayer (Altıntaş, 2010). Accordingly, rose, rose oil and rose water are highly respected and often used in religious ceremonies and became indispensable rituals throughout the Muslim world and particularly in the Middle East. During the Muslim pilgrimage to Mecca; Hajj; the black cloth of the Ka’ba’s; the holiest shrine in Islam, located at the mosque in Mecca; is sprinkled with rose water mainly coming from Iran or Turkey, and rose oil is burnt in Ka’ba’s oil lamps (Altıntaş, 2010).

Furthermore, rose is one of the most outstanding vital symbols of Islam it is used by Oriental-Muslim and Sufism; the mystical Muslim; poets (Hüsnü Can Baser et al., 2013). In Sufi believes, the mystic path to Allah is symbolized by the exquisite purity and beauty of roses connected soundly to a long and on a thorny branch rooted in the earth (Altıntaş, 2010). As well, Sufis believe that the rose is the queen of the garden and the mother of all plants and it is named the flower of Heaven (Hüsnü Can Baser et al., 2013). Hence, the rose is a momentous symbol of the Bektashi order of Sufism. In addition, rose is a recurring motif in Rumi's (Mewlana) *Masnawi*: "Rose is sent to earth by the gardeners of paradise for empowering the mind and the eye of the spirit." (Hüsnü Can Baser et al., 2013).

Besides, Muslims value the rose due to numerous reasons. The fable says that when Abraham was thrown to fire by King Nimrod in Urfa; old Edessa today known as Eastern Turkey; the fire is said to be transformed into a pond to embrace him, and a rose garden surrounded that pond (Altıntaş, 2010; Hüsnü Can Baser et al., 2013). Another story is about Sultan Mehmet II; the conqueror of Istanbul in 1453; and Aya Sophia located in Istanbul. It is said that when Sultan Mehmet II depicted in miniature smelling roses, he converted the Saint Sophia church into Aya Sophia mosque after thoroughly washing it with rose water (Hüsnü Can Baser et al., 2013).

During Napoleon era, the previous ancient Roman fame of rose fragrance regained its popularity. Since Napoleon's wife; Empress Josephine; adored roses and loved using rose water in her baths (Hüsnü Can Baser et al., 2013). For that, in 1798,

Empress Josephine cultivated her famous rose garden, the "Malmaison Gardens" (Hüsnü Can Baser et al., 2013). Napoleon was interested in roses because of his wife's love of roses. For that, he ordered his captains who traveled to faraway lands and encounter any novel rose varieties during their travels to bring seedlings of it home (Hüsnü Can Baser et al., 2013). The Empress cared for and funded her rose collection by herself (Hüsnü Can Baser et al., 2013). In around 16 years, her collection proliferated and until her death 250 different varieties of roses were cultivated in her gardens (Hüsnü Can Baser et al., 2013).

Rose played a vital role in the Ottoman culture and tradition. Since the beginning of the Ottoman Empire the cultivation of rose was spread where the Ottoman's land became famous for its roses. In the 13th century, one of the major producers of rose water was Nusaybin town where its rose water had a good reputation, and was a valuable commercial product (Altıntaş, 2010). The Ottomans gained more experience by time in rose cultivation and distillation thus they were able to massively develop their rose industries (Altıntaş, 2010). Based on the reported documentation written at that time, the centers for cultivating and processing rose were two towns of Edirne ;Kazanlık and Zağra; of the Çermen Province; Sanjak (Altıntaş, 2010). Where the rose cultivation in those two towns was much developed and the rose oil and rosewater that was produced in them were of the best quality (Altıntaş, 2010).

According to what P.I.Orozoff; the founder of the famous Bugarian rose oil manufacturing facilities; wrote the rose cultivation and the methods of rose oil

production were "brought to Bulgaria by a Turkish tradesman at the end of the 17th century" (Hüsnü Can Baser et al., 2013). Bulgaria was under the reign of the Ottomans for 500 years (1360-1908) and when it became an independent kingdom thousands of Muslim residents that were there fled into the Ottoman territory (Hüsnü Can Baser et al., 2013). Those people were mainly rose cultivators hence, they carried their rose saplings, as well their long standing experience with them to Anatolia (Hüsnü Can Baser et al., 2013).

Among the various traditional Ottoman practices was offering rose water. This was a common practice that is to say it was not restricted to any social class; all residents practiced this tradition being them from the modest household or from the highest ranked state offices (Altıntaş, 2010). Coffee was served to guests together with incense and rose water, as it was the grand Ottoman state protocol, and this ceremonial service often employed around 40 attendants (Altıntaş, 2010). Ottomans used the rose not merely for its beautiful fragrance yet their physicians used the rose products in their medication recipes as well women used rose and its products as a cosmetic material (Altıntaş, 2010).

Every year, rose festivals take place in the many countries and in different months. In particularly, *Rosa damascena* festivals are held in three major countries; Turkey, Bulgaria, and Iran; and they took place either in May or June. In Turkey, the major city producing rose is Isparta where the rose harvest merely runs for approximately six weeks, typically between late May and early June (Anonymous,

2012). The Isparta Rose festival brings musical acts to the city's stages as well the market stalls fill up with rose marmalades, rosewater face creams and rose-scented perfumes (Anonymous, 2012). Whereas, the largest *Rosa damascena* festival gets underway in Kazanlak, Bulgaria it is done in the 4th and 5th of June in every year (Gavrilescu, 2011). This historic event pays tribute to the legacy of *Rosa damascena* in Bulgarian history and commerce (Gavrilescu, 2011). In early May, the fragrance of rose spreads over various areas of Kashan, for instance, Niasar, Qamsar Barzak and Joshqan Qali (Mirrazavi, 2015). Yet, rose water festivals and ceremonies are held annually in Kashan from May-June (Haghighi et al., 2008). Many people participate in these festival and ceremonies where the participants come from various areas in Iran and tourists from abroad visit Kashan, that is known as the hub of Mohammadi Rose in Iran (Mirrazavi, 2015). Many tourists come to the rose water ceremony that is held in Kashan. Approximately, every day, 80,000 people tour different cities of Kashan for this traditional festival (Mirrazavi, 2015). Hence, this festival is considered to have a positive economical impact on various districts of Kashan due to tourists' arrival and participation in the festivals activities (Mirrazavi, 2015).

Rosa damascena is also integrated within the socio-cultural structure in areas where it is cultivated. Many examples can be given revealing rose cultural importance in Turkey particularly. For instance, names of newborns in Turkey, starts or ends with rose (Gül), such as Gülay, Gülcemal, and Nurgül (Koksal et al., 2015). As well, in Isparta, Turkey places are named after rose as Gülköy, Gülkent Government Hospital,

Gülevler District (Koksal et al, 2015). Moreover, rose symbol appears as the emblems/logos as the case of the City Council's emblems and Suleyman Demirel University (Koksal et al., 2015). Even weddings are arranged and organized based on the rose harvest in areas where rose cultivation is popular (Koksal et al., 2015).

2.3. Traditional and current uses of *Rosa damascena*

2.3.1. Agricultural Usage

Roses were first cultivated as hedges or barriers around agriculture lands to prevent livestock from entering and destroying crops. This practice exists before the pervasive acknowledgement of the commercial potential of roses for fragrance (Zurayk & Abedrahman, 2008).

2.3.2. Rose Water and Attar

Even though, there is no particular record in history that reveals when rose water was discovered, there are many records that confirm that it was an essential part of ancient people's life. Perry (1925), presented other historical records of rose water presence at ancient times where he mentioned that in Ibn Khaldun's book there was a reference to rose water "the province of Faristan, in Iran, was required to give a tribute of 30,000 bottles of rose water annually to the Caliph at Bagdad for the years 810- 817 A.D." ((Perry, 1925 as stated in Widrechner, 1981). The Persian medieval geographer,

Istakhri, showed the rose water export from Faristan to China as well as throughout the Islamic world (Widrlechner, 1981). Based on Sawyer (1894), the first European reference to rose water dates back to 961 A.D. in *Le Calendrier d'Harib*, which mentioned that rose products and rose water should be prepared in April. In company with their territorial expansion in the 10th century, the Moors brought the technology by which rose water is produced to Spain. Yet, later on the distillation of the attar from rose appeared and almost certainly it arose independently in the Arab world and Europe. According to Fliückinger, 1867, Wecker, in 1574, named Geronimo Rossi of Ravenna as the first to produce attar (Fliückinger, 1867 (Widrlechner, 1981). Also, Fluckinger revealed that in the 1600s the attar, *Oleum rosarum destillatum*, was found in the price lists of German apothecaries (Fliückinger, 1867 as stated in Widrlechner, 1981). The attar origin in India is told in a romantic tale, Manucci (ca. 1680), refer to the Grand Moguls (1525-1667), where he described the seventh year of the reign of Djihan- Guyr, feast "The princess (Nour-Djihan) indulged her luxurious caprice so far as to have a canal circulating round the garden filled with rose water. Whilst the emperor was walking with her along the banks of this canal, they perceived a kind of scum floating on the surface of the water, and realized that it was some-thing from the roses which the heat of the sun had caused to separate from the water (through evaporation) and to aggregate in a small mass. Everybody agreed that it possessed the most delicate perfume known in India" (Widrlechner, 1981). The feast took place in 1612, and it is said that the distillation in Persia dated from the same year (Widrlechner, 1981).

Whereas, another story reveal that Damask rose had been carried from Damascus to South France with the return of The Crusaders (Lawrence, 1997).

Accordingly, by the end of the 1600s, attar production became very popular chiefly the distilleries in Shiraz, Iran (Widrlechner, 1981). As per, Orozoff (1906), the spread of rose cultivation for the purpose of attar to East and West originated from Persia. This is verified by the fact that the word attar is borrowed from the Arab and Turks, *itr*, while in Farsi, *aetr* means fat (Orozoff, 1906 as stated in Widrlechner, 1981). Whereas, based on Pal (1966) the Hindi word, *itr*, means the product made by absorbing rose flower distillate in oil of sandalwood (Orozoff, 1906 as stated in Widrlechner, 1981). The Indian commercial rose was grown in Uttar Pradesh, and until these days it is still the center of Indian attar production (Widrlechner, 1981). In modern Turkish, the attar is known as *gul yagi*; *gul* borrowed from Farsi and it literally means flower yet is frequently used to refer to the rose (Widrlechner, 1981). The spread of the industry can be shown through the adoption of the Arab/Turkic attar in different forms in the Bulgarians, Romanians, Russians, and Ukrainians languages. However, Indo-European languages, except English, use their own word meaning oil or essence (Widrlechner, 1981). It is vital to remark that the most often cultivated rose for attar production was *Rosa damascena* (Widrlechner, 1981).

Damask rose products mainly, rose water and rose oil are among the most valuable raw materials of food, pharmaceutical, cosmetic, perfume industries (Farooq et al., 2011; Rusanov et al., 2012).

2.3.3. Cosmetic and Perfumery Usage

Rose oil, rose water and dried Damask roses are often used in cosmetics industry in the production of an anti-aging product, facial creams, toner for fair and dry skin, soap, and other skin care cosmetic products such as lotion with antiseptic and refreshing effects (Baydar, 2006; Rusanov et al., 2011; Boskabady, 2011b). Even the Damask rosebuds are used in various ways. For instance, after soaking the rosebuds in water for three or four days they release a rose essence then it can be either added to the bath water or rinsing the hair with it after shampooing (Boskabady, 2011a). It is revealed that it leaves the hair and the skin soft with the aroma of roses (Boskabady, 2011a). Not only cosmetic industry use Damask rose, the perfumer industry does too; where rose oil serves as a fixator in perfume blends (Baydar, 2006).

2.3.4. Cultural Usage

For centuries, Damask rose was referred to as a symbol of love and beauty. Dating back to the biblical times in the Middle East and later to the Indian subcontinent, people used to capture and preserve the fragrance of the rose in the form of rose water (Widrechner, 1981). During the reign of Henry VIII, the Damask roses were introduced into England and it was commonly displayed, sprinkled, and scattered at weddings, ceremonies and festivals (Haynes, nd). At the present time, they are widely used as potpourri ingredients and in craft projects (Altıntaş, 2010). Also, they are used in decoration as hair decorations when attached to hairpins or to decorate festive tables

(Haynes, nd). As well, roses are frequently used in wedding ceremonies; they are gathered in organza bags or decorated boxes, where they make perfumed keepsakes and this is a replacement of the traditional Avola sugared almonds (Haynes, nd). Besides, rose water is used in religious ceremonies in different countries like Iran and Saudi Arabia, for example during the Muslim pilgrimage to Mecca; Hajj (Altıntaş, 2010).

2.3.5. Edible & culinary usage

Due to rose water and rose oil aromatic and volatile characteristics they are used in the food industry mainly, in production of jam, beverages, tea, cake, biscuits, and confectionery (Farooq et al., 2011; Rusanov et al., 2011). Damask rose is used in cooking as a flavoring ingredient or spice. For example, the famous Moroccan spice, Ras el Hanout, Damask rose is one of its major ingredients (Haynes, nd). Also, Indian and Middle Eastern cooking uses both rose water and powdered roses (Pal, 2013; Widrlechner, 1981; Kovacheva et al., 2010). Likewise, a valued dish in the Persian cuisine is Chicken with rose jam (Haynes, nd). Although the Western cookery in these days does not make much use of Damask rose, the Mediterranean cuisine still favors it such as sprinkling rose water on many meat dishes, and adding rose powder to sauces, yogurts and other desserts, with special favoritism to the delicacies rose petal jam (Pal, 2013; Widrlechner, 1981; Kovacheva et al., 2010).

2.3.6. Healing usage (Pharmacological effect)

Besides, its application in aromatic and food industry industries *Rosa damascena* Mill products mostly, rose water, rose oil, and dried flowers, has been widely used as folk /herbal medicine for different therapeutic purposes. Accordingly, *Rosa damascena* has gained significant attention in different fields of study such as horticulture, biochemistry, and pharmacology due to the fragrance of the flowers and high content of its biologically active substances. Apart from, its traditional usages, several Pharmacological studies have been widely performed on *Rosa damascena* during last two decades. These studies evaluated and reported some valuable characteristics of effects of the rose oil and the rose flower extracts. They were proven to have possessed a wide range of health beneficial activities, thus they have application in pharmacology.

Rosa damascena was used in ancient medicine due to its therapeutic effects. Its usages vary between treatments of acute to chronic illness. In ancient medical books, *Rosa damascena* has been recommended for treatment of abdominal pain and digestive problems, treatment of menstrual bleeding (AveSina, 1990), as well as an anti-inflammatory and chest pain remedy (Green, 1999). Moreover, the root of *Rosa damascena* plant was used as a cough remedy to ease children's cough by North American Indian tribes (Boskabady, 2011a).

Rosa damascena had possessed various health benefits and they have application in pharmacology. Different rose preparations are used medicinally such as

cardiac troubles, eye disease and gallstones (Verma et al., 2011). It is proven that the rose oil vapor therapy is helpful for headaches, migraine, and allergies (Boskabady, 2011a). In addition, the rose oil aroma has been proven to have aid and positively affect the learning and memory process (Koksal et al., 2015). As well, rose oil heals depression, grief, nervous stress, and tension (Boskabady, 2011b). Moreover, it helps in the reduction of thirst, wound healing, skin health and healing old cough (Boskabady, 2011a). In addition, rose extract/isolates have been reported to have an antitussive (Shafei, 2003), anti-inflammatory (Maleev et al., 1972; Green, 1990; Biswas et al., 2001; Basim & Basim, 2003; Koksal et al., 2015.; Loghmani-Khozani et al., 2007; Rakhshandeh et al., 2008); antispasmodic (Dolati et al., 2013) and hypnotic activities (Rakhshandah et al., 2004; Rakhshandah & Hosseini, 2006; Rakhshandah et al., 2007); antibacterial (Mahmood et al., 1996; Aridogan et al., 2002; Basim & Basim, 2003; Ozkan et al., 2004; Andogan et al. 2008; Adwan & Mhanna, 2008; Ulusoy et al, 2009) analgesic (Basim and Basim, 2003), and anti-HIV (Mahmood et al., 1996).

2.4. *Rosa damascena* Products

There are different products from *Rosa damascena* in the world. Yet, the major four products that are obtained from *Rosa damascena* are namely, rose water, rose oil, rose concrete, and rose absolute. It's important to highlight the difference between rose water, rose oil, rose concrete, and rose absolute. These are distinguished based on the

quality that is affected by different factors such as genetic make-up, agronomic management, environment, and distillation methods.

2.4.1. Rose oil

Rose oil is the volatile oil distilled from the petals of freshly harvested *Rosa damascena* flowers (Haghighi et al., 2008; Boskabady, 2011a). The volatile oil from *Rosa damascena* species is referred to as attar, *otto* or essence of roses; it is, pale, yellow, and semisolid (Haghighi et al., 2008; Boskabady, 2011a). The oil is prepared in a traditional way in a copper alembic stills by the peasant or in industrialized way in large factories under careful scientific control (Haghighi et al., 2008; Boskabady, 2011b).

