# An Expert's Perspective on Agriculture in Lebanon

*By Myriam Sfeir*
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Dr. Mouin Hamzé currently presides the Board of Directors of the Agricultural Research Institute (ARI) at the Ministry of Agriculture, the only official Agricultural Center in Lebanon. ARI was established in 1956 and embraces seven main stations for research distributed along the entire Lebanese agro-ecological zone.[1] Work in these stations focuses on all agricultural fields namely plant production, plant protection, animal health, food nutrition, food technology, food control, and the environmental aspects involved in the use of agricultural input. Dr. Hamzé also occupies, since May 1996, the position of Director of the Francophone graduate program on sustainable agriculture, the only post-graduate program in Lebanon dealing with this topic. The program, a joint project between the Lebanese University, l'Universite Saint Joseph and l'Universite du Saint Esprit (USEK), concentrates on water and agricultural input management. It is supported by two French higher education institutes as well as other francophone agencies (AUPELF - UREF). Scholars work with students on how to improve Lebanon's agricultural practices, preserve its natural resources and assure the sustainability of its agriculture. This year the number of students enrolled ranged between 12 and 15. Among the previous positions Hamzé has held is Dean of the Faculty of Agricultural Sciences, Lebanese University. He served the Faculty for four consecutive terms after its establishment in 1985 and until July, 1997.

**Myriam Sfeir:** In your capacity as previous Dean of the Faculty of Agricultural Sciences at the Lebanese University how would you rate female enrollment and performance in the agricultural field?

**Mouin Hamzé:** The number of female students enrolled in the Faculty of Agricultural Sciences, since its inception in 1985, has always been more than 55% of the student body. Besides, 70% of our supporting staff are female and the ratio of our female educational and research staff has never been below 45-50%.

There is no discrimination in the choice of specialization among the students of the Faculty of Agriculture at the Lebanese University. Our female students are free to enroll in any field[2] provided that they qualify. Given that female students are more inclined to opt for specialties which are more suitable to women, we at the faculty, were afraid that the high ratio of females enrolled will force us to reorient our options, specialties, and job opportunities, but we were mistaken.

Our female graduates, however, face many obstacles at the professional level. Female engineers are denied the opportunity to prove that they are reliable, capable, and credible. Decision makers in the agricultural field and ninety percent of the private sector have an unfair preference for male engineers. Besides, social constraints in rural areas also prevent female engineers from working and engaging in field work because farmers favor dealing with men. The current situation forces many of our female graduates to work in administrative positions at the Ministry of Agriculture or as research assistants at the Agricultural Research Institute. Yet, inspite of all the disappointment and discrimination more than half of the students enrolled in the Faculty of Agriculture are women.

It is high time we revised our educational system to remedy the prevailing situation. Alternative specialties should be devised where women can prove themselves and be of good use to the producer, consumer, and the marketing system. This alternative once developed will give female engineers more job opportunities.

**MS:** How long does it take a student to acquire a BA. in Agricultural Sciences?

**MH:** Acquiring a BA. in Agricultural Sciences, irrespective of specialization, requires five years. The program is designed in such a way that the student spends four years studying general agriculture while the final year is devoted to research work in the student's field of specialization. The four sub disciplines in which students can specialize are plant production, plant protection, animal production, and food technology.

**MS:** Why this preference for male engineers?

**MS:** Decision makers in the private sector do not believe that a female engineer is capable of taking on reliable and commercial activities in rural areas. They prefer to appoint men who, they believe, are tough, reliable, and credible. Also, considering the mobile nature of agricultural work, there is a preference for male engineers since they can easily sleep overnight in rural areas. Contrary to their male counterparts, it is more difficult for a female engineer to travel to remote areas and stay overnight in places lacking suitable accommodation facilities and guest houses. Moreover, it is very tiring to commute to and from rural areas every day. Therefore, if women engineers are not ready to stay overnight, in order to be present early in the morning on the field with the farmers, there is no point in appointing them. In-depth discussions and consciousness raising campaigns, among social workers and decision makers in the private sector, are badly needed to help resolve such unfairness and discrimination.

**MS:** Which domain of agricultural work is supported mainly or mostly by women?

**MH:** Although harvesting and weeding are considered women dominated activities, a very high percentage of women farmers as well as female agricultural laborers in the Beka' and Akkar take up numerous and manifold agricultural tasks.

Women farmers direct more than 60% of all agricultural lands and farms in Lebanese rural areas. Owing to a number of factors including widowhood, absence of the husband, and extensive male migration to Beirut and its suburbs, women are forced to engage in agricultural production by attending to their neglected fields. They are suddenly compelled to cope with the various agricultural duties with no previous training. Provision of adequate training needed to improve their skills in specialized agricultural work, would enable them to earn better wages than the ones they currently receive.

Given that agricultural production is a multidisciplinary system covering all activities, small farmers (females) in Lebanon do not engage in one activity. Most of the time women are responsible for the whole agricultural cycle from seedling to marketing. Besides engaging in planting, green house cultivation, fruit and vegetable gardening, weeding, irrigation, milking, milk processing, caring for livestock, processing crops, herding and feeding cows, bee keeping, poultry raising, applying fertilizers, pesticides, fungicides, etc., women also care for their children and carry out all domestic activities. Coordinating between house work and the never ending agricultural duties is not an easy endeavor and at the end of the day, women farmers often end up exhausted; however, they have no alternative but to accept the burden of a very high percentage of the agricultural workload because of the escalating living conditions.

