ARTICLES

The American University of Beirut’s Faculty of Agriculture: A unique Land-Grant type institution overseas

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ABSTRACT

Professional education in the agricultural sciences has been the cornerstone of agricultural development in the world’s advanced economies. Institutions such as the Land Grant colleges of agriculture have, in the recent past, given greater attention to technology transfer to developing countries largely through education of Third World nationals in the USA. The American University of Beirut, founded in Lebanon in 1866 and accredited in the State of New York, is a private U.S.-operated nonsectarian institution in a developing and potentially important region of the world, the Middle East. The system of education is American with English language instruction.

The Faculty of Agriculture and Food Sciences is basically similar to the Land Grant colleges of agriculture in the USA. As a faculty member since 1975 and Coordinator of Undergraduate Studies for 2 years, I describe the university’s origins and philosophy; the development of the faculty; its facilities, faculty, and students; its academic and outreach programs; and its area of influence. Aspects of the program that are relevant to current issues in agronomic education are dealt with and the constraints and the implications of operating a U.S. institution overseas are stressed.

Additional index words: Agricultural education, Foreign institutions, Middle East, Lebanon, Agricultural development.

UNIVERSITY ORIGIN AND DEVELOPMENT

The American University of Beirut (AUB) was founded in 1866 as the Syrian Protestant College, a missionary school with humble beginnings, born out of the spirit of philanthropy. The first class of 16 students was given the rudiments of the natural sciences and philosophy by the staff of three teachers under the founder, Dr. Daniel Bliss. A School of Medicine opened in 1867; the Preparatory School (which was then part of the College) and the School of Pharmacy, in 1871; the School of Commerce (later incorporated into the Faculty of Arts and Sciences), in 1900; the School of Nursing and the Hospital, in 1905; the Faculty of Engineering and Architecture, in 1951; the Faculty of Agricultural Sciences, in 1952; and the School of Public Health, in 1954. A School of Dentistry existed between 1910 and 1940.

The university has been characterized by growth in faculty and the student body, in its resources, and by continuous change and challenge. Its history, documented by several writers, most recently Munro (1977), reflects the history of the Middle East over the past century or more. It survived the vicissitudes associated with two World Wars, the founding of the State of Lebanon in 1943, the civil turmoil of 1958, and again the civil war of 1975–1976 and its lingering aftermath. While maintaining its dedication to intellectual freedom, the character of AUB changed from religious to secular, regional, and international. It changed its name from the Syrian Protestant College to the American University of Beirut in 1920.

The various administrative, structural, and academic changes in the evolution of the university reflect its endeavor to fulfill its mandate of service to the region. Today, there are five faculties; Arts and Sciences, Medicine, Public Health, Engineering and Architecture, and Agricultural and Food Sciences. The university functions under a charter from the State of New York and is administered by a private board of trustees, including several members from the Middle East. As a private institution its funds come from tuition, income from endowment, and contributions from individuals, industry, and business in the Middle East and the USA. Grants from foundations and the U.S. Agency for International Development (AID) provided a bigger share in the past. Despite these various financial resources, AUB is subject to increasing...
financial constraints. The economic implications of operating
AUB, as a private university in a developing world, were re-
cently addressed by Khalaf (1976).

The students reflect its regional influence. For instance, the
4710 students in the fall semester 1980–1981 came from 54
countries; over 85% from the Middle East and North Africa.
About 80% of the current faculty is from the Middle East and
20% from the USA and elsewhere. The latter percentage has
shown a diminishing trend in recent years. In its years of
operation up to 1980 AUB has granted 23,417 degrees and
more than 15,000 diplomas and certificates. Despite its opera-
tional difficulties AUB enjoys a prestige out of proportion ot
its size in the region. Its alumni include ministers and planners
in both the national and regional governments and a network
of graduates throughout the world. It had more signatories of
the United Nations Charter than any other university. As an
institution AUB represents a beacon of academic and in-
tellectual freedom and a pillar of stability in an otherwise
volatile part of the world. Though the role of AUB and its
political and economic implications are outside the scope of
this article, it is pertinent to highlight its Faculty of Agriculture
and to deal with its development, programs, and influence in
the region.