The leading producing countries are Turkey, Bulgaria, and Morocco, and Iran to a lesser extent (Haghighi et al., 2008; Boskabady, 2011b). Rose oil is a very expensive essential oil, this is attributable to two main reasons: (1) the lack of quality natural and synthetic substitutes; (2) short flowering time of the *Rosa damascena* (Haghighi et al., 2008; Boskabady, 2011b).

Rose water is a significant commercial by-product of this distillation (Haghighi et al., 2008; Boskabady, 2011b). Rose oil is widely used as a raw material in perfumery and cosmetic industry (Haghighi et al., 2008; Boskabady, 2011b). Besides its perfuming effects, rose oil and rose flower extracts possessed a wide range of health beneficial effects (Haghighi et al., 2008; Boskabady, 2011a).

2.4.2. *Rose Water*

Rose water is one of the most important products obtained from *Rosa* genus (Rosaceae) (Haghighi et al., 2008; Boskabady, 2011a; Mahboubifar et al., 2014). Iran is one of the main producers of rose water by both traditional and industrial methods (Mahboubifar et al., 2014).

During the hydro-distillation of rose oil rose water is produced by mixing pure, clean, hot water with oil water in ratio of 1:1 then it is filtered several times and bottled (Haghighi et al., 2008; Mahboubifar et al., 2014). This natural rose smelling water is produced by either fresh rose flowers (i.e. whole flowers or their petals) or air dried form (Mahboubifar et al., 2014). In some industrial houses, they consider the rose water as a by-product of the rose oil, where they simply produce it by diluting the rose oil with distilled water (Mahboubifar et al., 2014). It is used in different ways, such as in food as flavoring agent, and because of its pleasant odor it is used in soap, perfume and cosmetic (Haghighi et al., 2008; Boskabady, 2011a; Mahboubifar et al., 2014). Rose water is also applied as a perfume in religious ceremonies (Haghighi et al., 2008; Boskabady, 2011a; Mahboubifar et al., 2014).

2.4.3. *Rose Concrete*

It is a waxy semi solid product, it is obtained by extraction from rose flowers with volatile solvent (e.g. hexane), and subsequently via evaporation of the solvent in vacuum (Pal, 2013). Concrete is used as a raw material by which they produce rose

absolute that is known to be utilized in the cosmetics and perfumery industries (Pal, 2013).

2.4.4. *Rose Absolute*

It is produced by the extraction of rose concrete with alcohol, and subsequently the alcoholic solution is distilled under a vacuum in order to remove the alcohol (Pal, 2013).

2.4.5. *Dried Flowers*

Dried flowers are mainly produced in Iran, and they came in two types (Haghighi et al, 2008, Boskabady et al. 2011a).

(1) Dried bud mostly exported (Haghighi et al, 2008, Boskabady et al. 2011a);

(2) Dried petals for various purposes, mainly it is eaten with yogurt and it is proven to help in some digestive system illnesses (Haghighi et al, 2008, Boskabady et al. 2011a). When distilleries cannot accept the whole produced rose flowers anymore, farmers store the dried petals for later use in distillation (Haghighi et al, 2008, Boskabady et al. 2011a).

2.4.6. *Hips (seed-pot)*

Hips of *Rosa damascena* are chiefly found in Iran, in two forms dried and fresh hip processed and unprocessed (Haghighi et al, 2008, Boskabady et al. 2011b). The fruits of the rose contain important organic and inorganic matters which are beneficial to the human health (Haghighi et al, 2008, Boskabady et al. 2011a). As well, the seeds

of the rose hip contain unsaturated and polyunsaturated fatty acids (Haghighi et al, 2008, Boskabady et al. 2011a). Also, *Rosa damascena* fruits encompass α -tocopherol, β -carotene, ascorbic acid, and mineral elements (e.g. Ca, Fe, K, Mn, Na, P, and Zn) (Haghighi et al, 2008, Boskabady et al. 2011a).

2.4.7. Other Products

There are other products that are also extracted from flowers, petals, and hips of *Rosa damascena* such as aqueous, chloroformic, ethanolic, and hydrosol extractions (Haghighi et al, 2008, Boskabady et al. 2011b). Besides, various other products are produced in specific areas such as vinegar and rose honey (Haghighi et al, 2008, Boskabady et al. 2011b). It is noteworthy, that hydrosol and absolute are less expensive compared to rose oil (Haghighi et al, 2008, Boskabady et al. 2011b).

2.5. Economic aspects of *Rosa damascena*

2.5.1. History of Trading

The first records that reveals the exports of *Rosa damascena* was mentioned in Farley (1862), he mentioned that in 1860 the Ottoman Empire; at the time the Bulgaria was still part of the Empire; exported to England and France a total of 1110 kg of attar (Widrlechner, 1981). Then, the other historical Turkish exporting figure dated back to 1913 (Widrlechner, 1981). Based on Garnero et al. (1976), in 1962-1965, the Turkish

annual exports were about 1,200 kg of attar, yet, its exports were almost tripled between 1970-1973 when it reached 2,800 kg of attar (Widrlechner, 1981). As well, Turkey used to export rose water; in 1972 it exported over 6,000 kg (Widrlechner, 1981). Not merely Turkey had this historical export records Persia and Bulgaria also used to export *Rosa damascena* and its by-products. According to Tschirch (1917), huge quantities of rose water were exported to India from Iran, over 200,000 kg in 1891 (Widrlechner, 1981). Orozoff (1905) also, recorded different values of Bulgarian *attar* production in different years 2,142 kg, 4,076 kg, 4,197kg, in 1899, 1903, 1904 respectively (Widrlechner, 1981). Rochlin (1957) noticed that the Bulgarian rose production was affected by the World War II, where the land that was cultivated declined. In 1939, 6,300 ha were devoted to rose culture; while in 1948, it decreased to 2,000 ha (Widrlechner, 1981).

2.5.2. Economics of Cultivation and Distillation of Rosa damascena

As per Singh and Singh (2001) economical findings the *Rosa damascena* cultivation is a capital intensive and highly specialized enterprise where it requires a substantial initial investment on plantation and installation of distillation plant (Singh & Singh, 2001). Also, the entrepreneurs face management problems precisely; their demand for seasonal labors to ensure that they will be able to work efficiently in such a short plucking period (Singh & Singh, 2001). Furthermore, a significant issue when dealing with *Rosa damascena* is the scale in which it will be cultivated in. It is recommended that the farmers cultivate in a collective or cooperative basis therefore,

they can ensure an economical viability in case they need to produce a good quality for distillation in a village or even region (Singh & Singh, 2001).

2.5.3. Trade and Marketing of Essential Oils

It is well known that the true essence of the plant can be found in the essential oils. There is a consistently growing demand on and increase in prices of essential oils at national and international markets. Hence, essential oils imply a noteworthy upstream business opportunity for the world agricultural sector. Based on Bloor et al., the entire world annual turnover of cosmetic, perfumery, and flavor industry exceeds US \$ 6 billion comprising more than 100 essential oils (Bloor et al, 2000). In 2008, the top exporters of essential oils were the France, UK, Germany, Switzerland, USA, Brazil, China, India, Indonesia, and Argentina (Pal, 2013).

In these days, the most expensive essential oils in the world market is rose oil owing to low oil content and lack of natural and synthetic substances (Baydar & Baydar, 2007). Annually, the world production of rose oil and rose concrete is 15-20 tons (Baydar, 2006). The major producers and suppliers of the rose oil in the world market are Bulgaria and Turkey their share is 80-90% of the world production (Gunes, 2005). The rest of the world production supply comes from France, Italy, Lebanon, Iran, Russia, India, China, Morocco, and Mexico (Gunes, 2005). Even though, there are some other Middle Eastern countries that have historically produced rose oil, yet their modern contribution is minimal (Gunes, 2005).

The annual production of the rose oil is 4.5 tons (Gunes, 2005). However, the yearly consumption is between 3.5 and 4 tons this implies that the annual rose oil consumption is much lower than the annual production (Gunes, 2005). Consequently, this lead the producers to carry stock over from year to year hence, they encounter price fluctuation (Gunes, 2005). The fluctuation severity is influenced by the aggressiveness of the companies aiming to do more business and if they are able to find new customers for their products (Gunes, 2005). Actually, average price of the rose oil is between 3.8 - 4.00 \$/kg where the highest price was 4.2\$/kg. A key reason behind the high price of *Rosa damascena* is its short flowering time (Gunes, 2005).

2.6. Constraints and Opportunities

Besides, *Rosa damascena* historical and cultural importance, its cultivation is a significant commercial dynamism includes all its agricultural activities being it planting the garden, harvesting and processing. Nevertheless, this traditional activity is facing chief problems in all countries that produce it.

In fact, Damask rose growers are facing many constraints such as: (1) roses are frost sensitive and have irregular flowering behavior (Pal, 2013); (2) a key obstacle is the available spaces, since the existing gardens are small and fragmented due to the division of land into pieces by inheritance (Rusanov et al., 2011); (3) farmers are replacing the rose gardens by alternative agriculture products or even economic activities thus they can bring in more money and reduce the risk due to the international

and national market alternation (Rusanov et al., 2011); (4) roses cultivation is highly labor intensive particularly for picking of flowers (Pal, 2013); (5) during harvest temperature affects the oil content of the flower, high temperature cause loss of essential oil from the trichomes of the petals (Baydar & Baydar, 2007); (6) roses have low flower yield and low oil content (Sharma & Farooqi,1990); (7) roses have very low oil recovery from prevailing oil distillation methods (Pal, 2013); (8) the majority of rose's growers are not aware of recent production technologies (Pal, 2013); (9) instead of being a source of income *Rosa damascena* is considered merely an economical support to the framers (Rusanov et al., 2011).

Over decades, the cosmetics and perfumery industries were quiet conformist to produce constant quality of rose oil (Pal, 2013). On the other hand, farmers are not able to do so mainly since there are no definite market and support price from the governments (Pal, 2013). Therefore, big processing unit holders exploit the farmers (Pal, 2013).

2.7. *Rosa damascena* in Lebanon

Rosa damascena has a long history with the Lebanese culture heritage this can be revealed starting from growing, cultivation and consuming this plant. It is believed that distillation of roses in Lebanon outset since the Ottoman Empire in the 14th century (Najem et al., 2011). A large diversity of Lebanese Damask rose is found throughout the country this is mainly due to the evolved different gene complexes favoring

adaptation to local environmental conditions (Najem et al., 2011). *Rosa damascena* is used by Lebanese to produce mainly rose water, rose jam, rose jelly, sherbets and syrup of rose (Zurayk & Abedlrahman, 2008; Najem et al., 2011). Where rose water is consumed as a flavor in food, dried buds are used as herbal tea, and dried petals are used as decoration of Arabic sweets (e.g. bakawa ana ma'amoul) and as an additive in Lebanese cooking in association with other plants (Zurayk & Abedlrahman, 2008 & Najem et al., 2011).

According to, “Akkar to ‘Amel Lebanon’s Slow Food trail” book in Lebanon the local harvest is impacted by people’s interaction with their customs and traditions (Zurayk & Abedlrahman, 2008). For instance, one of the most famous producers of rose water (mawared) in Lebanon is made in the central Bekaa village Qasarnaba. Where in spring, Qasarnaba smells like paradise because of the thousands of Damask rose that come into flower at the same time. Damask rose is the main raw material for rose water production where rose water is a distillate of the petals of the Damascus Rose (*Rosa damascena*) (Zurayk & Abedlrahman, 2008) .

As per El Beyrouthy *et al.*, 2008, *Rosa damascena* is used in Lebanon in alternative medicine for both external usages (e.g. eye-lotion, conjunctivitis antirheumatic, dermatitis and skin irritation) and internal usage (e.g. antioxidant, anti-constipation, antimicrobial, carminative, cardiogenic, and stomachic) (El Beyrouthy, 2008; El Beyrouthy *et al.*, 2008). According to the Arab folk medicine, in case of sunburn rose water is believed to soothe and rejuvenate the skin (Zurayk &

Abedrahman, 2008). As previously mentioned similar to many other countries in Lebanon rose water is used for religious and social purposes, as it is sprinkled inside mosques and in wedding ceremonies (Zurayk & Abedrahman, 2008).

CHAPTER III

CONCEPTUAL FRAMEWORK

In order to adequately investigate and fulfill the study's two main objectives a conceptual framework that is based on robust and relevant theories must be planned. To begin with, the value chain theory with its different concepts will serve as the major guideline on how to organize the findings compiled from the thematic analysis of the *Rosa damascena*'s value chain in Qasarnaba. On the other hand, the sustainable livelihood assets from the sustainable livelihood framework will represent the basis for understanding of the key determinants behind the rose's sustainability and agriculture anomaly in Qasarnaba.

3.1. Value Chain Theory: Concepts and Importance

Basically, the origin of value chain thinking lies in the supply chain and business strategy literature (Porter 1980), and in the work on commodity chains which appeared in world-systems theory (Hopkins & Wallerstein 1994).

In 2000, new definitions of the value chain came up. Kaplinsky and Hobbs et al. Kaplinsky referred to a value chain as, "the full range of activities which are required to bring a product or service from conception, through the intermediary phases of production (involving a combination of physical transformation and the input of various

producer services), delivery to final consumers, and final disposal after use” (Kaplinky, 2000). Hobbs et al. defined a value chain as “a vertical alliance or strategic network between a number of independent business organizations within a supply chain” (Hobbs et al., 2010).

Among other scholars who also defined the value chain came Best and Mamic in 2008 where they defined a value chain as “all functional activities and firms involved in producing and distributing a product or service, from input supply and product design through to its final disposal by the consumer.” (Best & Mamic, 2008). Also, in 2009 Chastain et al. described value chain as “the term for the sum total of all value adding activities that lead to putting a product on the market” (Chastain et al., 2009).

Such an approach is not only used to understand the system as a whole, but it allows the research to identify how the system’s constituent parts work. It is a structured method for analyzing all value chain activities, processes, linkages and the impacts of each constituent on the overall performance of the value chain (Zokaei & Simons 2006; Soosay et al. 2012; Gómez & Ricketts 2013). Value chain analysis assists strategy makers in ascertaining policies that can be implemented in order to increase the share of the gains at micro (i.e. individual producers) and macro (i.e. countries) (ITC, 2003).

According to the researches, value chain is a conceptual framework they use to recognize the relations among independent enterprises that share responsibilities in

the production of a particular product or service (Donovan, 2011). In other words, a value chain is the set of interfirm linkages which are essential to transfer a product from production to consumption.

Applying the value chain analysis has many advantages and enriches the study mainly due to the following reasons:

- It allows the researcher to understand the overall organization and structure (UNIDO 2009);
- It enables the researcher to understand the functions operated along a value chain, starting from the input supplies ending in product consumption (Mitchell et al. 2009);
- It examines relationships among all actors performing in the chain, thus it is not limited to a single stage or a few stages of the value chain (Badar, 2014);
- It is used to determine the value creation process through a sequence of activities executed by actors in the value chain (Soosay et al. 2012);
- It significantly assists in proposing methods for improving efficiency and effectiveness through sharing of information, innovation, lowering costs, adding value, reducing waste and developing consumer driven business strategies and tactics (Hobbs et al. 2000; Collins et al. 2002; Zokaei & Simons 2006).
- It is utilized as a valuable diagnostic tool for exploring issues and recognizing continuous improvements along a value chain (Soosay et al. 2012).

A visual representation of basic concepts of value chain theory is represented in figure:



Figure 7- Value Chain: Technical Production Process

3.2. Sustainable Livelihood Approach as a Pivotal for this Study

The sustainable livelihood approach is centered on the way people make a living to illustrate, how they are gaining access to resources and ways they handle those resources. As a result various activities are undertaken to shape this meaning of living. This approach enables the analysis of the livelihood in a broad and holistic way where it ‘comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living’ (Chambers & Conway, 1992). Another definition of this approach claims that sustainable livelihoods “are rooted in particular people in specific places making decisions about sustaining themselves and their families...Being grounded in people’s daily struggles, and building upon their myriad strengths, these approaches encompass many different priorities and strategies” (Kollmair, 2002).

The sustainable livelihood approach focuses on people's assets rather than their needs. DFID "sustainable livelihood framework" was built upon five assets, namely human, social, physical, natural and financial capital (DFID,1999). Scoones also, denoted these assets as "livelihood resources" where he conceptualized them as "the capital base from which different productive streams are derived [and] from which livelihoods are constructed" (Scoones, 1998).

It is fundamental to examine how people attempt to transform these strengths into positive livelihood outcomes. This approach is established on a belief that people requisite a range of assets to attain positive livelihood outcomes. In other words, these five assets assemble to form an "asset pentagon", which is used to stress their interconnections and the fact that livelihoods rely on a combination of assets (DFID, 1999).

Hence, it is a valuable approach that highlights the problem and scope for promoting sustainable development at the community level based on the six major principles of sustainable livelihood approach. These principles advocate that this approach is dynamic (learns from change), people centered (emphasizing the scope and priorities of development initiatives), holistic (non-sectoral), builds on strengths rather than needs and makes macro to micro linkages (DFID, 1999).