Besides, being uneducated, untrained, and uninformed, women farmers are frequently tricked by intermediary agents and cunning salesmen. The former usually demand high percentages of profit to market their goods, and the latter may sell them unsafe pesticides. These pesticides may have dire effects on their health condition and that of their children.

Extensive work should be done in order to improve the status of rural women. To ameliorate the present situation, the Ministry of Agriculture plans to establish 24 extension centers, for farmers, in the 24 different Lebanese districts. Even though both governmental[3] and non-governmental organizations have been organizing innovative programs, projects, and initiatives in rural areas to support women in agriculture, our system at this point is still very deficient. Founding a system whereby female engineers interact with women laborers and farmers and

try to explain to them the problems at hand would facilitate the latter's task.

**MS:** At the Agricultural Research Institute do you take into consideration the ill effects the use of pesticides has on the environment and on a person's health?
**MH:** Certainly. The Environmental Impact Assessment (EIA) is now a part of every research project undertaken by our center. When we attempt to cure a disease we take into consideration the consequences of treatment on the environment and on human beings. We carry out many projects dealing with how to avoid pesticide residue, integrated pest management in food control, food quality, etc. Furthermore, we carry out routine analysis on all our crops to determine the amount of pesticides used by farmers and urge them to limit the use of pesticides especially on strawberry, tomato, cucumber, and other stone fruits.
Inspite of our efforts we still have a serious problem. The results in many cases prove that the amount of pesticides used is higher than the authorized level in many European countries. For example, all intensive productions of tomato or cucumber under green houses contain a mixture of pesticide, fungicide, and acaricide 2 to 3 times more than what the culture needs. The excess material used by the producer to prevent any parasitic attack has a serious consequence on the quality of the crops. A very appetizing and juicy apple might contain a lot of pesticide remnants that are very harmful.
We need a law which controls the use of pesticides, specifies the different types needed to cure different diseases, and the brands authorized by the Ministry of Agriculture. Once you authorize a pesticide, the difficult part lies in regulating its use; how can one be sure that farmers will stick to the specified quantity needed to preserve their product?[4]

**MS:** Is misuse due to ignorance?
**MH:** Well yes, ignorance coupled with fear. Farmers are scared that if they do not apply pesticides in excess their crop will be infected and they will lose all their assets. This situation highlights the importance of research, education, and training where farmers are taught when to apply pesticides and are provided with some guarantees in order not to lose their investments.

**MS:** What are the future projects undertaken at the Agricultural Research Institute?
**MH:** At ARI we are presently focusing on three main projects. The first tackles tissue culture which entails producing virus free plants. These plants being resistant to disease help decrease the amount of pesticides used by the farmers. Armed with advanced bio-technological methods and genetic engineering techniques, scientific and research laboratories and centers nowadays are able to produce plants resistant to disease. Given that our conventional orchards can no longer withstand the various diseases, we aim to replace the present plants with disease resistant ones. This operation is possible, but initially we have to multiply the available mother plants. We have already produced virus free olive plants through tissue culture in our center in Tyre. Within two years we should be able to distribute virus free plants to the private sector and to farmers through a pilot orchard we established at Tal Amara, two years ago.
The second project undertaken entails developing food control techniques in our center in Fanar. At the center we are engaged in food analysis methods required by the Lebanese government; the samples sent to our laboratories are examined in order to detect the constituents that make up a product, its quality, and the percentage of pesticide residue it contains. The Ministry of Health, the Ministry of Economy, and the Customer Services Department at the sea port of Beirut make use of the data we forward to them in order to accept or reject imported products. We also provide farmers with instructions on food control, inform them on the quality of products by teaching them to detect pesticide residue, and train them to observe the required standards in agricultural products by decreasing the use of pesticides.
The third project involves introducing new alternative crops in the marginal non-irrigated agricultural lands in the Beka', Akkar, and the South. We are trying to introduce new crops in the areas which used to be cultivated by prohibited culture namely hashish. Although no culture or crop can beat the high prices farmers exact from selling hashish, we at ARI are currently testing some alternative crops that can replace hashish and have a real economical comparative advantages. Our aim is to prevent the desertification of the area by introducing new crops that are materially rewarding and able to tolerate the drought.
This project will be completed within two to three years given that the agricultural process is a slow one. In agricultural research, results are not attained quickly.[5] More than one test is needed[6] before introducing a new line and distributing it to farmers. To ensure the success of such an initiative, a political decision is required along with economic studies, agricultural research, social studies, and financial support. We expect some promising results.

*ENDNOTES:*

1 The main headquarter is in Tal Amara, Rayak, and the other six locations are in Tyre in the South, Abdeh and Kfarchakhna in the North, Fanar in the northern suburb of Beirut and Mount Lebanon, Terboul and Kfardan in the Beka'.
2 The various specializations are plant production, animal production, plant protection, and food technology
3 Although the training sessions are the responsibility of the training department at the Ministry of Agriculture training programs are also organized at the ARI.
4 For instance, for one season's production of tomato, farmers apply pesticides 12 times instead of 3 to 5.
5 For example, if we want to introduce a new line in wheat the process of testing and selection takes eight years before authorization is granted.
6 To be sure of the characteristics of the line, its potentials, and the possibilities it yields