FACULTY AND FACILITIES

The Faculty was founded in 1952 with the aid of a $1 million
grant from the Ford Foundation. The facilities include the
lecture halls, offices, laboratories, and greenhouses at the
main campus in Beirut and a 100-ha experimental-demonstra-
tion farm 80 km away in the Bek’a valley—the main agricul-
tural area of Lebanon. Accommodation is provided for stu-
dents in residence and for both faculty and supporting staff.
The farm, known as the Agricultural Research and Education
Center over the years developed poultry, dairy and more re-
cently sheep units, a milk processing plant, a machinery shop
and a greenhouse complex. Other facilities include a boiler
plant, auxiliary generator, and an irrigation pumping station.

The land is used for research, teaching, and commercial pur-
poses. The non-irrigated area is usually cropped to wheat and
barley, depending on winter and spring rains. Total annual
rainfall averages about 500 mm. The irrigated areas are usually
sown to more intensive cropping systems, i.e., potatoes,
beans, vegetables, alfalfa, soft fruits, and both sweet corn,
and corn silage. The principal systems of irrigation in use are
furrow, sprinkler, and drip. The principal areas of field re-
search are forage legume improvement, multiple cropping,
crop production functions involving irrigation and fertilizers,
and integrated pest management.

Since its inception the number of teaching faculty has grown
from 6 to a maximum of 37 full-time equivalents in 1969, re-
ceding to 22 at the present time. Not only has the staff changed
in number, but also in nationality and commitment. As might be
expected, the faculty was predominantly from the USA in
the early years. As it grew, more positions were occupied by
Lebanese nationals, virtually all of whom were U.S.-trained as
Ph.D.'s. In 1969, the 37 full-time members consisted of 18
Americans, 16 Lebanese, and 3 from Europe and Asia. By
1975–1976, at the beginning of the civil unrest in Lebanon, the
number of Americans had dwindled to 9. Of the 22 full-time
members of the current Faculty, 17 are Lebanese, 2 Ameri-
cans, 2 Europeans, and 1 Asian.

While it is inevitable that such an institution would gradu-
ally become dominated by host country nationals who had re-
ceived their early training in that institution and had returned
after graduate studies abroad, the trend was obviously hastened by the circumstances arising from the civil strife. In

the interests of security, several foreign nationals retired early
or resigned to assume positions, mostly considerably more
lucrative, in other countries of the region, especially Saudi
Arabia. The prevailing circumstances were such as to deter re-
cruitment of foreign nationals. In a “publish or perish” age it is
difficult to attract young Ph.D.'s when opportunities for re-
search are limited due to restriction on funding, little possi-
bility for field research and, where it is possible, little time for
research in view of the increasing teaching load, currently a
minimum of 12 credit hours per faculty member.

The reduction in full-time faculty members, however, has
been mitigated by an increase in part-time members, a feature
of the university in general. This practice allows the faculty to
take advantages of professionals in national and regional con-
sultancy companies and international agencies. Currently, the
faculty has an irrigation specialist from an engineering firm
and a sociologist from The Economic Commission for West
Asia. The major source of part-time personnel is the Lebanese
National Council for Scientific Research, which currently sup-
ports a plant pathologist, two nutritionists, a biochemist, and
a soil chemist—all of whom teach within the faculty, but
whose primary responsibility is research. A recent develop-
ment has been the placement of research associates, mostly
trained in France, U.S.S.R., and elsewhere, and involved in re-
search sponsored by the Research Council and in collaboration
with AUB counterparts. The relationship of the faculty with
the council is mutually beneficial; it augments the faculty’s
research and teaching program and provides research facilities
for council research. Most of the research centers have be-
come defunct during the civil war. The shortfall in staff has
also been reduced by various collaborative agreements with
governmental and philanthropic organizations. These include
the Near East Foundation, which currently provides, and
financially supports, an extension agronomist, a sheep breed-
er, and an agricultural engineer. The faculty has agreements
with the Italian and the West German governments through
the University of Bonn. In the past 2 years three plant patholo-
gists were supported for one semester each.