In a nutshell, this reveals that the study should aim to assess the various factors and processes which either constrain or enable *Rosa damascena* stakeholder's ability to make a living in an economically, environmentally, and socially sustainable manner.

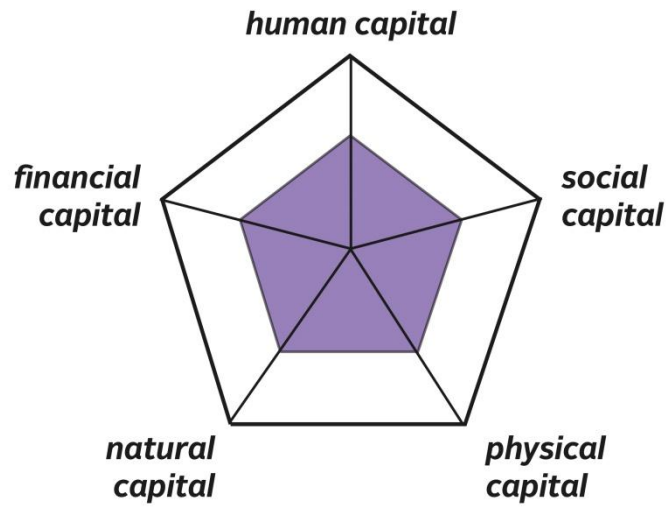


Figure 8- The Sustainable Livelihood Asset Pentagon

CHAPTER IV

RESEARCH METHODOLOGY

4.1. Methodological Approach

My study is empirical and exploratory in nature whereby it draws on qualitative methods. Such type of studies usually provides insight and comprehension view rather than detailed and replicable data. The major research tools in qualitative studies are in-depth interviews, focus group, and analysis of case studies (Babbie & Mouton, 1998).

The methodological approach aimed to involve key stakeholders through focus groups and in-depth interviews not merely to understand the current situation, but also the oral history of this production system. Some of the questions were about: how is *Rosa damascena* produced, processed and sold? What factors entice different players to produce/process/sell *Rosa damascena* and its products? When and how was *Rosa damascena* production introduced to Qasarnaba? How does it contribute to the livelihoods of growers?

This study research method was implemented by conducting 8 semi-structured interviews with four processors and four wholesalers based on the Interview Guideline (Appendix B) and four focus group based on the Focus Group Guideline (Appendix A).

The semi-structured interviews and the focus groups were conducted over the period of 3 weeks in March. I studied the contributions of the various individual actors in *Rosa damascena* value chain. As well I tried to identify the key features that contributed to confining the *Rosa damascena* cultivation and production to this geographical area; namely, the agricultural anomaly.

4.2. Study Design

4.2.1. Semi-Structured Interviews

A comprehensive definition of an in-depth interview based on different definitions is that it is a purposeful discussion between a researcher and a respondent aiming to provide a direct access to deep, valid and reliable information/data related to research objectives (Creswell 2009; Saunders et al. 2009). According to Stake (2010), “interviews are conducted to acquire unique information held by the interviewees that the researcher cannot glean by any other means” (Stake, 2010). Weiss (1994) also stated that “interviewing gives us access to the observations of others. Through interviewing we can learn about places we have not been and could not go and about settings in which we have not lived” (Weiss, 1994). Moreover, semi-structured in-depth interviews involve people in a participatory manner thus yielding rich data (DiCicco-Bloom & Crabtree, 2006). The interviews nature varies from totally structured to totally unstructured, with semi-structured lying between those two extremes (Badar, 2014). In

other words, semi-structured interviews use both structured and unstructured questions to seek relevant and rich information.

Different partly-structured questionnaires were used for the interviews of the different actor groups in the chain. The questions were based on themes for key persons and these themes vary according to the information needed. The interview guide was developed prior the field based on a review of the literature. All questionnaires were prepared in English. After finalizing the draft interview guide in English, I translated it into colloquial Lebanese Arabic. During the translation process emphasis was placed on the meaning in the local context not on the semantics.

4.2.2. *Focus groups*

Basically, a simple definition for a focus group is an arranged informal group discussion among selected participants to examine a particular topic (Wilkinson, 2004; Kitzinger, 2005). This particular qualitative tool was given different names by scholars such as a focus group interview, a group interview, or a group depth interview. The focus groups have been used for various purposes over the past century. The reason behind the popularity of this tool in recent years is because it is perceived as a method which can generate complex information at low cost, and provide results quickly (Kroll et al., 2007). There are some advantages of focus groups for participants who find one-on-one interaction “intimidating/scary”, thus a focus group may offer them “a safe environment where they can share ideas, beliefs, and attitudes in the company of people

from the same socioeconomic, ethnic, and gender backgrounds” (Madriz, 2003). On the other hand, the researcher gains numerous benefits: (1) the discussion between participants provides the researchers with an opportunity to hear issues and uncover aspects of understanding which may not emerge or often remain hidden in case a conventional in-depth interviewing is done; (2) the interaction among the participants themselves results in emphasizing on the points of view of the participants rather than those of the researcher (Gaiser 2008); (3) this method makes the participants more involved in the research which will probably make the research findings meet their needs (Ivanoff & Hultberg 2006).

The primary aim of a focus group is likely to reveal diverse understanding of the meanings and interpretations given by a selected group of people on a specific issue (Liamputtong, 2011). Focus groups ‘encourage a range of responses which provide a greater understanding of the attitudes, behavior, opinions or perceptions of participants on the research issues’ (Hennink, 2007). Based on Kitzinger description the group is focused because ‘it involves some kind of collective activity’ (Kitzinger, 2005). Usually, a focus group discussion is more akin to natural social interaction among participants and it permits multiple lines of communication which often are difficult to access by other methods of data collection.

Practically, focus groups consist of a group of 6–8 participants who share similar social, cultural backgrounds and/or who have similar experiences and concerns (Bloor et al., 2001). As well the choice of the participants is based on their abilities to

provide valuable contributions to the research questions (Stewart, 2007). They are gathered together to discuss a particular topic with the aid of a moderator in a specific location where participants are at ease thus ensuring their engagement in a dynamic discussion and encouraging them to talk to each other instead of answering the moderator's questions (Jowett & O'Toole 2006; Liamputtong 2009). It is important to notice that the moderators primary intention is to facilitate discussion rather than to direct it.

As earlier mentioned, focus groups have been shown as effective and efficient way in exploring people's perceptions, thoughts, and opinions (Barriball et al., 1994). Therefore, I decided to use focus group as one of the data collection method. The aim of the focus group was to investigate wholesalers' and processors' perception of *Rosa damascena* and explore its value chain.

Four focus groups were conducted over the period of 3 weeks where they were conducted in one of the focus group participant's home. The focus groups participants were all *Rosa damascena* farmers. All the focus groups were conducted in colloquial Arabic for around 90 minutes and with the assistance of a note-taker.

4.3. Population and Sampling

As per Patton, "There are no rules for sample size in qualitative inquiry. Sample size depends on what you want to know, the purpose of the inquiry, what's at

stake, what will be useful, what will have credibility, and what can be done with available time and resources” (Patton, 2002). There is less attention given for the sample size in qualitative studies since these studies rely on learning true meanings from findings, rather than generalizations (Crouch & McKenzie 2006; Mason, 2010). As well, in qualitative research, there are no exact methods and clear rules to determine the sample size.

A snowball sampling technique was employed to identify and contact key informant. Saunder et al. defined snowball sampling as “identifying respondents through initial contact with one respondent who refers the researcher to others, and so on” (Saunders et al. 2009).

There might be a risk that some participants, such as small growers, small wholesalers, and producers could be missed. These chain participants will be purposively selected thus this study will try to be represent groups at all level of the chain. The procedure for selecting individual respondents from *Rosa damascena* value chains is detailed below.

According to their function in the value chain the sample size of each interviewed group was defined. The highest sample size group was for farmers (21 participant) with whom I conducted focus group discussions. The four focus groups consisted of 4-6 farmers each. Ensuring that at each group I had small size farmers who grow *Rosa damascena* on their own plots 2 dunums or below and other participant who cultivate 4-6 dunums. On the other hand, wholesalers and processors were smaller in

size where only four wholesalers and four processors were interviewed. However, the in-depth interviews I made sure that I had at least 2 small processors and 2 small wholesalers.

4.4. Data Collection Techniques

The bulk of this study data is based on primary data from the participants, supplemented by secondary data coming from the literature review such as government reports, previous studies, and relevant material available in both Arabic and English.

The interviewees and focus group participants were chosen from Qasarnaba, Beqaa, Lebanon and of different socioeconomic statuses. The interviews and the focus groups were conducted with men and women whose ages range between 35 to 90 years old. This age group is dominant since younger age groups are not interested and do not work in *Rosa damascena* cultivation and processing. Participants were recruited and interviewed in places they decided on, putting them at ease in order not to cause any burden on them.

First, 2-3 farmers, whom I already knew, were asked to lead me to other participants such as friends or people they know and ask them if they would like to participate (i.e. snowballing method). After obtaining those farmers permission and agreeing to be approached, I explained the project to them to obtain their approval to be contacted for research purposes. Those who were willing to participate were contacted to agree on a convenient time. After conducting the focus groups, the farmers were

asked to recommend some other key informants namely wholesalers and processors ensuring that at least two of them work on a small scale and two others on a large scale. Similar to the farmers, the recommended wholesalers and processors were asked if they are willing to be part of my study. Those who were willing were also contacted to agree on a convenient time and place. All interviews took place in the participants' work place. Since all interviewed wholesalers and processors are the owners of their works no non-employability risk was entailed.

Before starting the interview or the focus group, informed consent was secured orally. Once participants consent, I asked for the permission to tape. Interviews proceed irrespective of the consent to tape, where I took notes instead. A copy of the informed consent that has the contact information of the IRB and the researcher signed by me were given to all participants.

The interview and focus group guides consisted of open-ended questions. My role was to handle the interview or focus group and probe when required to extract more in depth data. Furthermore tape-recording freed me from the liability and burden of note taking, and offered me more time to listen attentively and reflect (DiCicco-Bloom & Crabtree, 2006). It is crucial to mention that the key element to having a successful interview or focus group is being socially sensitive, respectful and responsive to the participants accordingly to build trust.

I conducted all the interviews and focus group discussions in colloquial Lebanese Arabic over a period of three weeks. I made sure to take note of participants'

responses and reactions to questions and place emphasis on asking questions in a culturally sensitive manner. Since I am from the region and I am familiar with the culture, I was able to pick up on cues and assure social proximity between the interviewees and me (Bourdieu, 1996). Colloquial Lebanese Arabic was the language used in the interview and focus group since it is the spoken language of all the villagers. It is also my native language and I am able to speak village slang or 'folk' Lebanese. Speaking in this familiar way played a key role in facilitating communication. Also, I conducted the interviews and focus groups in an informal and dynamic manner. Therefore, I was able to avoid being intrusive and I was sensitive to interviewees' time availability and practical limitations. This type of feedback is very important to the continuous re-evaluation of the data collection process, and in some cases adjustments were made accordingly.

4.5. Plan of Qualitative Analysis

During qualitative analysis, the conceptual frame provided the structure for categorizing, coding, and generating themes (Creswell, 2007). Before going to the details of the analysis process description, it is important to shed light on the transcription and translation, given that translations are not always smooth across languages (Temple & Young, 2004).

At some point in the research process, the need of translate the gained data from the interviews into another language adds another layer of interpretation and

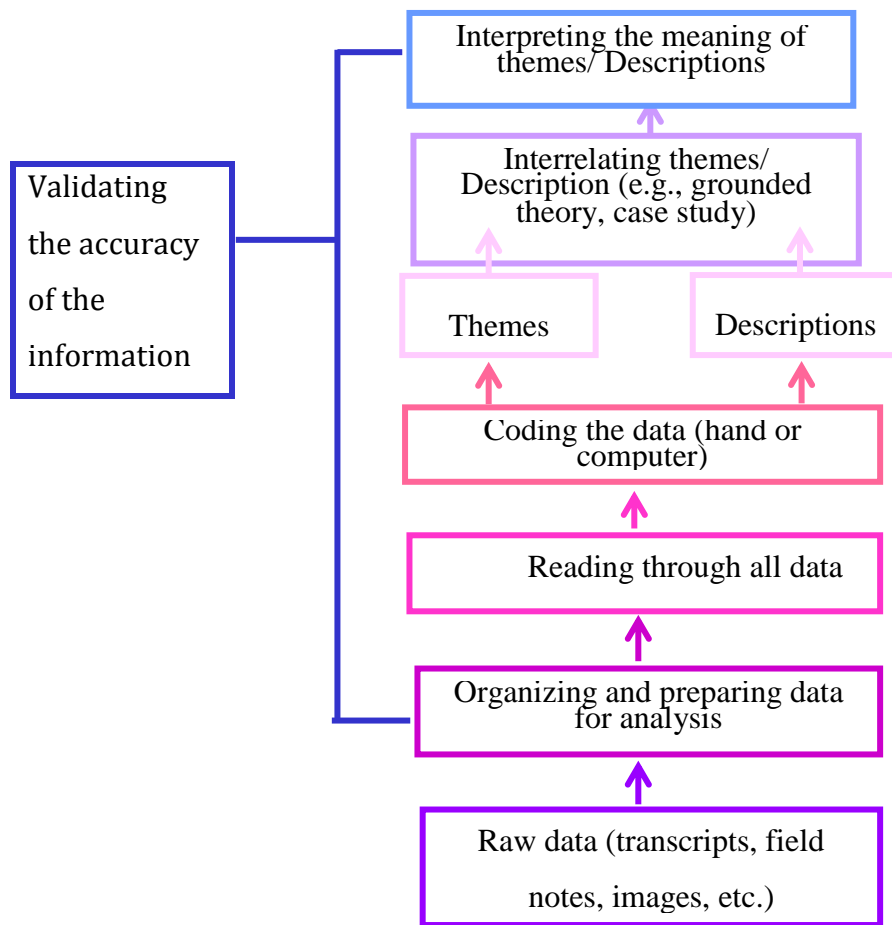
therefore researchers must carefully consider this aspect (Tobin, 2014). Researchers who conduct studies in other languages they often transcribe interview scripts in the language they conducted the interview with and then they produce translated transcriptions (Regmi et al., 2010). Yet, I decided to omit this latter step, viewing it as unnecessary filter of interpretation. In other words, I transcribed the interviews in Arabic and coding acted as the point of translation for this study. This is a practice used in other studies (Bloom, 2013 & Tobin, 2014). Accordingly, interviews were conducted in Arabic, transcribed in Arabic, and then coded and analyzed in English.

I used Creswell (2007) (see figure 11) as a guide when approaching qualitative data analysis. Creswell, recommends organizing the data before coding and generating themes. When it comes down to analysis, I read each transcript several times before using my conceptual framework to categorize the data; this approach is recommended by many qualitative researchers such as Creswell (2007) and Weiss (1994).

On a more profound level, thematic analysis was used to analyze the in-depth interviews and focus groups (See figure 12). In this process, the interviews were transcribed then coded. In the coding process, transcripts were read and I formed codes for each passage which reflects the meaning of the passage read both as it stands and in the context of the interview as a whole. After that, major themes and sub themes out of these codes were identified. Then each related code was listed under the relevant theme. A matrix was formed whereby each column had a major theme under which related sub themes were listed and each row presented an interview. I aimed for an inductive

analytical process in which emergent themes stemmed from the words of the interviewees themselves. Finally, I reported the findings.

Regarding quoting, as Weiss (1994) illuminates, qualitative data presentation should be done in such a way that quotes are selected to represent the broader point being made (Weiss, 1994). When presenting quotes in my project, I aimed to find the middle ground between preservationist and standardized approaches. That is to say, the former of which maintains the quote exactly as spoken while the latter edits the quote to more clearly convey the speaker's point. In this quoting process, I made an attempt to eliminate words that might be distracting to understanding while still allowing the speaker's words to remain the same as much as possible. When translating a quote, my intention was to present the meaning I believed will be conveyed by the speaker in a way that is clear and understandable in English.



