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# The Fig as A Biological Product: Case of the Taounate Region in Morocco

Ali Abidar

National School of Agriculture, Morocco

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**Abstract:** This work aims to examine the fig sector in a vast area of the fig production in Morocco (area of Taounate). This area representing 50% of the total national area is regarded as the main center of fig in Morocco with 22000ha. A sample of 140 farmers representing the region were selected and interviewed about their fig production system.

The descriptive analysis showed that fig, as it is cultivated fulfils the requirements of biological products. However there are many problems that need to be solved in terms of quality and marketing strategy.

**Keywords:** *Ficus carica* L, fig, biological products, Morocco.

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## 1. Introduction and objectives

The fig tree (*Ficus Carica*), just as the olive tree, is a species that stands for nobility. It was referred to in religious testimonies such as Christianity, Islam, Judaism and Buddhism. This is a great socio-economic indicator. In Morocco, the fig tree remains marginalized. It is exploited within a large food economic framework with a very low profitability. Yield regresses have increased from one year to another (1.25 tones/ha during 1997/98 instead of 3.7 tonnes/ha in 1978/79)<sup>1</sup>. The fig is very appreciated in mountain areas where it grows without difficulty while playing a significant role against erosion and environmental protection.

The Taounate region is considered to be the cradle for fig in Morocco, whereby 22000 ha of surface (50% of the national surface) is used for its production. Figs occupy 17% of the arboreal area in this region after the olive-tree (75%). The fig tree is especially planted in high mountains and requires very little care from both farmers and agricultural technical authorities; this explains the lack of study on this level. The fig remains a very marginalized fruit. Generally man's intervention in the production processes of the fig is small. The purpose of this study is to observe a fig species in its natural environment.

Due to the lack of research on this species, this work was undertaken having as its general objective the diagnosis of the fig sector in the Taounate region. It is a question of studying all the factors, which enter in the production process. These include:

- condition of fig production,
- technical process of fig production distribution channel and,
- consumer behaviour

One hundred and forty (140) surveys have been carried out in three principal districts of the Taounate region namely: Aïn Aicha (AA), Ourtzag (Ouz) and Tahr souk (TS).

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<sup>1</sup> The average yield of fig in Brazil, considered as the largest producer is about 25 tonnes/ha

## 2. Methodology

This work consists of collecting primary data from 140 fig producers representing the farmers of the area of Taounate. This is an exploratory research because the problem is not clearly defined. The methodology used was a focus group with open ended questions to develop a better understanding of consumer behaviour.

## 3. Sampling

By taking into account the constraints on the ground: i.e. time, logistic and topography, we proceeded by using a stratified sampling. The criterion of stratification depicts the importance of fig in each district (table 1).

**Table 1.** Number of fig per district

District	Area of fig (ha)	% of fig	Number of survey
Ain Aicha (AA)	9796	46	62
Ourtzagh (Ouz)	8500	40	43
Tahar Souk (TS)	2900	14	35
Total	21280		

However, a significant difference between the 3 districts was not found.

## 4. Results and discussions

### 4.1 Fig production Conditions

Seventy percent of farmers are illiterate in TS and Orz. This rate is 50% in AA. This district can be considered as the most literate of the three. Farmers having undergone education account for 20% (coranic, primary and secondary school).

Qualified human resources are non-existent among the farmers (engineers make up 0% of the farming population and technicians, 1%).

The situation becomes complicated if we take into account the size of the farms. On average, 54% of the exploitations have less than 5 ha. Those having surfaces between 5 and 10 ha represent 16 per cent.

Apart from this, one must account for the geographical difficulties in the region. The ground where fig trees are cultivated is in valleys 80% of the times. As the farms are generally small, farmers prefer to plant plain crops like cereals and legumes.

The plantations on the hills contribute to the reduction of erosion phenomenon and deterioration of the grounds. The olive and fig tree are the two principal plantations practiced in the area of Taounate; the former occupies 75% and the latter 17% of the total plantations. These two plants are very old in the area. One notes the extreme old age of the plantations. On average, 60% of the plantations are more than 30 years old. In the district of AA, more than 25% of the trees are more than 50 years of age. The majority of fig trees were planted between 1950 and 1970 for the three districts.

Generally, fig trees are planted along with olive-trees. Thirty four (34%) of farmers do not practice intercalated cultures, while 66% of them cultivate cereals in rotation with leguminous plants. The association of the fig tree to the olive-tree, cereals and leguminous plants enables fig trees to draw little of its need from the fertilizer used for the intercalated plants.

The infrastructure of irrigation is almost non-existent in three districts. Almost 100% of farmers don't irrigate the fig. The absence of irrigation can be explained on the one hand by the lack of rain and on the other by the difficulties to pipe water from rivers to mountains.