FACULTY ORGANIZATION

The faculty has five departments: Agricultural Economics,
Business and Extension; Animal Sciences; Crop Production
and Protection; Food Technology and Nutrition; and Soils,
Irrigation, and Mechanization. As with other institutions,
these departments over the years have undergone organiza-
tional changes based on changing faculty orientation and per-
sonnel. Each department has a chairman, appointed by the
dean for a 3-year term. The faculty is headed by a dean who,
invariably, has been an American except during the 1976–1978
civil war and again since 1980 when it has been run by an
acting Lebanese dean.

The affairs of the faculty are administered by four standing
committees: Dean’s Advisory, primarily dealing with person-
nel matters related to hiring, promotion, change of status and
termination; Academic Affairs, for student admissions and all
matters concerned with the students’ academic program; Re-
search and Publications, for administering research grants and
supervising publications internally and externally; and Student
Affairs, for matters relating to student social and academic
life. The latter committee is particularly sensitive in view of the
unstable political situation. The dean, at his discretion, can
establish an ad hoc committee for a particular purpose, e.g.,
faculty teaching evaluation. The faculty and its committees are
governed by bylaws approved by a two-third majority of the
voting faculty.
ACADEMIC PROGRAMS

The faculty offers both graduate and undergraduate programs of study. Since 1956 the faculty operated a short-term technical vocational training program, which was discontinued in 1971. Admission to the undergraduate program is at the sophomore level following satisfactory completion of 1 year of university study in freshman science or equivalent, or upon presentation of the Lebanese baccalaureate, Part II, with passing grades in the experimental sciences—mathematics, chemistry, biology, and English. Those who are weak in the entrance score in English must take AUB remedial courses.

Undergraduates

The undergraduate program is of 3 years duration, a minimum of six semesters and two summer sessions, leading to the B.S. degree of agriculture and the Diplome Ingenieur Agricole, awarded simultaneously. The diploma is required for entry to the Syndicate of Engineers in Lebanon. Approximately three-fourths of the 126 credits required are from core courses with the remainder being in a major within one of the five departments plus an option of six credits of free electives.

The course requirements are basically similar to that of U.S. schools. The first or sophomore year is oriented toward the basic sciences such as biology and chemistry, followed by biochemistry and microbiology, introductory economics, and some agriculturally related courses, such as soils and workshop. An important feature in this year is a course "Introduction to Agriculture in the Middle East," which is team-taught with the object of giving a general overview of the various areas of concern within the field of agriculture, all within a regional context. The collective approach to instruction is currently in vogue in agricultural education (McFee et al., 1980). Notwithstanding the strengths of the first year offering, a criticism might be the absence of required courses in physics and geology.

The second or junior year is spent entirely in residence at the farm in the Beka’a valley. The focus here is on practical "hands on" training which is indispensable for subsequent careers in agriculture. This training is all the more important because virtually all the students are from non-agricultural background and lack farm experience. The role of farm versus non-farm backgrounds in relation to student performance in agricultural colleges is gaining greater significance in the USA as the proportion of non-farm students enrolled increases (Riley and Jutras, 1978). Ironically, although Lebanon is a developing country, AUB’s agricultural students represent the ultimate in this trend.

The courses for the junior year are primarily applied, each having a laboratory or a field session. The courses, spread over the two 15-week semesters and the one 8-week summer term, mainly deal with farm management, crop and animal production, machinery and farm power, and irrigation. An important feature is the farm project, based on a complete production-oriented enterprise in crops. The project takes place from planting in the fall or each spring to harvest, and in poultry from beginning to end of a broiler production cycle. While the project is not as extensive as that of the Cal Poly Kellogg Unit Foundation (Engle, 1979), it is perceived as being invaluable in AUB’s student training. In addition to combining work with business, it helps to overcome a marked reluctance towards manual labor, a feature all too common with professionals in agriculture in developing countries.

The senior year is spent at the Beirut campus where the core requirements are completed. Entomology, plant pathology, nutrition, genetics, extension, and statistics, together with elective courses in the chosen major are taken. In the required seminar, skills at literature research and communication are developed. This course is basically organized along the lines described by Frye and Click (1976) using the same evaluation sheet as that used by all faculty members present and a sample of students at random.