Source: (Creswell, 2009)

Figure 9- Framework for Qualitative Data Analysis

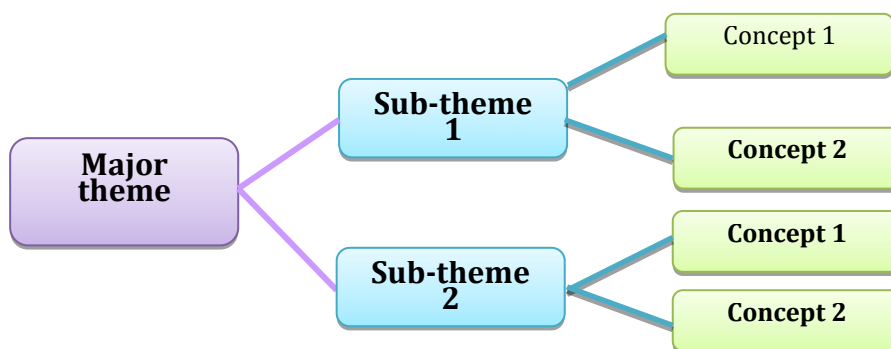


Figure 10- The Structure of Thematic Content Analysis

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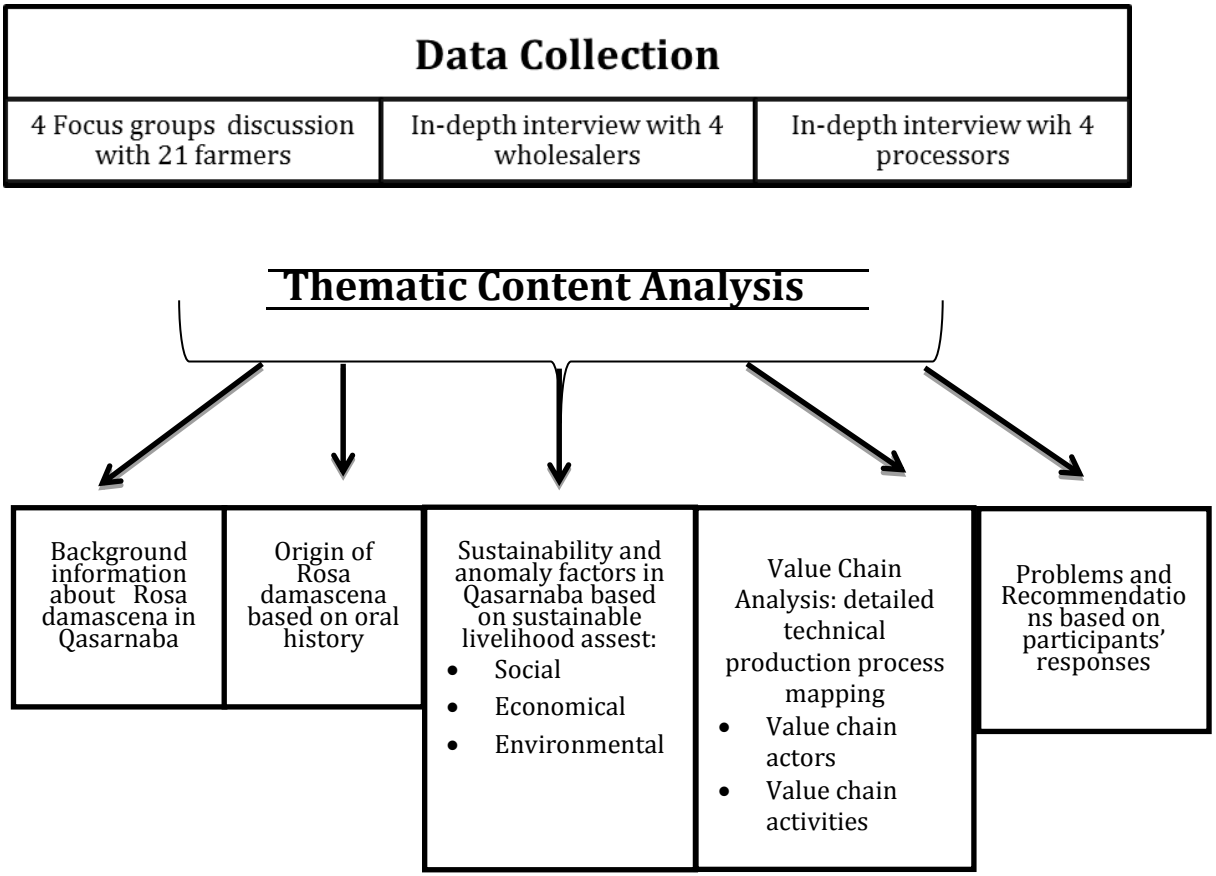


Figure 11- Overall Research Methodology Scheme: Data Collection & Analysis Plan

4.6. Ethical considerations / Social Justice

Sciences allied with social subjects deal chiefly with human beings who are sensitive to several ethical and privacy related matters (McKeown & Weed 2004). In social science research, the sensitivity of respondents is relatively high due to the competition and rivalry, accordingly the researcher should ensure and highlight the

informed consent and confidentiality (Kelley et al. 2003). Researchers should be fully aware of these issues and exhibit full responsibility in approaching study respondents.

Throughout the research process, four core ethical concerns were stressed: Non-maleficence, autonomy, informed consent, and confidentiality (Gillon; 1994). All of these ethical sensitivities and requirements were part of the procedural background of this study. In the sampling procedure, only willing respondents were involved and they were taken into full confidence by disclosing the purpose and nature of the study. Moreover, while approaching and seeking data from respondents, social ethics were given the utmost consideration. The confidentiality and privacy of the participants' responses were assured. Prior ethical clearance of the topic guides was obtained from AUB IRB, in order to safeguard ethical interests. All of this was done to respect the principal of non-maleficence which is concerned with doing no harm for participants.

Moreover, the principal of autonomy was respected through making sure that participants understood that they have the right to be informed about the study, to refuse or accept participating, and to withdraw at any time they want. Besides, I spent enough time to ensure that all issues in the informed consent were addressed and well comprehended by the interviewees. I emphasized the importance of voluntariness in participation and respect to all their rights as part of respecting their autonomy. I made sure that all interviews were conducted in a private setting whereby no one can listen or interfere. For the principal of confidentiality, I assured that all the recorded tapes and the transcriptions were kept confidential and no one except me had access to them. Even

in the transcription phase I made sure to be ethical and respectful to the interviewees by sitting in private room and using earphones while transcribing the interview to ensure that no one can hear. In addition, I did not mention the participant's name in the transcript but rather I used the letter "A" to refer for the interviewer and "R" for the respondent. During the analysis phase I made sure to sit privately and not to use any of the participants name while discussing the interviews. Although difficult to do, to enhance the rigor of the study, I took care to put my values and concerns aside and analyzed the generated information away from prejudices and prior assumptions.

CHAPTER V

RESULTS AND DISCUSSION

5.1. Background Information about *Rosa damascena* in Qasarnaba

Although many villages in Lebanon plant *Rosa damascena*; such as Akkar, Mount Lebanon villages, Mazareh beit Salibi in Bekaa, and some Southern villages, Qasarnaba is considered the leader, pioneer and capital of rose cultivation based on the 2010 agriculture census.

Qasarnaba has been familiar with *Rosa damascena* cultivation since the early 1900s. However, this agriculture flourished during the French mandate when farmers started to notice the financial significance of this rose. During the civil war, access to the village was difficult so farmers faced a problem in marketing their rose crop. This motivated the villagers to think of creative ways to manage the surplus in rose which led them to initiate rose processing in the village. At that time, rose water distillation was the major product processed and commercialized by the villagers. In 1985, rose production in Qasarnaba entered the era of industrialization through the establishment of the Dirani Factory. This factory had the capacity to absorb almost the entire rose production of the village.

The high quality of the Qasarnaba's rose water (in Arabic ma' al-ward) and its good reputation made the village become one of the leading producers and suppliers of rose water in the Lebanese market.

Unfolding more about the status quo of *Rosa damascena* in Qasarnaba, the participants explained that rose fields occupy around 25-30% of the cultivated land and that 70-80% of the total farmers in Qasarnaba are *Rosa damascena* cultivators of whom 90% are smallholder farmers (i.e. they cultivate between 2-4 dunums). However, approximately 80% of the families in Qasarnaba are financially supported by *Rosa damascena* either through cultivation, wholesaling or processing.

Finally, there is no one common nomenclature of *Rosa damascena* at the village. People in Qasarnaba have several names for this rose such as *ward baladi* (meaning local rose), *ward shami* (meaning Damask rose), *ward mohammadi* (in reference to Prophet Mohammad [*pbuh*]) and *ward nawari* (meaning the May Rose to indicate that it blossoms in May). Additionally, the generic term *ward* is originally a classical Arabic word denoted to any flower of a shrub or of a tree.

5.2. Origin of *Rosa damascena*

There was a big debate about the origin of *Rosa damascena* and how it reached Qasarnaba where three proposed notions emerged. The first theory claims that in 1900, there was an employee in the train station named Ali Moustafa Al Dirani who used to travel from Lebanon to Turkey (Astana). On one of his trips, Ali Moustafa Al Dirani

dropped in a village in Turkey where *Rosa damascena* was cultivated. He was fascinated by the aesthetic scene and pleasant fragrances of the rose fields there. So, he asked one of the local farmers in that village about this strange plant and he bought several rose cuttings from him. When he returned to Qasarnaba, Ali Moustafa Al Dirani planted this rose around his vineyards and in useless lands that he was unable to cultivate. After a couple of years, the rose bushes started to blossom and spread their distinctive aromas which attracted people in Qasarnaba to plant this rose too. At that time, *Rosa damascena* served as a fence around the vineyards. However, with time the villagers started to recognize the productivity of this rose so they focused more on its cultivation. On the contrary, the second notion proposed that the origin of *Rosa damascena* is Iran. Advocates of this notion claim that visitors of the religious shrines in Iran brought back this rose with them. Whereas, the third notion states that the *Rosa damascena* reached Qasarnaba through Ottoman soldiers. To illustrate, people who support this notion believe that Ottoman soldiers brought this rose with them from their homeland and planted it in the regions they inhabited to remind them of their sweet memories and beloved ones. The rose sight and odor embraced the beauty and warmth of the places they left behind.

Searching for a deeper insight about the origin of *Rosa damascena*, I intended to consult the senior villagers to ask their opinions in this regards. Luckily, an 87 years old woman highlighted an important observation saying:

“I have always wondered why in the same plot of land owned by the same farmer and getting the exact same care, two terraces might produce distinct rose yields. I believe, my girl, that in our village we have two species of rose. This means that all the notions that you heard are correct. I mean that some rose plants in Qasarnaba are from Turkey and the others are from Iran but only God knows which is from which country”.

5.3. Qasarnaba’s Agricultural Anomaly: An Interaction of Three Sustainable Livelihood Assets

An in-depth investigation of the data obtained from the interviews and focus group discussions revealed many factors that have led to the sustainability of *Rosa damascena* agriculture anomaly in Qasarnaba. Therefore and by referring to the assets of the Sustainable Livelihood Model presented previously in figure 10, I decided to divide the factors into three major assets: Social & Cultural, Economical and Environmental.

5.3.1. Social and Cultural

Qasarnaba is considered the capital of *Rosa damascena* in Lebanon. In fact, all participants stated that their ancestors were pioneers in *Rosa damascena* cultivation in Lebanon since this plant was first introduced to Qasarnaba from which it later spread to neighboring villages. Throughout the years Qasarnaba gained popularity as the major

cultivator of this rose to the extent that neighboring villages believed that all farmers in Qasarnaba are experts in *Rosa damascena*. This is revealed in 37 years old male architect words:

“If you are an inhabitant of Qasarnaba then you ought to be a rose expert.

This is how strangers think.”

Rosa damascena is deeply rooted in cultural inheritance of Qasarnaba. You can barely find a house in the village that does not have a still known as the “*karak*”.

Likewise, you cannot find a single house in the entire village that doesn't have rose water along with other rose products such as jams, syrups and rose herbal mixes.

Moreover, many people in the village like to decorate their houses with dried rose petals as to reflect their love and pride towards this horticulture.

The skills and expertise of farmers in Qasarnaba is based on the cumulative experience and knowledge they inherited from their parents that resulted from long years of hard work in this field. This is explained in the quote of a 70 years old man who said:

“People in our village are classical and they love to imitate their parents' style of life even in agriculture and particularly in cultivating roses and grapes. That is why we have a unique experience with rose that no one else has. We used to see our parents planting, pruning and distilling these roses so we learned from them. And when we started planting ourselves we got more experienced. But unfortunately, we paid for all

this experience from our own pockets...not from agriculture engineers or from the government.”

What is more interesting is the cultural dimension that this rose encompasses. Those people will do anything to preserve this rose and ban its spread to other villages since they are socially aware about its benefits and particularly its economical revenues. This is shown in the anecdote narrated by a 66 years old man:

“This event happened 30 years ago, when a man from Bouday [a village in Bekaa that is famous for cultivating hashishi], came to my place and asked me to tell him where he can find Rosa damascena. He wanted to plant it in his land but he knew nothing about Rosa damascena except that when it blooms it is a pink rose. At that instant, an idea just sparked inside my head. I thought what about the women, the kids of my village... They wake up at 4:00 am every day for almost 30 days to earn from this agriculture. This is our unique source of income us Qasarnaba inhabitants why should I give him this rose and back in his village they plant many crops that give good revenues such as hashishi, potato, onions, and many other crops. So, I took him to a land I where thistle grows and I told him here roses grow. After 5 years, I saw this guy again and he told me you’re stupid... what you told me is rose turned out to be thistle. Never mind, he thought I am stupid but I meant it to protect our heritage and sustain this yearly source of income that we are unique about. Yet, when someone from our village needs rose to rejuvenate his plant we give him with no doubt.”

Furthermore, the *Rosa damascena* harvesting season is also known as the love season. During the harvesting, not only did young men pick rose from terraces but they also picked their soulmates. A 90 years old man recalled passionately how he met his wife during the harvesting season:

“I recall her sweet face between the rose bushes. Her cheeks were as pink as the rose petals. I fell in love with her ... she plucked my heart as she was picking those roses. In my days, the harvesting season was the romantic period of the year. It was not only us who fell in love during the rose season many people did and I am sure many will do fall in love as long as this rose exists”.

He added that:

“Our love for this rose has no limits. It was a common practice at my days that baby girls born in May were named “Wardeh” or “Zahra” [Arabic words that mean rose or flower]”

On a more profound level, rose water is the chief partner of all the village’s ceremonies whether it is a happy or sad or religious event. For example, sprinkling rose water on guests during weddings is a very common practice. A 52 year old lady explained the underlying fable of this practice saying:

“In the past people used to sprinkle rose water as an alternative to perfume to honor their guests. The host sprinkles the precious rose water that took him time and hard work to prepare to express his great respect and honor to all his guests.”

Even during funerals, rose water is sprinkled to honor the memorial of the dead person. A 67 years old man told me that

“In Qasarnaba when we dig a grave we either sprinkle it with rose water or put rose petals inside it before placing the dead person inside. As well we sprinkle roses and rose water over the graves of our late beloved ones.”

Finally, similar to all other Muslim societies (Conan & Kress, 2007) Qasarnaba villagers gave a symbolical and religious significance for the rose. Therefore, it is a traditional practice to sprinkle rose water during religious ceremonies and serve participants rose syrup.

5.3.2. Economical

Despite the fact that *Rosa damascena* is a beautiful aromatic flower with immense horticultural importance, sustaining its production is mostly due to its economic significance. Comparing Qasarnaba to its neighboring villages Bednayel and Tamnin, it is obvious that most of Qasarnaba inhabitants belonged to the poor social class. Neighboring villagers had the chance to work in governmental jobs which put them in advantage compared to the counterparts in Qasarnaba. A 57 years man wholesaler said:

“In my opinion the reason behind the rose sustainability in Qasarnaba is that neighboring villages were able to get involved in the public sector, while we didn't.”

So, Qasarnaba inhabitants were obliged to remain farmers and they became friends with the land.”

It is estimated that 10-20% of the poor family incomes in Qasarnaba is attributed to this plant. Indeed, this plant is designated as the “rescue crop” of all farmers. To clarify, *Rosa damascena* is the first crop after the long winter season. Farmers depend on the revenues they earn from it to reimburse their winter debt. This is further explained by the words of a 58 years old male farmer who said:

“The farmer comes out of the winter broke and has a mount of debts that he has to pay especially to the grocery shop. All winter he was charging his daily food staple on the warranty to give the rose crop to the shop owner in the spring. So, when the rose season starts farmers are relieved from all their winter debts. You can say that farmers start to harvest rose in one hand and pay their debts in the second hand. But, what makes the rose season even more important is that it generates enough profits that can cover not all the winter debts and also support the family income for a couple months to come.”

Another frequently mentioned reason for sustainability of this agriculture is that this rose does not need too much effort or time compared to other crops mainly grapes. They characterized it as a low cost investment yet with a high and quick productivity and profound profitability. A 44 years old woman wholesaler illustrated:

“They cultivate this rose since it gives them immense revenues and it does not require too much effort. Fertilizers are added once a year, pruning is done in February

and it does not require irrigation .It is a rain fed crop. This means that its initial investment cost is approximately quarter of the productivity profit.”

In a nutshell, *Rosa damascena* is considered the “Golden Rose” and the “Rescue Crop” as our participants named it which reflects its financial significance to Qasarnaba’s farmers. Last but not least, *Rosa damascena* season is perceived as the forecaster of the status of upcoming crops. A 54 years old farmer denoted that:

“The rose season is a critical indicator. I use it to forecasting for other crops. If rose season was of a good productivity this means the others will be also highly productive and vice versa.”

5.3.3. Environmental

Participants claimed that their village has the most suitable environmental conditions to grow this rose resulting in sustainability of this cultivation. Interviewers mentioned that the nature of their land which is mostly mountainous and high rough land that doesn’t support planting other crops. A 53 years old man stated that

“The nature of our land is mountainous and rough it doesn’t allow us to grow anything else. We cultivate rose in poor lands that are low in fertilizers and particiially on terraces that are above 1000m”.

