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The object of this report is to present the various aspects of contemporary agronomic training in Lebanon. Eleven years of civil war in the country have had a deleterious effect on the educational infrastructure, destroying facilities and equipment for teaching and research and reducing the human potential as well as the number of high level personnel in the agricultural field. Yet advanced schooling in agronomy still survives in Lebanon as best it can. The academic and professional level of Lebanese-trained agronomists remains satisfactory, as witnessed by the results they have shown from their doctoral studies in Europe and the United States.

Before going into the details and special features of this branch of training in Lebanon, it is essential to recall the context and the objectives of the institutions charged with this mission, namely: the Faculty of Agronomy (FA) of the Lebanese University, the Faculty of Agronomic and Food Sciences of the American University of Beirut (FAFS), and the Advanced School of Mediterranean Agronomic Engineers (ESIAM) at Saint Joseph University. These establishments maintain clear lines of communication with the Ministry of Agriculture, which directs agronomic education at the secondary school level as well as the activities of the Agronomic Research Institute (IRAL) and the National Scientific Research Council (CNRS).

Many international experts have already dealt with this aspect of Lebanese agriculture. The report prepared by R. Fevrier and R. Lognon, dated 12 September 1980 (UNDP/FAO project, LEB 79-103) is, in our opinion, a serious and objective document that might well serve as a basic reference in all planning toward reactivation and reform of agronomic research and education in Lebanon.

I - Agronomic education establishments in Lebanon

1. The Faculty of Agronomy of the Lebanese University (FA)

This French-speaking faculty is of relatively recent date. It was created in 1974, but was unable to recruit its first class of graduates until the beginning of the 1985-86 academic year. The Faculty is part of the Lebanese University, charged with advanced teaching and training in the public sector under the responsibility of the Ministry of National Education.

The students are recruited on the basis of the bachelor's degree, (part two - elective in experimental sciences and elementary mathematics). The five year study program leads to the Degree of Agronomic Engineer.

The Faculty is organised into two departments: the first is concerned with specialized subjects relating to agricultural production (Agronomic Engineer) and the second with veterinary studies (Doctor of Veterinary Medicine). The agronomic studies are in their second year, while veterinary medicine will not begin until the year 1987-1988.

The main purpose of the Faculty of Agronomy is to train specialized agronomic engineers who can direct, and work in, agricultural plant and animal production in Lebanon. Instruction is keyed to the problems involved in research as well as in improving the country's agricultural resources.

At the present time, given the situation as far as security is concerned, the Faculty operates in two places: Beirut and in the town of Horch Tabet to the east of Beirut. In the absence of an agronomic research station, operational in the framework of the Agronomic Research Institute, a four-year contract has been concluded with the American University of Beirut to allow for orientation and training in agricultural practices and techniques. However, the Lebanese Faculty of Agronomy retains the prerogative of selecting its programs and instructors, while using the resources of the American University when needed.

2. The Faculty of Agronomic and Food Sciences, American University of Beirut (FAFS)

The Beirut FAFS was created in 1952. This private English- speaking establishment has no permanent institutional connection to the Lebanese government or the Agronomic Research Institute, but it has close ties to American universities. The staff represents a considerable potential in terms of agronomy instructors, with 15 to 20 on permanent status (only one Lebanese) who frequently work, on the research side, under contract with the Lebanese CNRS: these contracts are of limited duration and are varied in content. The Faculty also has an experimental farm of 100 ha, a third of it irrigated, located in the Bekaa 80 km east of Beirut. The farm is equipped with a sizeable farm machinery workshop and a laboratory for food and agriculture research.

The program of study provides for recruitment of students who have received their bachelor's degree (part two) for a period of four years leading to the Degree of Agronomic Engineer or three years toward a B.S. in nutrition and dietetics. Subsequently, the students may pursue their studies at the post-graduate level to obtain the Master of Science degree in one of the following: plant production and protection, animal production, food and agriculture technology, soil irrigation and mechanization, and rural economy. A Ph.D. program was approved several years ago but is not yet in operation.

