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## Panorama of the apple sector in Lebanon: structure and constraints

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### 1. Introduction

The fact of economic liberalization and globalization, adhesion to the WTO, and the decreasing international trade barriers associated with the creation of free zones of exchange must enhance emerging countries to enforce their capacities in production, sales and exports. Furthermore, in a competitive market where demand is segmented, the ability to create value and secure the benefits while reducing costs requires relevant policy choices. Moreover, in the economic stakes, the issue of quality has increased and the challenges of having in place a real system to guarantee it are required.

Lebanon, amid the emerging countries, with its advantage of water availability and its agricultural potential, has followed a strategy of intensification of fruit production to meet the demand of Arabic countries (Riachi, 2012). At the international level, Lebanon was ranked 47th in 2016 among the producing countries and 20th among the exporting ones (FAO, 2018). It has a self-sufficiency ratio that covers twice the national need, resulting in a significant dependence on exporting its production.

However, several studies revealed that the apple sector in Lebanon, despite its natural advantage, is experiencing difficulties in its operation and coordination (Montigaud et al, 2003; Hssein, 2005; USAID, 2014; Médawar et al, 2008; Aoun et al, 2015; Abi Tarabay et al, 2018) that leads to the situation of non-conformity to international standards, therefore contributing to financial losses for farmers. Hence, the issue of sustainability and survival of households is no longer secured.

Although many interventions were provided by the Lebanese government to encourage actors to use quality standards at the technical level of production as installing the GAP standards and the IP guide, the initiatives are still in the awareness phase.

These difficulties were the driving factors behind this article and will lead to propose our methodology to determine the main constraints and result in proposing several recommendations that might address these problems.

### 2. Materials and Methods

Our methodological approach combined a questionnaire survey and interviews. The former was carried out between February and June 2017 with 107 producers selected from the Governorate of Mount Lebanon and it covered 6 districts (Baabda, Chouf, Jbeil, Kesserwan, Maten, Aley) whereas, the latter was undertaken through a series of interviews with the associated institutions notably the 6 agricultural regional responsables of the extension services in Mount Lebanon, and Kafalat Agricultural Credit Officer. The combination of these two tools was completed by "snowball effect", to identify the constraints beyond the simple technical difficulties, and to collect the recommendations of the main actors involved. The first step of our methodological approach was to build a sampling frame. Our sample was constructed on the basis of 3 classes, based on farm sizes (<1ha; 1ha <between <4.5 ha;> 4.5 ha). The survey covered a sample of approximately 10.96% of the total area of apple holdings in Mount Lebanon. The results were analysed through the Excel program and our research was based entirely on the declarations of producers and not supported by precise figures.

### 3. Results and discussion

The results concerning **the technical conditions of production** reveal that the apple sector is confronted with significant constraints which weaken the sector at the local as well as at the international market level. The cultivation system of apple production in Lebanon mainly reflects traditional practices which are no longer considered to fit the best practices of international standards. The technical itinerary for conventional production, GAP and Integrated Production of apples were prepared by the MoA and distributed to producers, but the problem lie in the difficulty of the farmers' conviction to adopt these standards.

The use of inputs by the small farmers are negatively impacted by the high cost of working force and the high prices of chemicals. Several production limitations were encountered due to inherited low level of experience of apple production, narrow plural activity in other arboreal production, insufficiency and/or inadequacy of logistical and technical actions, inadaptable new varieties to pedoclimatic conditions of the region and presence of wild boars and rats which causes significant damage.

The outcomes of the field survey show that farmers are more or less middle age generation. They are mostly considered to be monoculture holdings (76 %), specialized in apples, the other 24% are multi-skilled and promote the sale of apples through a widened range of agricultural products sales and consequently diversify their sources of revenues.

The majority of farmers are simple producers, their adhesion to cooperatives and syndicates or to CCIA is still embryonic. 82% of the apple producers inherited their land from their ancestors; an inheritance system that leads to the fragmentation of lands.

The share of family labor in the total permanent workforce is around 50% for all farm sizes. The salaried workforce is constituted mainly of Syrians both permanent and seasonal with very low level of education. There is no specialization according to the types of work between family and seasonal foreign nationalities work except for the pruning issues.

Investments in production and farm equipments are generally rudimentary at the farm. The majority of the farmers surveyed opted for 100% self-financing. Those who search other financing sources use USAIDS donations, or borrow via kafalat. The reasons behind the reluctance of farmers in applying for any loans from such institutions are due to the disparity/discrepancies between the terms/conditions of available loans and farmers' capacities. Bank loans to agricultural enterprises represent only 2% of bank credit. Despite the limited credits reported by farmers, Kafalat declares that 25.5% of the employment of their resources in the agricultural sector is allocated to Mount Lebanon, while they have difficulty to be refunded due to the indebtedness of the producers and/or delay to get profits of their resources. A fact that incited small and medium sized farmers to borrow money from traders and consequently narrowed their income margin. **The financing constraints of the investments** causes the agricultural sector to stay traditional and without innovations.

In Lebanon, **extension, research and education** are integrated into the agricultural development triangle of the MoA and its affiliated institutions. However, agricultural research is not applied in the extension process, with the exception of the subject of remedies against apple diseases despite the donation supports from the EU and other developed countries.

#### D. Proposed recommendations

In light of the above, to overcome the technical, and the socio-economic difficulties of the structural and institutional constraints; the proposed recommendations shall be defined in four support initiatives:

- Fostering the emergence of cooperative.
- Promoting an organizational model tool known as Company Networks and market its trademark/tradename for exported apples and labelling them with the geographical reference "Product of Lebanon" to enable firms to collaborate with each other and at the same time guarantee their own independence and autonomy.
- Solving the problem of access to credits by financing the investments through facilitating and moderating the administrative procedures and finalizing the census of Mont Lebanon of landownership in parallel with the establishment of a bank for agricultural credits facilities.
- Fostering the coordination of all actors in a cluster to support the needed changes that rebuild sustainable, economically viable production systems.

#### 4. Conclusion

Despite its undeniable socio-economic weight in mountainous regions, the apple sector is experiencing many difficulties related to technical, economic and social conditions of production. The purpose of this work was to identify precisely these constraints through the examination of some indicators of the structure of the sector in the governorate of Mount Lebanon.

According to the results of the survey, we identified the main constraints that can be resumed in two main headings: structural constraints arising from investment and financing problems and institutional constraints.

This study is not exempt from limitations, and overcoming them could be a line of work for future studies. The analysis was limited to only one region and one crop of the country with little influence from the international policies. In spite of the limitations linked in particular to the regional specificities of apple production, our work opens up three promising research perspectives. The first perspective is to respond to the government's policy of adopting sustainable development for the coming years. The second perspective is related to the analysis of the articulations between the different actors as an "industrial organization" analysis of the sector. The third perspective is more about the effects of niche markets; biological production, and exports.

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