During the flowering season, the soil and climatic properties of Qasarnaba such as temperature, humidity and cloudiness positively affected the yield and quality of both rose and rose water. This is illustrated in a quote of a 54 years old farmer who said:

“Rosa damascena loves our white soil and its gives better quality if we compare it with roses planted in red soil. Even if in red soil it might give more production but it gives less quality than the one planted in white calcareous soil that preserves moisture. Our climate, weather, soil makes this rose and the produced rose water of high quality”.

Rosa damascena was first cultivated as a hedge around agricultural lands to prevent livestock from entering and destroying crops (Zurayk, 2008). Also, some farmers used it as a means to protect their fields from robbery. Furthermore, the roses are used as a first line of defense to protect other crops from diseases and insects (Khanuja et al., 2000). These multiple uses were clearly mentioned in the words of a 47 year old male farmer:

“I name it the defender crop. We used to plant it as a barrier to protect our fields from both livestock and robbery since its bushes are intertwined and possess lots of thorn. As well it catches the disease before any other crop.”

5.4. The *Rosa damascena* Value Chain in Qasarnaba

From the mountainous fields of Qasarnaba to the shops of retailers selling consumers rose water, jams and syrups, *Rosa damascena* goes on a long journey encountering various events from cultivation to harvesting then processing and trading.

5.4.1. Cultivation

The planting process of *Rosa damascena* is divided into several steps. It starts with cutting the rose shoot with its roots from an old rose field. Studies have showed that best shoots are those cut from fields that are less than six years old (Haghighi et al., 2008). These cuttings are then planted into horizontal trenches or ditches at a depth of around 50-60 cm. Then the roots and the rose base are covered with soil keeping only 2-3 cm of the rose shoot above the soil level. Cuttings are planted next to one another just 20-30 cm apart. This short distance allows the bushes to intertwine together when they mature to form one coherent terrace. Terraces are usually set parallel to each other and separated by 1-2 meters. Similar practices were noted in other countries that cultivate *Rosa damascena* such as in Iran and India (Haghighi et al., 2008; Paul & Singh, 2013). Most of the participants stated that planting begins from November till early January when the soil is wet to help the roots cling well to the soil. As well, the rainfall at that time helps irrigate the roots and allows the plant to grow stronger.

After that, farmers prune the terrace starting mid-January till February. Although participants perceived pruning as just a regular agricultural habit, studies showed that it plays a significant role in roses' life cycle, growth and production yield. In fact, pruning determines the flowering date of the plants (Hassanein, 2010). To clarify, plants start flowering after 70-90 days after they are pruned (Hassanein, 2010). This explains why the rose harvesting season in Qasarnaba starts between end of April and beginning of May. Also, pruning helps shape the bushes and promotes the rose

growth (Gibson, 1984; Anderson, 1991). Moreover, this cultural agricultural practice is essential to remove all the old photosynthetic parts of the rose allowing new and healthier ones to grow (Hassanein, 2010); thus, boosting the rose production and enhancing its quality and aesthetic value (Gibson, 1984; Anderson, 1991).

As March approaches farmers start to add fertilizers to their terraces and use pesticides to combat insects and prevent certain diseases. This process is repeated annually. However, every three years farmers add manure to the soil along with the fertilizers. This practice is supported in the literature (Agaoglu, 2000; Younes et al., 2013).

Usually in the first year, the plants yield very minor or even no roses at all. The second year, the rose production improves slightly to become more profound at the third year and reaches its maximum capacity at the fourth year when the roses become entirely mature.

Finally, participants mentioned that the plants are trimmed to the soil level every 6-7 years to rejuvenate them. Although studies recommend rejuvenating every 8-10 years (Agaoglu, 2000), but the process is important to revitalize the plant's capacity.

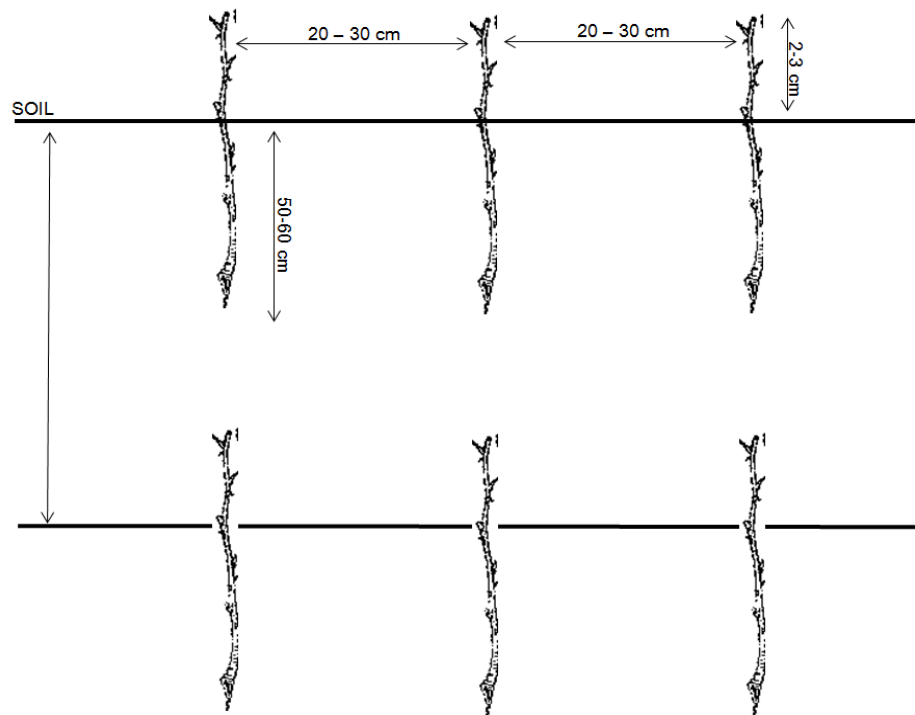
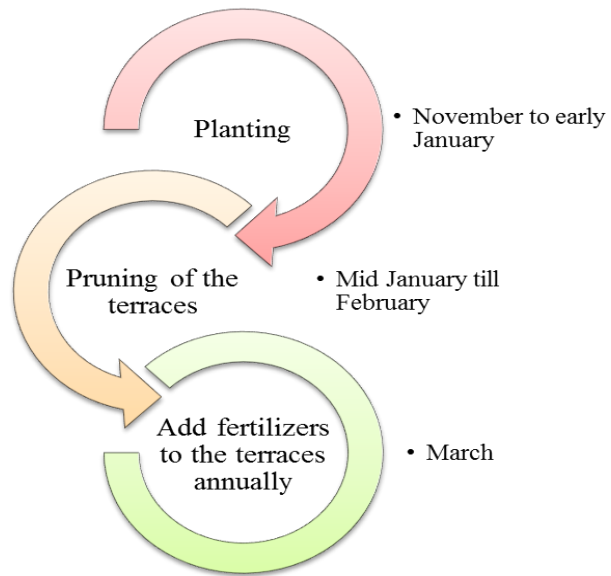


Figure 12- Scheme Showing the *Rosa damascena* Cultivation Practices Measurement

5.4.2. Harvesting

As the first weeks of April pass farmers start to prepare for the harvesting season that extends from April 25 till May 20 or 25. The season's duration is affected mainly by the weather. To explain, the harvesting season may extend for one month in a cool, cloudy spring but may last only up to 20 or 25 days in hot weather (Haghighi et al., 2008). Moreover, the harvesting stage is labor intensive and requires high levels of effort and patience. In fact, harvesting is considered the most labor consuming stage in the rose value chain (Kovacheva et al., 2010 & Pal, 2013).

Farmers head to their fields at dawn to pluck the roses which are hand-picked when they are still dewy. The entire plucking process should be completed by 10 a. m maximum before the sunlight becomes strong enough. This is crucial to preserve the volatile substances in the rose and help maintain its attractive pink color and distinctive strong odor otherwise the rose will lose its quality ("*bi-byad*"). If kept after 10 a.m., plucking becomes troublesome since the roses become sticky and hard to collect. As well, the evaporating volatile aromas and oils highly concentrate in the air to intolerable levels that makes farmers feel dizzy and irritated. In addition, bees start to gather near the terraces making the plucking even more problematic at that time. Thus, the optimal duration for plucking rose is around 3-6 hours extending from dawn into the early morning (Singh & Singh, 2001; Haghighi et al., 2008).

In the past, 90% of the local farmers used to pluck their terraces by themselves with the aid of family members. Only few farmers who had big fields needed to hire

foreign labor to aid them in the plucking process to be able to done by 10 a.m.

Nowadays, only 30% of the local farmers are still picking roses whereas the vast majority of farmers depend on Syrian girls as their main labor force. This is chiefly due to the availability of abundant cheap labor, where the wage of a Syrian girl is around 2000-3000 Lebanese Pound per hour or 10,000 Lebanese Pounds for the entire day. Old farmers expressed their depreciation of the current practices where a 78 year old female farmer stated:

“This generation is so lazy and irresponsible. They give half of their profit to the foreigners because they don’t want to wake up early. They don’t know that earning a living needs hard work and when you pick those roses by your own hands and let the thrones hurt your fingers, God will bless those roses and they will weigh more on the balance of the trader. This season is blessed ... it makes you feel energetic and let you meet your neighbors and friends in the fields. I met my late husband during the rose harvesting. My grandchildren are obsessed with diet and losing weight... Let them go and pluck roses it is a great sport.”

During plucking each person ties a polypropylene woven bag or a fabric cloth around his/her waist to collect the roses. Two people pluck one terrace simultaneously; each from an opposite side. This increases their efficiency and allows them to finish up on time. Then all the collected roses are transferred immediately to the collectors’ or wholesalers’ shops to be weighed and priced. This step is critical since any delay in

transporting can lead to undesirable losses in the quantity and quality of the rose (Haghighi et al., 2008) which will definitely affect the farmers' revenue.

Lastly, it should be noted that the harvesting period is heterogeneous in terms of production. In fact, the production yield kicks off slowly and increases gradually until the middle of the season where it reaches its peak for about 4-5 days. During this peak time, also known as "*Hajmet El-Wared*", rose harvesting becomes even more labor intensive and needs longer time. Meanwhile, wholesaler's shops suffocate with tremendous amounts of roses collected from all farmers which necessitate the prompt processing or marketing of the rose surplus. After that, the productivity of the plants starts to decline again to reach scarce amounts in the last few days. To illustrate, below are figures that show the rose productivity in Qasarnaba in 2015 as claimed by different wholesalers in the village.

Day of the season	Date	Type of the wholesaler: Collected (kg)		
		Big	Medium	Small
1	22/04	2500	520	87
2	23/04	2500	546	93
3	24/04	2564	560	108
4	25/04	2593	543	104
5	26/04	2456	536	103
6	27/04	2651	579	111
7	28/04	2384	521	100
8	29/04	2794	610	117
9	30/04	3065	669	129
10	1/05	3897	851	164
11	2/05	4600	1320	300
12	3/05	4680	1022	225
13	4/05	4754	1038	223
14	5/05	4674	1021	196
15	6/05	4430	950	183
16	7/05	3987	835	90
17	8/05	2427	548	84
18	9/05	2104	459	74
19	10/05	1854	405	78
20	11/05	1112	243	47
21	12/05	854	186	36
22	13/05	418	91	18
23	14/05	332	72	14
24	15/05	200	44	8
25	16/05	170	37	7
Total (Kg) / year		64000	14206	2785

Table 1- Roses Collected During 2015 Based on Data Gathered from Different Wholesalers

Overall, the estimated daily production of rose in Qasarnaba is on average 5 tons/day and the annual yield of rose blossom is estimated to be approximately 120 tons whereby one dunum yields about 300kg of roses.

5.4.3. Wholesaling

The wholesalers play a vital role as an intermediary between the supplier and the buyer. Generally speaking, wholesaling stage constitutes of groups of traders and middlemen who are involved in selling in large quantities to either retailers or processors. Most farmers are dependent on the wholesalers to link them up with various buyers.

From 1955 until the beginning of the civil war, there were no wholesalers in the entire village. National wholesalers and processors used to come and buy directly from the farmers. During the civil war national wholesalers and processors were no more able to reach the village and the rose was not being sold. Therefore, five local wholesalers emerged at that time. They used to collect the harvested flowers from the farmers then travel outside the village to sell them to national wholesalers and processors. The main regions where the roses were sold were Aintoura, Batroun, Bait Shabab, Tripoli, Jounih, Sidon, Zahle, and Kora. Currently, the number of the wholesalers tripled where the total number of wholesalers has become fifteen (See figure 16).

It is noteworthy to mention that a great portion of the wholesalers in Qasarnaba are grocery owners. The reason for this is explained to us by a 65 years old wholesaler who said:

“Food stores are the main collectors of Rosa damascena, simply because in winter farmers had to lease their food and house needs from the food stores. Then, when they harvest their roses, farmers pay their debt to the store owner and what remains they use it to buy fertilizers and pesticides for the other seasons mainly grapes.”

The current wholesaling process in the village is represented mainly by people who collect the plucked rose from the farmers, where it is crucial to notice that the medium and big size wholesalers are also small to medium size processors. During the peak days the big wholesaler receives the surplus from other small wholesalers where he processes some and sells the rest to the local biggest processing factory. The other small and medium size wholesalers sell the collected roses to either the local factory, to other non-local factories, or even to national wholesalers or processors. It is noteworthy that the national wholesalers and processors have been constantly coming from the same regions they used to come from before the civil war.

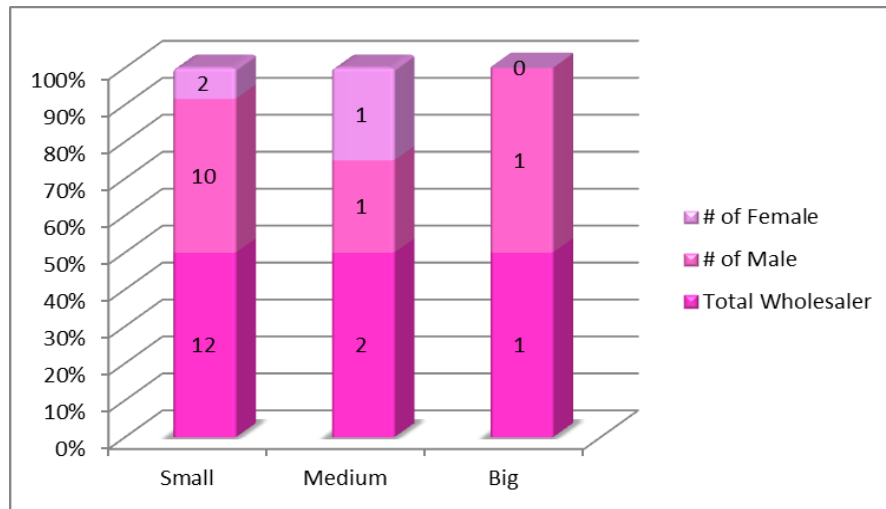


Figure 13- Current Wholesaler by Size and Gender

The participants denoted that similar to any other commodity, *Rosa damascena* pricing is based on the balance between the supply and demand (see table 2 & figure 17), and is affected by the temperature and the climate particularly during the harvesting period. Those aforementioned factors that influence rose price in the market were also stated in previous studies done in Turkey (Bilir, 2012; Giray & Kart, 2012), and in India (Singh & Singh, 2001).

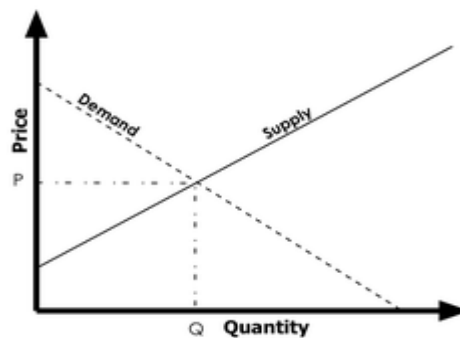


Figure 14 - Demand and Supply Curve

Year	Price	
	Minimum	Maximum
1960-1970	10 <i>qersh</i>	25 <i>qersh</i>
1980-1989	1 L.L.	1.25 L.L.
1990-1999	250 L.L.	600 L.L.
2000 -2004	1000 L.L.	500 L.L.
2005-2009	2000 L.L.	1000 L.L.
2010-2012	2500 L.L.	1500 L.L.
2013	4000 L.L.	2500 L.L.
2014	7000 L.L.	5500 L.L.
2015	10000 L.L.	7000 L.L.

Table 2- Price Fluctuation among the Years from 1960-2015 Small Wholesalers

As per, the farmers the main reason behind the increase in the rose price in 2015 was the direct marketing. In other words, the reason was that farmers themselves were selling their production to outside wholesalers and processors away from the local wholesalers in the village.

Moreover, participants claimed that 90% of the plucked and collected rose is sold as is while the remainder is processed into mainly rose water and to a lower extent into rose jam. Moreover, the biggest bulk of these processed products are for commercial use while only about 10% is kept for household use or “mounah”.