3. Advanced School for Mediterranean Agronomic Engineers of the Saint Joseph University (ESIAM)

This French-speaking school was created in 1979 in the Zahle region (Bekaa plain) 75 km east of Beirut. A private establishment within the Saint Joseph University, it is directed by Jesuit priests. Students holding the bachelor's degree (part two) are recruited for a period of five years (two devoted to preparatory courses and three to agronomic studies) at the end of which they are eligible for the Agronomic Engineer diploma. The teaching staff consists of agronomists, including some who hold the doctorate in agronomy, hired for a specific term of employment on a non-career basis. None of the specialized courses in the program are elective.

II - Establishments engaged in agronomic research

This section describes those institutions which are dependent upon the public sector and which maintain close contacts with the agronomy faculties in the context of research as well as of training teachers and researchers.

1. National Scientific Research Council (CNRS)

This body is entrusted with the task of planning and coordinating scientific activity in Lebanon on the basis of the funds which it grants to ongoing programs as well as among those researchers whose training it finances and whom it recruits. In the realm of agriculture, its activities are restricted to financial support for the Agronomic Research Institute and to the assignment of individual researchers. At the same time, the CNRS contributes to Lebanese agronomic

research by way of financing programs submitted by individual members of the agronomy faculties of Lebanese universities and the American University.

2. The Lebanese Agronomic Research Institute (IRAL)

Before the war in Lebanon, the IRAL had seven field stations, logically located all over the country. These concentrated on plant hygiene research, plant production, animal production, farming in arid zones, citrus fruit, greenhouse and hothouse crops, and irrigation.

As pointed out by Mr. Fevrier and Mr. Lignon (see above), all of the IRAL installations were occupied by armed forces of different allegiances, their equipment, files and libraries were destroyed, and their scientific work reduced to a minimum. As a result, despondency reigns among its staff and those remaining researchers who did not go abroad to work. At the present time, the IRAL is unable to cope with the situation and cannot satisfy the needs of Lebanese agriculture.

III - Additional information

We shall respond briefly, under this heading, to the suggestions outlined by ICAMAS regarding supplementary data to be furnished by individuals responsible for country reports.

1. Categories of training

- **Senior technicians**: there is no provision for instruction in this category in agronomy in Lebanon.

- **Specialized engineers** (four years): the equivalent of the Agronomic Engineer diploma offered by the FAFS and the ESIAM.

- **Design engineer** (five years): corresponds to the Agronomic Engineer diploma for which students at the Agronomy Faculty in the Lebanese University are eligible.

- **Veterinary surgeons**: this degree is not yet operational. It is planned for inclusion in the Faculty of Agronomy (FA) program for 1987-1988.

- **D.Sc.**: only available to those studying and being trained abroad (France, USA, USSR, etc.).

2. Linkage between training programs

FA: Limited transfer possibilities for students who have successfully completed the first cycle of university studies (two years) at the Faculty of Sciences (Department of Natural Sciences) in the third year, with admission on a competitive basis.

FAFS: Transfers possible at all levels, based on required courses, but only for students of the American University.

3. Linkage with other branches

FA and FAFS: Close attention paid to biological studies, and as the case may be, to chemistry, particularly in connection with the Master of Sciences program at the FAFS.

4. Number of diplomas conferred annually

FAFS: 700 degrees have been conferred by this faculty since its establishment in 1952. About 25 to 30 engineers and 30 to 35 M.Sc. students graduate each year.

ESIAM: The first graduating class, in 1984-1985, consisted of five engineers.

FA: The first degrees in engineering will be conferred in 1990. The annual number will be around 30 or 35.

5. Administrative organization
(see Section 2 for details).

6. Status of teaching personnel

FA: Six permanent, full-time instructors (200 to 250 hours of teaching per year with programmed research) and 20 part-time instructors (hourly basis). The status is the same as that of other professors at the Lebanese University (Assistant Professor, Associate Professor, Professor). Candidates are recruited after examination of their curriculum vitae (degrees, professional experience and research activities). The retirement age is 64.

FAFS: 21 permanent instructors, of whom 14 are now on the job; and 10 to 15 part-time instructors, most of whom possess the M.Sc. and are hired for 25% to 50% part-time schedules. Their status is

analogous to that of FA teachers; recruitment is done on the basis of their experience and retirement is at age 65 or after 15 years of uninterrupted service.

ESIAM: 10 to 15 part-time instructors paid by the number of on- duty hours.