## 4.2. Technical process of fig production

The technical process of fig production is summarized in the following table :

**Table 2.** Technical process of fig production

Activity	Explanation
Land labor	To increase the freshness necessary for root development, a hoeing is sometimes carried out.
Pruning	Pruning operation is only undergone for dried, infected branches and those which obstruct land labor with 'hatchet'.
Plant protection	No use of pesticide for 100% of farmers
Fertilization	No use of fertilizer for 91% of farmers; but fig draws little of its needs from the fertilizer used for the intercalated plants.
Harvest	<p>The method of harvest used in the three districts is almost exclusively manual (98% of farmers). The objective is to avoid trees being wounded.</p> <p>During harvest fresh figs are arranged in baskets, crates and boxes. The results show that the basket is used by 41% of farmers. This ecological packing (made of <i>Chamaerops humilis</i> L) ensures good ventilation of fig and avoids the compressing and the accumulation of fig juice at the bottom of the basket.</p> <p>Unfortunately, this plant is disappearing in Morocco because of lack of rain.</p>
Dehydration	<p>Pesticides are not used during the sun-dry process. Some aromatic plants under the figs are deposited to facilitate the air circulation by avoiding the fig-ground contact. According to farmers, the odor of these plants prevents the insects from approaching figs.</p> <p>Once figs dry, the farmers flatten it with their hands or a hammer, then make a hole in the center and thread one unit after the other with synthetic yarn (called sbailou).</p> <p>The problem which this operation generates is that on the one hand, the hole caused to the fig facilitates its contamination, and on the other, the bad smell, which emanates from the synthetic yarn, makes the product undesirable by the consumers. Once the production is threaded, a part is sold whereas the other is left like a treasury for the farmer.</p>

## 4.3 The distribution chain

The investigation showed, that in addition to the purely technical problems of production, distribution constitutes the major constraint. The principal reason is the atomicity of supply. Sixty percent (60%) of farmers own less than 5 ha. The intermediaries, who operate on this market (collectors, local wholesalers), as oligopolies, compete with the producers and thus decrease their prices. The absence of refrigerating stations and transport equipment forces more than 70% of the farmers to dry the fig.

When questioned about their interest in professional organization, more than 70% of the farmers showed a strong motivation. They estimate that it is their judicious solution to face the influence of the intermediaries. This study showed that before arriving to the final consumer, the dry fig passes through at least 5 middlemen.

**Farmers:** they are small, without any professional organization. Some of them sell directly to consumers but it is a very rare circuit. They are under the influence of the collectors and the wholesalers.

**Collectors:** called locally 'Kyala'; men who buy in great quantities. Their number varies from one souk (week market) to another, between 20 and 100. They are the representatives of local wholesalers.

**Local wholesalers:** They are 7 to 15 in the Taounate region. Once collectors collect the farmers' supply, the local wholesalers recover the quantities collected. The local wholesalers then sell directly to the most significant fig market in Morocco (Casablanca). If the prices on this market do not satisfy the local wholesalers, they store their goods in refrigerating units at the price of 0.2 DH<sup>2</sup>/kg/4 month. During this period, they manage to sell the product.

**Wholesalers:** They control urban distribution of the fig. Once they receive the product from local wholesalers, if the retailer prices are not satisfactory, they store the product in refrigerating units at the same price.

With the help of good experience in fig market distribution, they manage to fill the market demand.

**Retailers:** They can be super markets, general retailer's food, and specialised shops of dry fruit shops and itinerant salesmen (located beside the cemetery).

In Morocco, there isn't a tradition of dry fig consumption; there are only occasions of consumption.

## 5. Consumption of fig in Morocco

Obstacles of the consumption of dry figs in Morocco are religious habits and psychosociological factors. Our discussions with a focus group using open questions with farmers, local wholesalers and consumers enabled us to enumerate three principal occasions of fig consumption namely, Ramadan (during the funeral ceremonies) and Achoura days (FRG). These three occasions of consumption exteriorise nobility and symbolize a relation, which evokes more than the sensory aspect of the product.