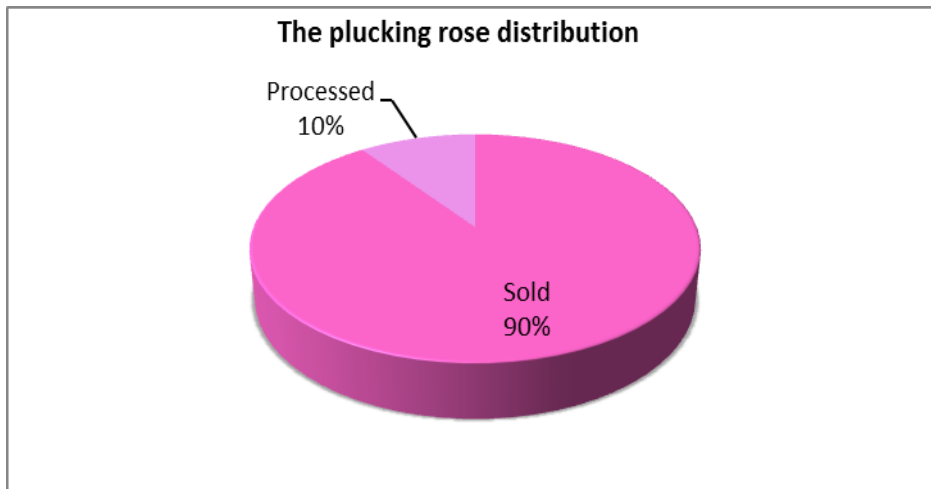


Figure 15- The Plucking Rose Uses Distribution

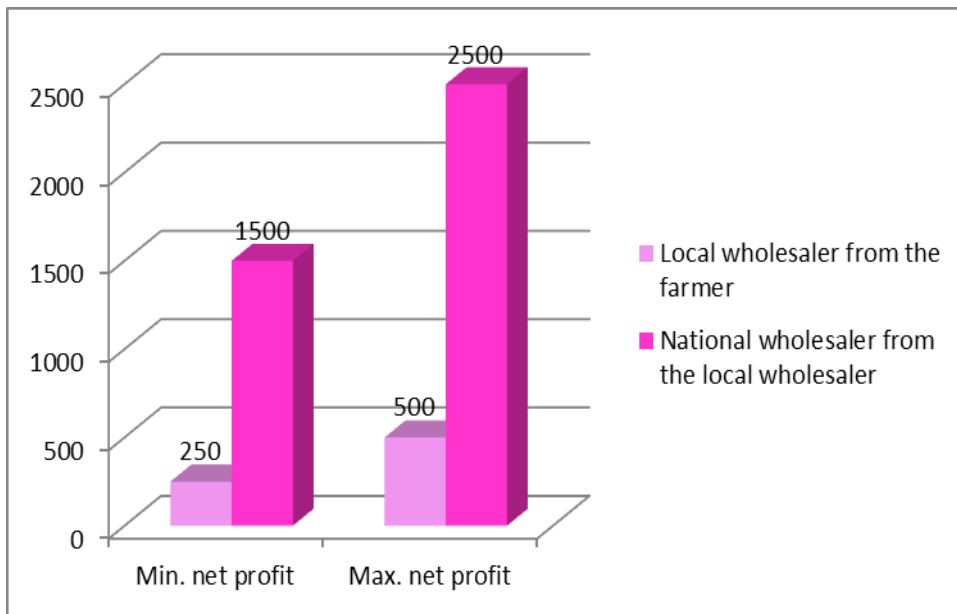


Figure 16 - Minimum and Maximum Net Profit Gained by Wholesalers

In regards to rose prices, a 57 years old male farmer stated that:

“Foreign wholesalers give better prices than the local wholesalers since they are in need for this product, while the local wholesaler will buy from us and sell it to those foreign wholesalers to gain higher commission. The foreign wholesaler pays the price this product really deserves.”

Furthermore, a 48 years old small local wholesaler stated that where farmers’ net profit per kg is 250-500 L.L. and local wholesalers’ net profit is 1500-2500 L.L.

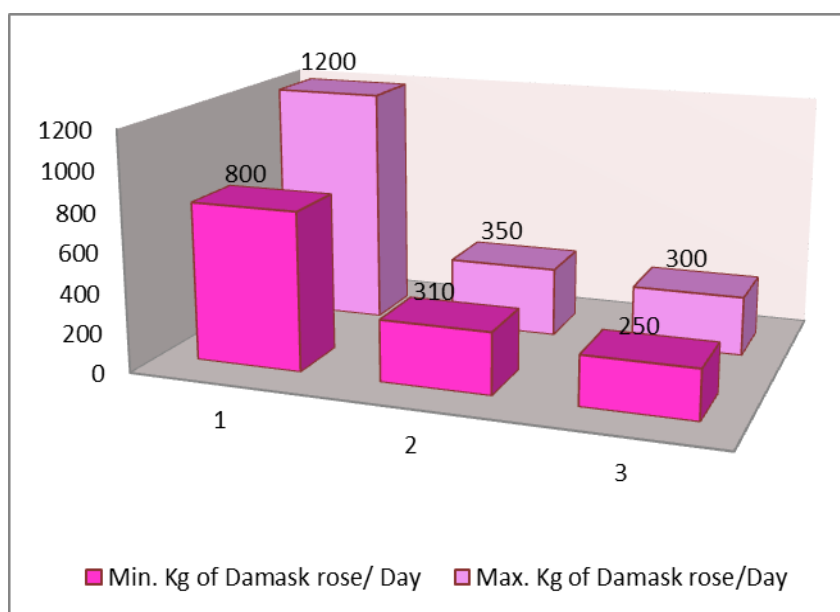


Figure 17- Maximum and Minimum Kilograms of *Rosa damascena* that Was Collected by One of Small Local Wholesaler in 2013, 2014, 2015 Receptively

5.4.4. Processors

Traditionally, rose water distillation was performed by primitive techniques only at households for personal consumption (See Table 4). However, as mentioned

previously, the commercial processing of *Rosa damascena* in Qasarnaba flourished upon the civil war in Lebanon. Currently, there is one big factory, one medium, and five small processors who chiefly produce rose water via the distillation of the rose petals. The amount of rose water produced annually by those different processors is presented in table 3.

	Type of the Processor		
Production of Rosewater	Big	Medium	Small
Minimum (kg)	65,000	1500	350
Maximum (kg)	100,000	7000	500

Table 3- Maximum and Minimum Kilograms of *Rosa damascena* that Was Distilled by Big, Medium and Small Size Local Processors in 2015

Nowadays, 3 types of stills or “karaki” are utilized by processors and households in Qasarnaba. Table 4 compares between the various types of karaki namely: primitive, copper, iron and stainless steel. It is important to note that the smaller the karaki, the better rose water quality

	Primitive still (<i>Karaki</i>)	Iron still (<i>Karaki</i>)	Copper still (<i>Karaki</i>)	Stainless steel still (<i>Karaki</i>)
Material	Home utensils	Iron	Copper	Stainless steel
Capacity	2 kg rose	5-10-15 kg rose	5-10-15-25 kg	50-100-150-300 kg
Users	Household in the past	Households currently	Small processors	Big processors and industries
Heat source	Fire	Fire	Fire	Steam
Drawbacks	Time consuming	Rusting		High capacity yield less quality rose water

Table 4- Differencing between the Stills (Karakis)

Furthermore, rose water is classified into 3 categories based on the quality. For example, crude rose water (known as “*Zahra*” in Arabic) is obtained by extracting 600 grams of rose water from 1 kg of rose petals whereas high quality rose water (named as “*Bab Awal*”) is obtained by distilling 800 grams out of 1 kg of rose. Table 5 lays out a comparison between the three different qualities of rose water.

Products	Ratio Rose (Kg) : Rose water (L)	Price	Expiry date
Crude rose water	1:0.6	18,000 - 25,000 L.L.	5 years
High quality rose water	1:0.8	15,000 L.L.	3-2 years
Commercial rose water	1:1	10,000 L.L.	1 year

Table 5- Characteristics of Different Rose Water Qualities

Moreover, processors produce, besides to rose water, rose jams and syrups. Also, rose buds and petals are used to prepare tea herbal mixes or are grinded to be added to certain spice mixes such as the Kubbah Spice.

The constituents and preparation methods of the above products are described below:

- Rose jam (350 gr) is made from: rose petal (1kg) + water (1 kg) + sugar (1 kg)
- Rose syrup (1 L) is produced from: crude rose water (0.5 L) + water (3 L) + sugar (5 kg) + natural dye
- Kubba spices: dry rose petals are grinded and mixed with other spices
- Herbal tea mixes: dry rose buds are added to tea leaves and boiled

The prices of rose jams (350 grams) and rose syrups (570 ml) is about 15,000 L.L.

Remarkably, participants stated that processors make use of every single bit of the rose where they collect all rose petals leftovers after distillation and use them as fertilizers for their lands.

Overall, figure 21 illustrates the percentages of each rose product processed in Qasarnaba.

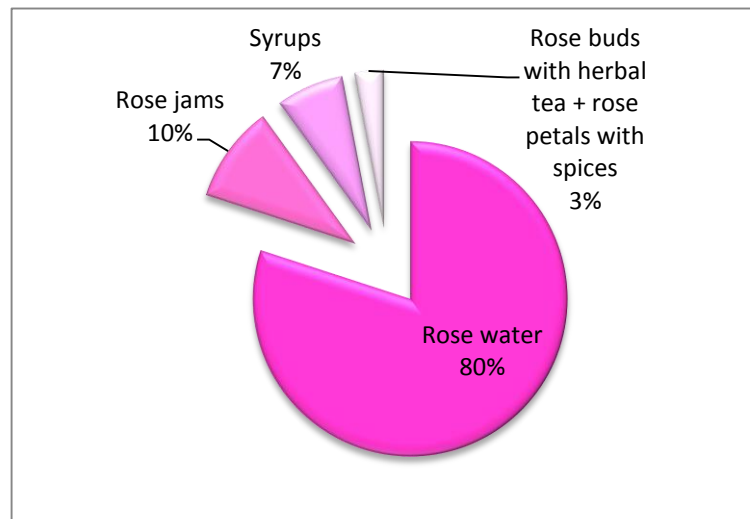


Figure 18- Percentages of the Different *Rosa damascena* Products

5.4.5. Retailers

Retailers play a significant role in delivering processed products from wholesalers to the final consumers. In this particular value chain there are two types of retailers: local and international. Both retailers target different consumers whether locally and internationally. For example, one of the medium size processors mentioned that every year he sends 15-20 tons of rose water to a retailer based in France. Even the

local factory in Qasarnaba markets its products through national and international retailers such as supermarkets, restaurants, and culinary distribution companies from different part of the world (France, Gulf region, Switzerland, Sweden, U.S.A., U.K. etc...).

Gereffi explains that although global buyers such as retailers, marketers, and traders are not part of the production, transport or processing facilities, they have a higher degree of control that is spatially dispersed over the value chain in a manner known as “buyer- driven” governance (Gereffi,1994).

Based on participants’ claims, retailers make more profits than farmers and wholesalers do. This claim is supported by evidences in the literature that proof the critical impact of global buyers on horticulture industry (Dolan *et al* 2000).

In reference to the constituents of the value chain presented previously in figure 9, the *Rosa damascena* value chain in Qasarnaba can be illustrated as follows:

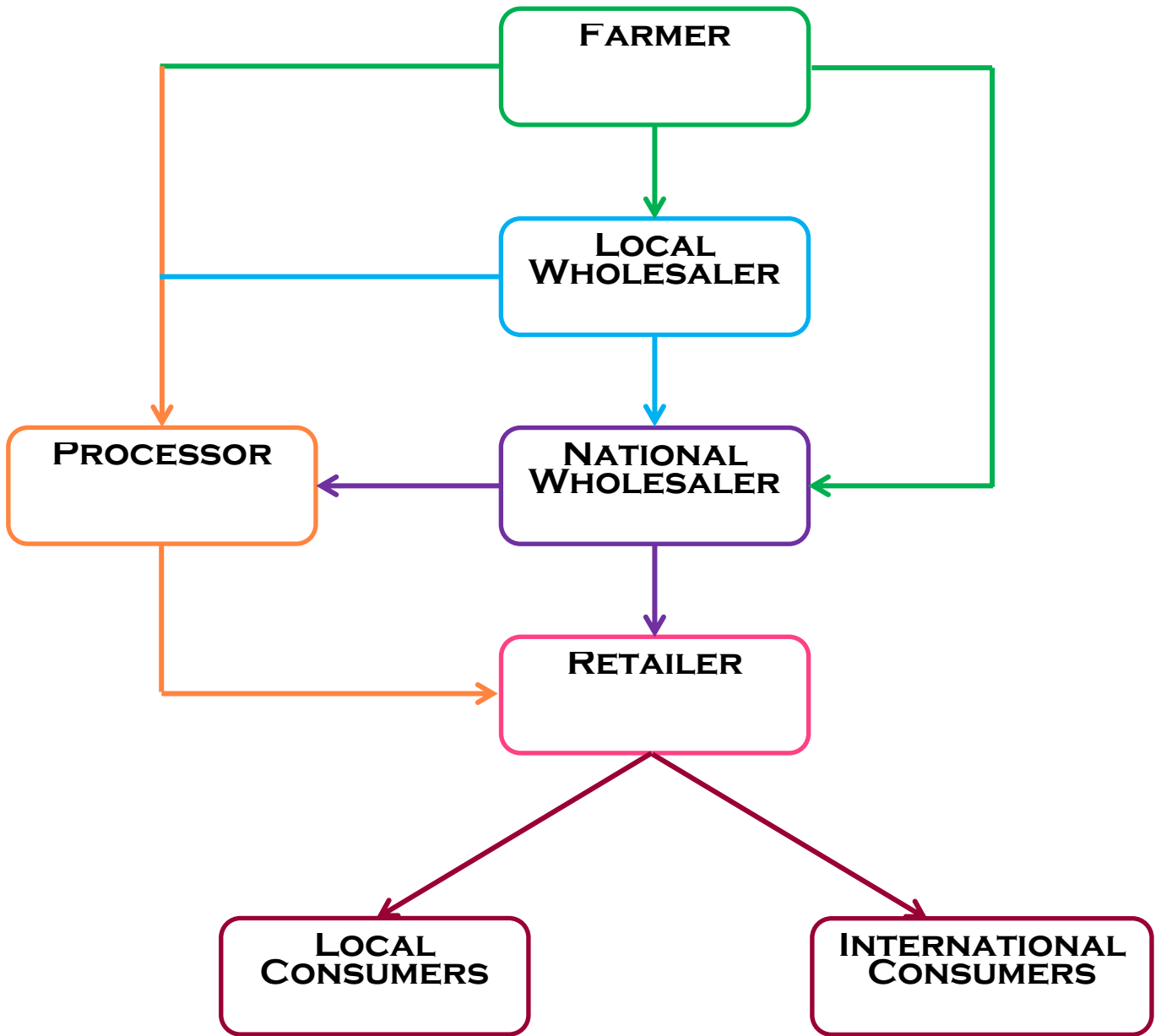


Figure 19- *Rosa damascena* Value Chain in Qasarnaba

5.5. Constraint and Obstacles: A Heavy Burden on Rose Value Chain Actors

Interviewees stated many obstacles that hinder the development of *Rosa damascena* throughout the value chain stages. All the mentioned obstacles were frequently reported in the literature studying the value chain of *Rosa damascena* in Bulgaria, Iran, Turkey and India. Below is a summary of the hurdles claimed by the participants along with references of studies that presented similar constraints. The problems are grouped based on the value chain stage: cultivation, harvesting, wholesaling and processing.

Cultivation:

- No extensive services are offered by Ministry of Agriculture regarding rose production
- There is no *Rosa damascena* farmers' collaboration or cooperative

Harvesting:

- Roses are frost sensitive; temperature affects the oil content of the flower
- Highly labor intensive particularly for picking of flowers
- Early morning wakeup, performed from dawn through morning
- Instead of being a source of income *R. damascena* is considered merely an economical support to the framers
- No insurance is available to farmers due to price fluctuation

- Climate change is impacting the rose price especially in the harvesting period of the year. When temperature increases the quantity increases thus price decreases (demand & supply)

References in accordance: Beeson, 1990, Kool et al., 1996; Weiss, 1997; Bredmose, 1998; Agaoglu, 2000; Kim & Lieth, 2003; Baydar & Baydar, 2007; Kovacheva et al. 2010; Rusanov et al., 2011; Pal 2012; Bilir, 2012

Wholesaling:

- Roses need fast quick processing and marketing of products
- Local factories are using artificial essence instead of purchasing the natural essence

References in accordance : Agaoglu, 2000 ; Haghghi et al, 2008

Processing:

- Competition with foreign rose mainly *Rosa damascena* imported from Iran since it is abundant all over the year and cheap
- Political instability and insecurity in Lebanon is affecting the export by hindering the access to international markets
- Absence of national policies and regulations dealing with trading of *Rosa damascena*

5.6. Participants' Recommendations

Almost all the participants emphasized the importance of forming a cooperative that has four main functions: (1) collecting the roses from all the farmers, (2) selling roses to both local and national processors, (3) producing rose water, syrups and jams and (4) aiding and supporting the rose farmers. Moreover, all farmers called for banning the use of artificial essence in factories. Furthermore, they suggested launching awareness campaigns about *Rosa damascena* to attract more customers. In addition, they were asking for support from governmental and non-governmental organizations to: (1) facilitate obtaining loans and aids for farmers, (2) to provide agricultural subsidies for participating in exhibitions, and (3) to build new factories to produce rose water, rose oil and other rose-related products. Finally, some recommended unifying the price of rose so that they will be able to expect their next year revenues. However, others refused this solution claiming that expenses such as the price of fertilizers might increase from one year to another; thus creating losses or reductions in farmers' revenues. Instead, they insisted on maintaining the current supply/demand driven price since the competition between wholesalers leads to increasing the rose price which is a great advantage for all farmers.