7. Recruitment of students

FA: The number is limited to 50 in the first year. Students are admitted by highly selective examinations, which include testing in biology, physics, chemistry, mathematics, French and Arabic. There are a total of 80 students at the present time in the first and second years.

FAFS: 70 to 90 students may be admitted each year following a scientific aptitude test (SQ) and an English entrance exam. There are currently 320 students at the faculty working toward the Agronomic Engineer and M.Sc. degrees.

ESIAM: An entrance exam in the sciences is used to select 15-20 students each year. There are currently 40-45 students spread over the five years.

8. Cost of schooling

FA: Studies are free of charge. The Lebanese University provides a budget of about of $350,000 US ($US = 45 Lebanese pounds) to cover all expenses of the Faculty of Agronomy. The budget will be increased in keeping with progress and requirements of the study program. The major investment is in scientific installations and equipment (70%); operational costs only account for 10-20% and a mere 10% of the annual budget goes into employees' salaries and students' expenses.

FAFS: Students fees cover 40% of the cost of tuition. A regularly enrolled student pays $700 per year in the Agronomic Engineer program and $500 in the M.Sc. program. The remainder of the budget is underwritten by a subsidy from AID or other American institutions. Some scholarships, limited in number, are granted to students after an examination of their economic and social background. The annual FAFS budget is one million US dollars, of which only 10% is spent on scientific equipment.

ESIAM: A budget of about $50,000 US is provided for the operation of this school. Tuition is $400 per year.

9. Teaching methods

FA: As a general rule, the university year consists of 750 hours of instruction (20 to 30% devoted to practical work and guided work), extending over 30 weeks. To this total are added two months in residence at an experimental farm for orientation training on a specialized project. Teaching is by semester or year depending on the subjects. Seminars are scheduled as of the third year of study. Visits to private enterprises are arranged regularly. It is not until the fifth year that provision is made for participation in research programs, with approval based on preparation of a dissertation.

FAFS: The Agronomic Engineer diploma requires eight semesters (16 weeks each) of theoretical and practical studies and one nine- week semester in residence at the Bekaa experimental farm. Seminars and visits to enterprises are organized in the fourth year of study. Participation in research activities applies to studies toward the M.Sc. which takes two years. However, certain students may prepare a non-thesis Master of Science without taking part in research programs.

ESIAM: Traditional courses including practical work and visits to enterprises are spread out over nine to ten months of annual instruction. ESIAM has no research activities due to lack of equipment and permanent staff.

10. Orientations

FA: A joint Franco-Lebanese commission has been formed with professors from the Advanced School of Agronomy, Montpellier, to define the orientations of the Lebanese Faculty and to delineate the academic terms and conditions for application. Experts from ICAMAS (Mr. Fevrier) and the Montpellier MAI as well as from the private economic and agricultural sectors in Lebanon will participate, during 1987, in working groups set up to deal with this question.

FAFS: The current trend is to train key personnel for responsible jobs in the technical and commercial sphere as well as in agricultural

production. Graduates of the American Faculty holding engineering or M.Sc. degrees are sought for work on development projects in the Gulf countries.

ESIAM: Its orientations are still difficult to determine because of the limited number of graduates.

Collaboration with ICAMAS

In order to respond better to current needs of agriculture and development in the country, as well as to start out on a solid academic footing, Lebanon's brand new Faculty of Agronomy (FA) has already established relations with ICAMAS and the National Advanced School of Agronomy (ENSA) in Montpellier. It wishes to collaborate with ICAMAS along the following lines:

- Participation in study groups devoted to designing training programs in each technical discipline, to coordinating and implementing a modular program of instruction, and to selecting priority sectors of study for the FA.

- Organization of a program, over the short and long term, for improving the qualifications of FA instructors and technical personnel in the various institutes of ICAMAS .

- An improvement of the security situation in Lebanon should make it possible to revive the plans for creating a specialized MAI in this country. The FA and the Lebanese scientific capability will ensure the success of such an undertaking.

- A documentation subsidy is indispensable for updating agronomic training in Lebanon.

- Evaluation of research programs, and their adaptation to socio-economic and scientific objectives.

By way of conclusion, a formal agreement between the Faculty of Agronomy and ICAMAS would help ensure an effective and necessary follow up that is absolutely needed for the task of reforming agronomic training in Lebanon.