Instead of selecting one of the departmental majors a student may choose to take general agriculture with required courses in all areas or may opt for the recently introduced B.S. interfaculty program in nutrition and dietetics. This program requires a 12-month internship at the university hospital. It emerged from a recent awareness of the glaring need for education in an area of vital concern in Middle Eastern countries (Schick, 1979). Given the constraints under which the faculty works, the thrust is, nevertheless, to gear each educational program to regional needs.

At the end of each semester student academic performance is evaluated: those with unsatisfactory grades are placed on probation; a poorer performance may warrant repeating a year or being dropped from the program. Outstanding students are placed on the dean’s honor list while outstanding and consistent overall performance throughout the entire B.S. program may lead to granting of the Degree with Distinction. Every attempt is made to maintain excellence in student performance by careful screening prior to entry, encouraging motivation for the agricultural profession, by continual personal counseling from individual advisors and the coordinator of undergraduate studies, and by remedial academic measures. Dropping a student is rarely resorted to, prudently, in view of the prevailing insecurity and social norms which attach undue significance to such indignity.

Neither of these concerns would surface at colleges of agriculture within the USA. In addition, educators abroad have to consider factors which impinge upon student performance from a different vantage point. While O’Connell (1981) cited several student stress factors and how to cope with them, no mention was made, understandably so, of what might be euphemistically termed "protracted conditions of civil and political disruption" and its attendant circumstances (air raids, indiscriminate shelling, curfews, power failures, etc.). Tragically, students in Lebanon and in other parts of the world have to obtain an education under such circumstances.

Graduates

The program of graduate studies, leading to the M.S. degree, is administered by the coordinator of graduate studies. This program has undergone considerable change in response to market demand and in personnel. Recently, the trend has been towards consolidation in majors or options. The requirement for the M.S. Degree is 21 credits of graduate courses and a thesis, or 33 credits without a thesis. A thesis is required in agricultural mechanization, entomology, irrigation, nutrition, plant pathology, soils, and weed science. It is optional for agricultural economics, agronomy, animal science, food science, horticulture, poultry science, and rural extension and development. Supporting courses for several majors are provided by other faculties of the university.

The non-thesis program generally requires a project of 3 to 6 credits. This option has been chosen by increasing numbers of students largely because it provides broader training for the job market in the Middle East, and because it allows for greater flexibility for part-time students. The market trend has been toward sales, service and management skills, rather than toward research. In recognition of trends toward professional graduate studies at the M.S. level (Milford and McBee, 1980),
a management option was recently introduced in crop protection and agribusiness, both currently in high demand in the market. The concept of internship was envisioned for this program but it has only been realized to a limited extent. Given the constraints to completing such internships satisfactorily in Lebanon or doing thesis research, the graduate program allows students to continue such projects in the outreach programs where qualified supervising personnel are available.

STUDENT ENROLLMENT AND CHARACTERISTICS

The undergraduate student numbers grew from 34 in the initial class of 1952 to 97 in 1956, 132 in 1969, 170 in 1975, and currently in 1982 to 225. The T.V.T. program had been 40 to 50 students per year on average between 1957 and 1962, gradually dwindling thereafter. The graduate program had a modest beginning with 4 students in 1957, increasing to 74 in 1964, 133 in 1970, and currently at 131. A comparatively small percentage of the student body is supported by scholarships and bursaries. For example, in 1981, 8% of the undergraduates and 18% of the graduates were funded, mainly by AID. Thus, 92% of the undergraduates were on a full-time full-paying basis. However, a considerable number of graduate students were on a part-time basis while others were on fee-exempt assistantships.

An interesting feature of the statistics has been the proportion of women students. Currently, 48 of the 133 graduate students are female and 114 out of the 225 undergraduates—a trend has been increasing in the past 10 years. This has occurred despite the somewhat restricted employment opportunities for women in agriculture in countries of the region other than Lebanon. The fact that male students tend to pursue more prestigious professions, such as medicine and engineering, and that female students attend AUB for reasons other than employment prospects are obvious considerations.