5.7. Rigor

In qualitative research rigor incorporate three pillars: adequacy, dependability and transferability. In the presented study, I have ascertained adequacy through electing the right research methods and tools for the data collection process. In order to answer the research question accurately a combination of focus group discussions and in-depth interviews was employed. Besides, I had already established familiarity with the topic by means of consulting other researchers who have experience in this precise field of study. Also, I have reviewed previous studies discussing the value chain of various crops, as well as studies dealing with *Rosa damascena* origin, cultivation, harvesting, its economic and social value to guide me in framing the research findings and results. To guarantee dependability I have detailed the description of the study's methodology that comprised; sampling, interview guide, data collection and the analysis plan; hence it could be repeated without difficulty.

Furthermore, to validate transferability, I have described in details the study's context and community thus allowing the comparison in other contexts. Finally, despite the fact that is difficult to improve the study's rigor, I ensured putting my concerns and value aside through the analysis process aiming to guarantee conformability by avoiding prejudgments and prior assumptions.

CHAPTER VI

CONCLUSION AND RECOMMENDATIONS

6.1. Conclusions

The study was carried with the fundamental intension to analyze the value chain of *Rosa damascena* in Qasarnaba, Lebanon and to identify the key features leading to this *Rosa damascena* agriculture anomaly.

The analysis of the data extracted from the focus groups and in-depth interviews revealed many significant findings. Although there is no consensus about the origin of the rose, its presence is considered as a critical income generator that supports around 80% of the villagers in sustaining their livelihoods. Through selling rose and processing it, many villagers in Qasarnaba have found in this plant a means to generate profits that are enough to reimburse their winter debts and to survive the next couples of months until the next crop starts.

The value chain analysis showed that the main actors in Rose value chain in Qasarnaba are the growers, harvesters, wholesalers, processors, and retailers who are highly interlinked and dependent on one another. In fact, the entire value chain should be perceived as a coherent, integrated system in order to develop and strengthen all

actors' positions. By critically examining the opportunities and risks in the chain and understanding the problems associated with the *Rosa damascena* production and marketing, local actors can be empowered to improve their income from commercialization of *Rosa damascena*. This can be achieved by guiding value chain actors on how to benefit from their value chain linkages in order to upgrade and transfer information, knowledge and experiences in manner that augments and flourishes coordination and mutual benefits.

Indeed, assisting value chain actors in Qasarnaba to organize and correlate their roles and interactions can ensure the sustainability of Rose cultivation in Qasarnaba, thus preserving this agricultural anomaly for more years to come. This is crucial since *Rosa damascena* is not only “a rescue crop” that provides financial and economic support to the villagers but it is deeply embedded in their cultural heritage and collective identity; how not and Qasarnaba is known as the “Capital of *Rosa damascena*” in Lebanon.

6.2. Recommendations

Based on the results of this study recommendations are drawn to improve the efficiency of the whole value chain with precise emphasis on upstream actors; farmers, to increase their share of the gains.

6.2.1. Formation of *Rosa damascena* Cooperative

The foundation of a *Rosa damascena* cooperative will directly impact the production among farmers themselves as they will be integrated vertically and horizontally in the chain. Hence this will improve farmers bargaining power, reduce the transaction costs through larger economies of scale, and result in farmers gaining higher and stable incomes.

According to McClintock (1981), cooperatives are capable to stimulate stronger social bonds, partnership, solidarity, and trust among the members (McClintock, 1981). Based on the results of numerous studies cooperative members' skills are boosted through their learning process in management and interaction within the cooperative (Hirschman, 1984; Ariza & Lobo 2002). Being part of a cooperative enhances the farmers' awareness and capacity to defend their political and economic interests (Sudarsky, 1977; McClintock, 1981). Furthermore, the cooperative will improve the farmers capacity for other collective action, which possibly will transcend the cooperative to benefit the entire local community (Hirschman,1984; Arango et al., 2005).

The *Rosa damascena* “collective action” should provide market information to farmers in addition to supplying them with production inputs. Also, it should play the price regulatory role in the market in which it determines the rose prices annually.

Besides, it should have its own processing units where it produces commercial brands not only rose water but other products such as rose oil, rose jam, and herbal tea.

6.2.2. Marketing Information

Information systems are barely present since farmers have no direct contact with the outside wholesalers or processors to know the market price on the downstream of the value chain. In *Rosa damascena* value chain, local wholesalers buy *Rosa damascena* from the farmers where farmers have no or limited market information. As a result, in the absence of a good marketing system farmers sell the product without knowing the actual price in the market. But in case they are able to sell their products themselves instead of depending on others, this will increase their income. Accordingly, upgrading of marketing information is an essential intervention area for upstream actors that suffer from insufficient knowledge and incomplete information about products quality standards, markets and prices.

The government should enable access to the domestic market information particularly to farmers via the extension officers, seminars and workshops. Besides, media can play a role in providing market price information about roses to farmers.

6.2.3. Complying with ISO 9842:2003

Currently, there is an acting ISO standard, ISO 9842:2003. It is applied for certain characteristics of rose oil composition. It deals particularly with oil rose coming

from (*Rosa x damascena* Miller) that is mainly cultivated in Turkey, Morocco, and Bulgaria. These standards are set in order to facilitate the assessment of *Rosa damascena* oil quality. (ISO 9842:2003, International Standards for Business, Government and Society, available online: www.iso.org). The results of the study done by Najem et al. revealed that there is a significant difference in the essential oil of the *Rosa damascena* produced in Lebanon and that of other countries. The study results showed that Lebanese *Rosa damascena* essential oil have the same characteristics of nonadecane percentage as in the norms of Bulgaria, Turkey and Morocco and lower amount of geraniol (Najem et al, 2011). As well they noted that the percentage of β -phenylethanol is higher on the Lebanese essential oil of *Rosa damascena* than in other countries (Najem et al, 2011). Accordingly, the local produced *Rosa damascena* is within the required ISO9842:2003 standards which enhances its export. Bearing in mind that rose oil is much more expensive than rose water.

6.2.4. *Launching an Annual Rosa damascena Festival in Lebanon*

The foremost rose cultivating countries in the world have praised this flower and dedicated annual festivals to promote and encourage farmers and producers to sustain this agriculture through providing them with a public space to market and advertise their products. For example, Bulgaria celebrates the Rose festival every year from the beginning of June till the first of July (Gavrilescu, 2011). Whereas, Isparta in Turkey starts up its rose harvesting season with a huge musical festival that lasts up for

six weeks (Anonymous, 2012). These festivals don't only provide financial support to the local communities but also serve as important touristic attractions.

Therefore, the Ministry of Tourism and Culture in Lebanon has a major responsibility to preserve all Lebanese unique cultural heritages and to shed light on the distinctive attractions that Lebanon possesses such as *Rosa damascena*. In other words, the Ministry along with the civil society actors such as NGOs and associations should organize an annual Rose Festival that embraces a variety of creative activities and events. Such events should aim to promote the rose production, support the rose cultivating villages and raise awareness about this plant and its cultural heritage. Finally, media in all its forms must play a role in advertising for this festival and even attracting tourists to attend and participate in the festival's events.

6.3. Limitations

Despite all the taken measures to enhance the data quality still some limitations exist. It is important to highlight these limitations, so that they will be considered when assessing this study's contribution to the literature. While choosing the village to be studied, the foremost producer of *Rosa damascena* was selected since it has the larger number of framers and cultivated land. Although some other villages do produce *Rosa damascena*, I was not able to interview all of them due to time limitation. Given the exploratory nature and being it a pioneer study the findings should be approached as a foundation for future studies and not absolute conclusions.

6.4. Areas for Further Research

Further studies can examine the value chain governance and power dependency among the chain actors in order to come up with interventions that can benefit the disadvantaged actors of the chain. Besides, other studies can investigate the role of the export sector and analyze the industrial processing in importing countries to generate a broader and more holistic picture of the global commodity chain. Finally, some researchers might be interested in exploring the entire sustainable livelihood development in Qasarnaba in order to understand the role of *Rosa damascena* in the vulnerability context and livelihood strategies and outcomes.

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Appendices

Appendix A

Focus Group Informed Consent (Farmers)

Introduction and Verbal Consent Form

Welcome and thank you for joining us today. My name is Aliaa Al Dirani. I am a graduate student in the Faculty of Agriculture and Food Science at AUB. I will be facilitating this focus group and Malak Al Dirani will be assisting me in taking notes of the discussion. This focus group discussion will be about *Rosa damascena*'s value chain.

Before we begin, I would like to take a few minutes to explain why I invited you to participate in this research study and what will be done with the information you provide. I am doing this study as part of my studies towards a Masters of Science in Environmental Science at AUB. Please stop me at any time if you have questions about the focus group discussion. If you agree to participate, you will be asked a number of open-ended questions in regards to the topic.

I am conducting this focus group to explore your opinion about *Rosa damascena*'s as a source of livelihood and its value chain. I will use the information generated as the basis for my thesis. No one from AUB or outside it will have access to the data collected except for me. Your identity will be made unknown in the written materials resulting from this discussion. If I will use names to refer to quotes, I will use pseudonyms.

Your participation should take approximately 90 minutes. Please understand that your participation is entirely on a voluntary basis and you have the right to withdraw your consent or discontinue participation at any time without penalty. The main benefit that is expected to result from this study is assisting in studying the *Rosa damascena* as a source of livelihood and its value chain thus we would be able to set new policies. You will not receive any monetary compensation for your participation.

You will not be penalized for deciding to stop participation at any time. We also assure you that if you decide not to participate in this study this will not affect your relation with the AUB in any way.

I would like to tape record this focus group so as to make sure that I remember accurately all the information you provide. I will keep these tapes in a closed drawer and I will be the only one who has access to them. The tapes will be labeled with the time and date of the focus group without using any names or any personal identifiers. After the study is completed the tapes will be destroyed. If you prefer that we conduct the focus group without being taped, the note taker Malak Al Dirani will write and take notes of what you will say.

This discussion is not intended to be an educational lecture. I want to learn from you and hear what you have to say. There is no right or wrong answers. The opinions of all the participants are important, and I would like everyone to feel free to express their opinions on the subjects being discussed. I would like to ask you to be respectful of others' opinions and that you do not interrupt someone as they are speaking or initiate side talks.

If you have any questions, you are free to ask them now.

You will receive a copy of this consent form for you records. These are the contact numbers of the research team and the IRB (Institutional Review Board). If you have questions later, you may contact me at:

Cell phone number: 71-455236

Email: aaal36@mail.aub.edu

OR

Contact Dr. Ali Chalak at:

Tel: +961-1-350000

Ext: 4502

Email: ac22@aub.edu.lb

If you have questions about your rights as a participant in this research, you can contact the following IRB office at AUB:

Phone number: 01-350000 ext: 5445

Email: irb@aub.edu.lb

Are you interested in participating in this study?

- Yes
- No

Consent to Record focus group

May I record this focus group?

- Yes
- No

Consent to Quote from focus group

I may wish to quote from this focus group either in the presentations or articles resulting from this work. A pseudonym will be used in order to protect your identity.

Do you allow me to quote from this interview?

- Yes
- No

Researcher's Name: _____

Researcher's Signature: _____

مقدمة و بيان الموافقة الشفهية على الاشتراك في حلقة البحث

اهلاً وسهلاً منشكرين على تلبيتكن لدعوتنا اليوم. بالأول بحب عرفكن عن نفسي. أنا أسمى علياء الديراني. أنا طالبة ماجستير في كلية الزراعة والعلوم الغذائية في الجامعة الأمريكية في بيروت. رح كون أنا مسؤولة عن إدارة هيدي الجلسة والزميلة (ملاك الديراني) رح إتساعدني بأخذ الملاحظات. هيدي الجلسة رح تكون ناقش حول الورد الجوري كمصدر للمعيشة وكمنا بدنا نشوف سلسلة القيمة/ الامدادات لهيدي الورد.

قبل ما نبدأ، بدي أخذ بضع دقائق لتوضيح سبب دعوتي لكم للمشاركة بهيدا البحث وشو رح بصير بالمعلومات الي رح نستخلصها من حلقة البحث. رجاء أوقفوني بأي وقت في حال كان عندكن اي تساؤل بخص حلقة البحث. في حالة موافقتكن على المشاركة رح إطرح عليكن عدد من الأسئلة بخصوص هيدا الموضوع.

أنا عم بقوم بحلقة البحث هيدي لأعرف أكثر عن رأيكن حول الورد الجوري كمصدر للمعيشة و سلسلة القيمة الها.. والمعلومات إلي رح طلعتها رح استخدمها بالبحث يلي عم أعملو ما حدا غيري من الجامعة أو برات الجامعة بيقدرو يطلع على المعلومات إلي رح نستخلصها. رح يتم استخدام الرموز بدلا من الأسماء لضمان السرية و عدم الافصاح عن الهوية ، و في حال استخدام أسماء رح تكون أسماء مستعارة .

مشاركتكن رح تكون حوالي ٩٠ دقيقة. بأكدلكن أنو مشاركتكن طوعية و بحقلكن التوقف وقت ما بديكن بدون أي احراج او اي جزاء. الفائدة الأساسية المتوقعة من هذا البحث هي المساعدة في دراسة بتتناول الورد الجوري كمصدر للمعيشة و سلسلة القيمة لهيدي الورد وبالتالي هيدي الشي رح يساعدنا لنوضع قوانين جيدة لتساعدكم. أود أن أنوه بانو لا يوجد أي تعويض مالي للمشاركة في حلقة البحث.

ما رح يكون في أي تأثير سلبي عليكن في حال قررتوا التوقف عن المشاركة بحلقة البحث. وبأكدلكن أنو عدم مشاركتكم في حلقة البحث ما رح تأثر على علاقتكن بالجامعة الاميركية بأي شكل كان.

بدي سجل هيدي الجلسة على المسجل الصوتي ، حتى أقدر إتذكر كل التفاصيل و المعلومات المذكورة. رح أضع كل الأشرطة المسجلة في خزانة مغلقة ، حتى ما يقدر حدا غيري يطلع عليهم. رح أكتب تاريخ المقابلة و توقيتها على الشريط و ما رح استخدام أي اسم او أي علامة تعريف شخصية. بعد الانتهاء من المشروع رح إتخلص من جميع الأشرطة. أن كنتوا بتفضلوا أنو تم المقابلة بدون تسجيلها، بحاول (ملاك الديراني) أخذ كل المعلومات و الملاحظات كتابيا.

ما رح تكون هيدي الجلسة محاضرة بالعكس أنا اليوم بدي إسمع شو عندكن آراء و أفكار. ما في جواب صح أو خطأ. وكل أرائكن مهمة وبتمنى عليكن جميعا إنو تعبروا عن رأيكن بصراحة وحرية. وكمنا بتمنى أنو كلنا نسمع لبعض ونحترم آراء بعض. ورجاء ما بدنا أحاديث جانبية ولا بدنا نقاطع بعض.

إذا عندكن أي سؤال أو إستفسار فيكن تطرحوا هلاً.

بتوافقوا نتناقش سوا؟

سوف يتم تزودك بنسخة من هذه الموافقة للإحتفاظ بها. هذه الأرقام والبريد الإلكتروني لفريق البحث واللجنة الأخلاقيات في الجامعة الأميركية في بيروت.

علياء الديراني:
رقم الجوال: ٧١٤٥٥٢٣٦
البريد الإلكتروني: aaa136@mail.aub.edu

أو
التواصل مع الدكتور علي شلق
الرقم الداخلي: 4502
تليفون: 01-35000
البريد الإلكتروني: ac22@aub.edu.lb

ان كان لديكم أي استفسار عن حقوقك كمشارك بهذه الدراسة، يمكنك الاتصال بالمكتب لجنة الأخلاقيات بالجامعة الأمريكية ببيروت:

هاتف : 01-350000 رقم فرعي ٥٤٤٥
بريد الكتروني: irb@aub.edu.lb

هل ترغب بالمشاركة في هذه الدراسة البحثية؟

○ نعم

○ لا

الموافقة على تسجيل حلقة البحث:

هل تستطيع تسجيل المقابلة باستخدام السجل الصوتي؟

○ نعم

○ لا

الموافقة على الاقتباس من حلقة البحث:

من الممكن أن أستخدم اقتباسات من المقابلة في عرض النتائج أو في كتابة الورقة البحثية و كما ذكرت مسبقا سيتم استخدام أسماء مستعارة في هذه الاقتباسات.