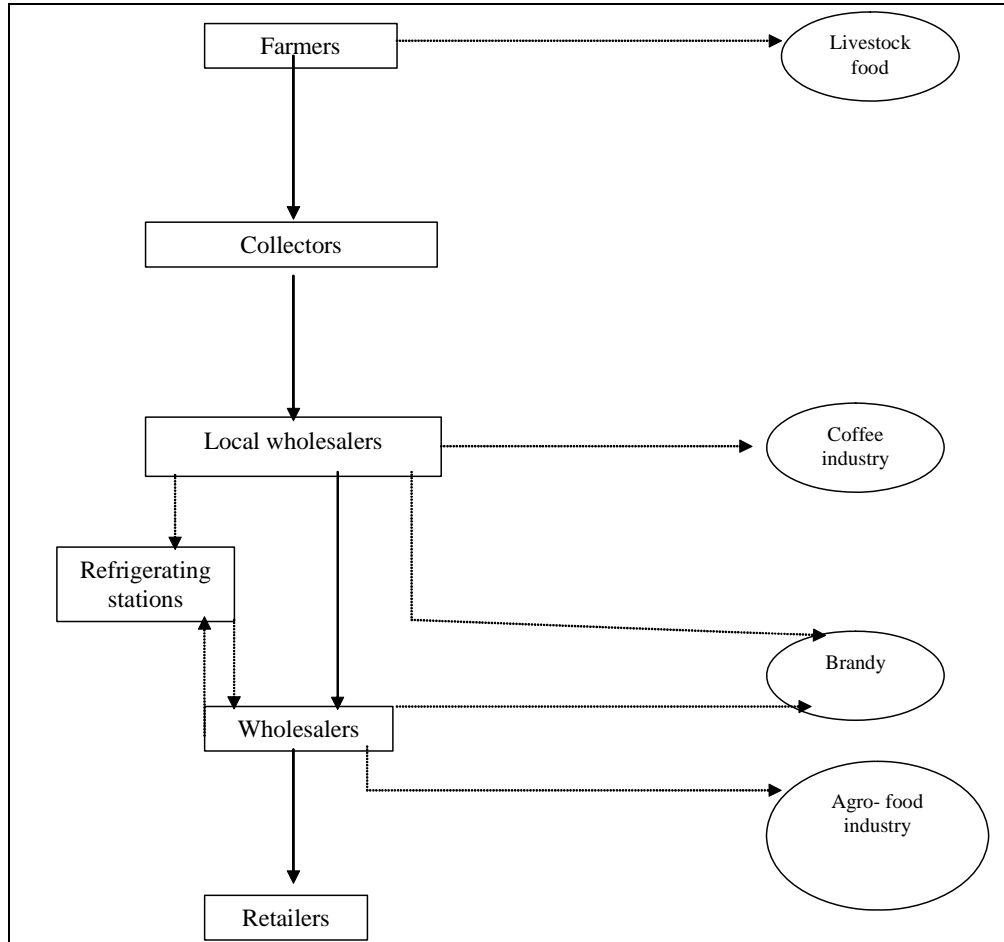
Ramadan is the month of fasting, prayer and meditation. During the fast of Ramadan the products containing sugar are consumed in a great quantity; figs and dates are commonly consumed with soup. But more and more dates are more consumed than figs even in rural regions. The fig is particularly consumed during the 27th day of the Ramadan. It is the principal offering to poor people during this day.

The funeral is the departure of a relative toward his creator. During this ceremony, figs and bread are especially distributed for the funeral procession. The association of bread (crowded product) to fig shows the symbolic value of the latter.

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<sup>2</sup> 1 EURO = 10 DH

Achoura is considered by the Shiites to be the commemoration of the tragedy of Hussein ibn Ali in Qarbala. This commemoration gives rise to impressive demonstrations where the martyrdom of Ali's son is reconstituted and lived by thousands of Shiites. In Morocco, the sunnites consider Achoura as a festival where it is recommended to fast. The fig is consumed particularly during this day.



**Figure 1.** Distribution chain of dry fig

We think that the crowned character of fig sends 'the desire of its consumption', each time evoked in the spirit of the consumer, towards its religious side (ritual). Thus the consumption of fig is stopped (except during periods of consumption - FRG) by two psychosociological reactions of consumers:

- Negative feed back of consumer behaviour toward the product. The fear generated by the association of product consumption and time consumption (FRG) slows down the desire of consumption,
- Time of purchase does not coincide with the reference of the consumer, thus the consumption is deferred towards one of the three occasions.

## 6. Conclusion

The descriptive analysis of the factors, which affect production, professional organization and consumer behaviour showed that:

- Fig as it is cultivated in the Taounate region appears to grow spontaneously. Farmers' intervention in his development process is very negligible. This method of production can be considered as biological in accordance to the European regulation<sup>3</sup>. However, bio certification of the product does not seem to be easy because of many problems that need to be solved in terms of the farmer's organization, quality management and marketing strategy.
- Badly organized farmers deliver their dry fig production with dictated prices by middlemen. The farmer shows strong motivation for cooperative organizations. According to them, it is the only solution to remove the intermediary from the distribution channel.
- The consumption of dry fig is inhibited by religious factors. To stimulate demand, it is imperative to reposition the product. This repositioning must be made according to two axes:
  - Circumstance of purchase: it's necessary to substitute the fear related to consumption of the product by user-friendliness and conviviality.
  - Situation of consumption: to push the consumer to forget the occasions of purchase.

However, it is not a wise choice to reposition the product without conducting marketing research in advance.

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<sup>3</sup> In particular appendix I, part A, point 4 of the EEC regulation n° 2092.