هل توافق على أن أستخدم اقتباسات من المقابلة؟

○ نعم

○ لا

إسم الباحثة: _____
إمضاء الباحثة: _____

Appendix B

Interviews Informed Consent: (wholesalers and processors)

Hello. My name is Aliaa Al Dirani. I am a graduate student in the Faculty of Agriculture and Food Science at AUB. I would like to invite you to participate in a research study about Damask rose (*Rosa damascena*) value chain, all the information I need is based on your experience and knowledge that is to say from your perspective. Hence, we will try to guide the development and enhanced policies regarding Damask rose cultivation, processing and trading.

Before we begin, I would like to take a few minutes to explain why I am inviting you to participate and what will be done with the information you provide. Please stop me at any time if you have questions about the study. If you agree to participate, you will be asked a number of open-ended questions in regards to the topic.

I am doing this study as part of my studies towards a Masters of Science in Environmental Science at AUB. I will be interviewing about four processors and 4 wholesalers, and will use the information as the basis for my thesis. As well, these data may be used in articles that might be published, as well as in academic presentations. Your individual privacy and confidentiality of the information you provide will be maintained in all published and written data analysis resulting from the study. Only the researcher will have access to the data collected. Your identity will be made unknown in the written materials resulting from this study. If we will use names to refer to quotes, we will use pseudonyms.

Your participation should take approximately 30-60 minutes. Please understand that your participation is entirely on a voluntary basis and you have the right to withdraw your consent or discontinue participation at any time without penalty. The main benefit that is expected to result from this study is to explore the value chain and livelihoods that are based on *Rosa damascena*. In addition to that, we hope that this study will aid in future planning to enhance the policies that deals with *Rosa damascena* cultivation. You will not receive any monetary compensation for your participation.

If at any time and for any reason, you would prefer not to answer any questions, please feel free to skip those questions. If at any time you would like to stop participating, please tell me. You will not be penalized for deciding to stop participation at any time. We also assure you that if you decide not to participate in this study this will not affect your relation with the American University of Beirut in any way.

I would like to tape record this interview so as to make sure that I remember accurately all the information you provide. I will keep these tapes in a closed drawer in the department, where only the researcher will have access to them. The tapes will be

labeled with the time and date of the interview without using any names or any personal identifiers. After the research is completed the tapes will be destroyed. If you prefer to be interviewed without being taped, I will just write and take notes of what you will say. You will receive a copy of this consent form for your records. These are the contact numbers of the research team and the IRB (Institutional Review Board). If you have any questions, you are free to ask them now. If you have questions later, you may contact me at:

Cell phone number: 71-455236

Email: aaal36@mail.aub.edu

OR

Contact Dr. Ali Chalak at:

Tel: +961-1-350000

Ext: 4502

Email: ac22@aub.edu.lb

If you have questions about your rights as a participant in this research, you can contact the following IRB office at AUB:

Phone number: 01-350000 ext: 5445

Email: irb@aub.edu.lb

Are you interested in participating in this study?

- Yes
- No

Consent to Record Interview

May I record this interview?

- Yes
- No

Consent to Quote from Interview

I may wish to quote from this interview either in the presentations or articles resulting from this work. A pseudonym will be used in order to protect your identity.

Do you allow me to quote from this interview?

- Yes
- No

Researcher's Name: _____

Researcher's Signature: _____

موافقة على الاشتراك في المقابلة

مرحباً ، أنا اسمي علياء الديراني. انا طالبة ماجستير في كلية الزراعة والعلوم الغذائية في الجامعة الأمريكية في بيروت.

وأحب ان ادعوك للمشاركة معنا في دراسة بحثية عن مراحل الإنتاجية للورد الجوري ، و ذلك من اجل فهم اعمق لاحتياجاتكم من وجهة نظركم استناداً على خبرتكم ومعرفتكم وذلك لتطوير وتحسين القوانين المتعلقة بزراعة وصناعة وتجارة الورد الجوري.

قبل البدء ، أود أن أخذ بضع دقائق لتوضيح سبب دعوتي لك للمشاركة في هذا البحث و ماذا سيحصل بالمعلومات التي سنستخلصها من المقابلات. رجاء أوقفني في أي وقت في حال كان لديك اي تساؤل يخص الدراسة. في حالة موافقتك على المشاركة بالدراسة سيطرح عليك عدد من الأسئلة المفتوحة بخصوص هذا الموضوع

هذه الدراسة هي جزء من دراستي الجامعية. سوف يتم مقابلة ثمانية أشخاص و سيتم استخدام المعلومات في مقالات قد تنشر في مجلات علمية محكمة و/أو في لقاءات أكاديمية. سيتم الحفاظ على سرية المعلومات و الخصوصية في جميع المقالات الناتجة عن هذه المقابلات. لن يكون بإستطاعة أحد الاطلاع على هذه المقابلات سوى الباحثين المشاركين بهذه الدراسة. كما و سيتم استخدام الرموز بدلاً من الأسماء لضمان السرية و عدم الإفصاح عن الهوية ، و في حال استخدام أسماء ستكون أسماء مستعارة.

مشاركتك سنتراوح بين ٣٠-٦٠ دقيقة. و نؤكد أن مشاركتك طوعية و يحق لك التوقف و قتما شئت بدون أي احراج او اي عائق. الفائدة الأساسية المتوقعة من هذا البحث هي المساعدة في تغير وتحسين القوانين المتعلقة بزراعة الورد الجوري. نود أن ننوه بأنه لا يوجد أي تعويض مالي للمشاركة في هذه الدراسة.

. لن يكون هنالك أي تأثير سلبي عليك في حال قررت التوقف و عدم الاستمرار. كما نؤكد لك أن عدم مشاركتك في الدراسة لن تؤثر على علاقتك بالجامعة الأميركية في بيروت بأي شكل كان.

أرغب في تسجيل هذه المقابلة على المسجل الصوتي ، كي أتمكن من تذكر كل التفاصيل و المعلومات المذكورة. سيتم وضع الأشرطة المسجلة في خزانة مغلقة ، حيث لا يمكن لأحد سوى الباحثين المشاركين في هذه الدراسة الاطلاع عليهم. سيتم كتابة تاريخ المقابلة و توقيتها على الشريط و لن يتم استخدام أي اسم او أي علامة تعريف شخصية. بعد الانتهاء من الدراسة البحثية سيتم التخلص من جميع الأشرطة. أن كنت تفضل/ي أن تتم المقابلة بدون تسجيلها، يمكن أخذ المعلومات عن طريق تدوين الملاحظات كتابياً.

سوف يتم تزودك بنسخة من هذه الموافقة للإحتفاظ بها. هذه الأرقام والبريد الالكتروني لفريق البحث واللجنة الأخلاقيات في الجامعة الأميركية في بيروت.

ان كان لديك أي سؤال يمكنك الإستفسار الآن. اذا أردت الاستفسار عن أي شيء يخص الدراسة لاحقاً يمكنك التواصل معي على :

علياء الديراني:

رقم الجوال: ٧١٤٥٥٢٣٦

البريد الإلكتروني: aaa136@mail.aub.edu

أو

التواصل مع الدكتور علي شلق

الرقم الداخلي: 4502

تليفون: 01-35000

البريد الإلكتروني ac22@aub.edu.lb

ان كان لديكم أي استفسار عن حقوقك كمشارك بهذه الدراسة، يمكنك الاتصال بالمكتب لجنة الأخلاقيات بالجامعة الأمريكية ببيروت:

هاتف : 01-350000 رقم فرعي ٥٤٤٥
بريد الكتروني: irb@aub.edu.lb

هل ترغب بالمشاركة في هذه الدراسة البحثية؟

نعم

لا

الموافقة على تسجيل حلقة البحث:

هل استطيع تسجيل المقابلة باستخدام السجل الصوتي؟

نعم

لا

الموافقة على الاقتباس من حلقة البحث:

من الممكن أن أستخدم اقتباسات من المقابلة في عرض النتائج أو في كتابة الورقة البحثية و كما ذكرت مسبقا سيتم استخدام أسماء مستعارة في هذه الاقتباسات.

هل توافق على أن أستخدم اقتباسات من المقابلة؟

نعم

لا

إسم الباحثة: _____

إمضاء الباحثة: _____

Appendix C

Flyer (Farmer to farmer)

There is an AUB graduate student in the Faculty of Agriculture and Food Science who would like to invite you to participate in a research study about Damask rose (*Rosa damascena*) value chain, all the information she needs is based on your experience and knowledge. She is aiming to conduct a focus group with 8-12 farmers and will use the information as the basis for their final research project. Your participation should take approximately 90 minutes.

If you agree to be approached I will share your contact number with Dr. Ali Chalak and Aliaa Al Dirani.

In case you need further information please contact the researcher:

Contact Dr. Ali Chalak at:

Tel: +961-1-350000

Ext: 4502

Email: ac22@aub.edu.lb

OR

Contact Aliaa Al Dirani at:

Cell phone number: 71-455236

Email: aaa136@mail.aub.edu

Arabic Version:

هناك طالبة من كلية الزراعة والعلوم الغذائية في الجامعة الأميركية في بيروت تريد دعوتك للمشاركة معها في دراسة بحثية عن مراحل الإنتاجية للورد الجوري ، و ذلك من اجل فهم اعمق لاحتياجاتكم من وجهة نظركم استناداً على خبرتكم ومعرفتكم وذلك لتطوير وتحسين القوانين المتعلقة بزراعة وصناعة وتجارة الورد الجوري. هذه الدراسة هي جزء من دراستها الجامعية. هي تود ان تقوم بحلقة بحث مع ثمانية الي اثني عشر شخص. وستستخدم المعلومات المستخلصة كأساس لدراستها. مشاركتكم 90 دقيقة. اذا وافقة على المشاركة نود أن نشارك رقم هاتفك مع الدكتور علي شلق وعلياء الديراني. في حال كنت بحاجة لمزيد من المعلومات: هذه الأرقام والبريد الالكتروني لفريق البحث يمكنك الاحتفاظ بها:

التواصل مع الدكتور علي شلق

الرقم الداخلي: 4502

تليفون: 01-35000

البريد الإلكتروني: ac22@aub.edu.lb

علياء الديراني

رقم الجوال 71-455236

البريد الإلكتروني: aaa136@mail.aub.edu

Appendix D

Focus Group Questions:

- 1) How can you describe the current states que of *Rosa damascena* cultivation and trade in Lebanon?
- 2) In your opinion, why did *Rosa damascena* cultivation and trade survive mainly in the Beqaa region and specifically in Qasarnaba?
- 3) Explain to me from your experience and knowledge about the different stages that *Rosa damascena* goes through from planting till reaches the final consumers?
- 4) In your opinion, what are the challenges that *Rosa damascena* framers and traders face in Lebanon.
- 5) What can you suggest to flourish the cultivation and trade of *Rosa damascena* in the region?

أسئلة حلقة البحث:

- ١) كيف يمكنك وصف الوضع الحالي لزراعة وتجارة الورد الجوري؟
- ٢) برأيك، لماذا استمرت زراعة وتجارة الورد الجوري في منطقة البقاع وبقصرنا تحديداً؟
- ٣) هل لشرحت لي من خلال خبرتك ومعرفتك عن المراحل المختلفة التي يمر بها الورد الجوري إبتداءً من زراعته حتى يصل الى يد المستهلك؟
- ٤) برأيك، ما هي التحديات والعوائق التي يواجهها مزارعو وتجار الورد الجوري في لبنان؟
- ٥) ما هي إقتراحاتك التي من خلالها يمكننا تحسين وتطوير زراعة وتجارة الورد الجوري في المنطقة؟

Appendix E

Note to self:

The objective of the semi-structured key informant interviews is to document the opinions and perceptions of selected and relevant key stakeholders with regards to Damask rose value chain. The interviews will help identify potential facilitators and opponents to the value chain. The data generated will complement the content analysis with regards to the:

- a. Explore and characterize the Damask rose value chain in one of the Beqaa villages under study (Qasarnaba) and identify the key feature that have contributed to limiting it to this geographical area and helped it survive to our present day.
- b. Assess the impact of the Damask rose production and processing system on the livelihoods of the different actors identified in the value chain.

Opening general question to all stakeholders: How can you describe the current states que of <i>Rosa damascena</i> ?			
Specific questions by area	Main questions	Follow-up questions (if info not already provided)	Notes/ probe
General questions on production/processing/sale of damask rose	How long have you grown damask rose?		
	What land area do you grow?	Is it owned, rented or both?	
	How does it contribute to your livelihood?	Main income source? Supplements income?	

	Production methods	<ul style="list-style-type: none"> • Season? • Part of rotation? • Use of fertilizers, pesticides and other agrochemicals? • Where are seeds obtained from? • Labor? (Hired? Family? Both?) 	
	Processing	Do you process any of any of your harvest?	If so, how much? All of it? Most of it? Some of it? Etc. If so, do you keep some for home consumption? If so, what do you do with it?
		What processing methods do you use?	Any new methods or is it mostly traditional?
		How and where do you sell your product?	Any room for bargaining good prices? Do you feel you are a strong or weak side in the negotiation?

Origins and reasons for anomaly	How did you learn about damask rose production?		
	Did any of your parents/ancestors produce damask rose?	If so, what was their involvement in this production system?	Full-time, part-time, hobby etc.?
	How and when do you think was damask rose production introduced to Qasarnaba?		
	Why is it absent from nearby villages?	Is it because of natural reasons (better soil/climate in Qasarnaba) or social/cultural?	
Prospects for damask rose production	Do you think damask rose production, as currently practiced, is sustainable?	<ul style="list-style-type: none"> • Economically? • Socially-culturally? • Environmentally? 	<ul style="list-style-type: none"> • Enough income etc. • Enough interest in learning its production methods among newer generations? • Is it better or worse for environment?

	<p>What are the challenges that <i>Rosa damascena</i> framers and traders face in Lebanon.</p>		
	<p>What needs to be done to promote damask rose production and help it flourish further?</p>	<ul style="list-style-type: none"> • Sponsoring from governmental and non-governmental entities? (trainings, fairs, farmers' markets etc...) • Subsidies? • New product lines/technology transfer and assistance? • New domestic/export markets? 	

Opening general question to all stakeholders: كيف يمكنك أن تصف الوضع الحالي للورد الجوري			
Specific questions by area	Main questions	Follow-up questions (if info not already provided)	Notes/ probe
General questions on production/processing/sale of damask rose	منذ متى وانت تزرع الورد الجوري؟		
	ما هي مساحة الأرض التي تزرعها؟	اهي ملك، أجرة او كليهما؟	
	ما مدى تأثيرها على معيشتكم/ دخلكم؟	أهي مصدر الدخل الأساسي أو مصدر ثانوي؟	
	الزراعة	<ul style="list-style-type: none"> • موسمية؟ • طريقة زراعته؟ • هل تستخدم الأسمدة والمبيدات أو الكيماويات الزراعية الأخرى؟ • من اين تحصل على البذور؟ • العمال (أجير، العائلة، كليهما)؟ • طرق جمع المحصول؟ 	
	طرق الانتاج	هل تقوم بتصنيع اي جزء من محصولك؟	في حال كانت الاجابة نعم، ما هي كمية المحصول التي تقوم بتصنيعها (كل، جزء كبير، القليل، الخ). ما هي المنتجات التي تقوم بتصنيعها؟ هل تبقى جزء من انتاجك لاستهلاكك الخاص؟ ما هي استخدامة هذه المنتجات؟

		هل من طرق انتاج حديثة أم أن أغلبية طرق الإنتاج تقليدية؟	ما هي طرق الانتاج التي تستخدمها؟
		في المساومة: هل هناك مجال للحصول على سعر جيد؟ هل تشعر بأنك طرف قوي أو ضعيف في مفاوضة على السعر؟	كيف واين تقوم ببيع منوجاتك؟
Origins and reasons for anomaly	كيف علمت عن زراعة الورد الجوري؟		
	هل كان أحد أبائك أو أجداد يقومون بزراعة الورد الجوري أو تصنيعه؟	ما مدى انخرطهم في عملية التصنيع؟	كانو العمال دائمين، او جزء من أعماله، او كانت هواية، الخ...
	كيف ومتى برأيك تم ادخال الورد الجوري الى قصرنبا؟		
	لما لا تتواجد هذه الزراعة في الضيع المجاورة؟	هل هي لأسباب طبيعية/بيئية (في قصرنبا التربة ومناخ أفضل لهذه الزراعة) او هي عمال إجتماعي / تقليدي؟	
	هل تعتقد انتاجية الورد الجوري كما هي تمارس في هذا الوقت مستدامة؟	<ul style="list-style-type: none"> • مدخول كافي • هل الجيل الجديد متحمس لتعلم طرق زراعة وانتاج الورد الجوري؟ • هل زراعة هذه الوردة تفيد أو تضر بالبيئة؟ 	<ul style="list-style-type: none"> • إقتصادياً • إجتماعياً/ ثقافياً • بيئياً