The significance that the faculty has in the region can be gauged by the number of graduates and the range of countries of origin. The discontinued technical vocational training program was completed by 425 students, the majority coming from Ethiopia, Afghanistan, and Pakistan (including Bangladesh prior to independence). Whereas virtually all nationalities in the region have been represented in the list of B.S. graduates, the vast majority, understandably, come from Lebanon with sizable numbers from Syria, Jordan, and, in the past, from Iran. About 50% of the M.S. graduates have come from Pakistan and Bangladesh, with sizable numbers from Jordan, Iran, Afghanistan, Syria, and more recently, Lebanon. Political circumstances in both Lebanon and in some countries of the region which are in turmoil, have been a dominant factor in the changing national composition of the students.

The fluctuating student and staffs have resulted in varying student-faculty ratios (10:1 in 1975) and in graduate students per faculty members 5:1 in 1975. Both numbers have tended to increase markedly since 1975. While the latter statistic is an average for the teaching faculty, it is considerably higher for full-time members, especially in high demand majors.

OUTREACH, SERVICE, AND RESEARCH

The concept of extending the influence of the university beyond its walls to Lebanon and the region has been a cornerstone of AUB philosophy. This was expressed in the involvement of both students and faculty in the Village Welfare Service, founded in 1933, whose stated aim was to “inspire landowners and tillers of the soil in the use of scientific knowledge for the improvement of rural life.” While individual faculty members have been active in the formation of their respective regional professional societies, conferences held by the faculty served as a forum for exchange of ideas on a regional development. The centennial conference proceedings held by the faculty served as a forum for exchange of ideas on a regional development. The centennial conference proceedings addressed a wide range of topics in agriculture (Stickley et al., 1969) while a more recent AUB-AID sponsored conference addressed broad issues in agricultural education with respect to regional development (Ryan and Saad, 1980).

Currently, in response to both changes in society and agricultural technology, the faculty is examining its research and educational programs in an effort to more effectively adapt technology to the region. An impetus to this awareness has been the emergence of institutions of higher agricultural education in the region. In a recent article, Dean Orville Bentley of the University of Illinois, an AUB trustee, stressed the notion of relevancy and accountability in agricultural education and research in the light of changing clientele within the USA (Bentley, 1980). These ideas are of even greater significance for countries in the region.

In any self assessment, the program’s strengths, potential strengths, and weaknesses should be identified. In an era of overspecialization where most M.S. programs merely represent a stage in the Ph.D. program, the faculty’s broad-based and terminal M.S. program has clear advantages for lesser developers.

From modest beginning, AUB’s services to the region expanded and were eventually coordinated by separate branches: The Division of Education and Extension Programs (DEEP) in 1977 and the Research and Development Administration Center (RADAC) in 1978. Both branches channel AUB short-term consultancy and faculty secundment on an income sharing and generating basis. While DEEP’s projects deal with educational programs in the region, RADAC projects mainly involve medicine-health sciences, and agriculture.

The program in agriculture is mainly in Saudi Arabia. This involves an M.S. thesis–research program for AUB students based at the Ministry of Agriculture and Water Research Laboratory at Riyadh, the secundment of senior scientist personnel together with a team of technical assistants at this Center in cooperation with USDA, an experimental station study, and consultancy for several agricultural development projects in the private sector. While this involvement has understandably strained the faculty’s limited professional resources, the experience gained has been invaluable in providing more effective and relevant education in agriculture.

The faculty’s impact in the region can be attributed both to organized collaborative program and individual influence. An outstanding example of the programs include a program for the development of the upper Bekaa’s valley with the Near East Foundation and the Ministry of Agriculture, development of the local Awassi sheep breed in cooperation with the National Council for Scientific Research and the Arab Center for the study of Dry Lands and Arid Zones (ACSAD) in Damascus, collaboration with the Consortium for International Development in agricultural development of North Yemen, and collaboration with the International Center for Agricultural Research in Dry Areas (ICARDA) in Aleppo in food legumes and weed control.

Faculty research is oriented towards graduate studies; increasingly such projects are funded from outside sources. The bulk of the support comes from the National Council for Scientific Research, with other grants from ICARDA, ACSAD, the International Development and Research Center, the International Atomic Energy Agency, FAO’s World Food Program, and the American Soybean Association. Faculty research has culminated in over 600 publications, from international and regional journals to the faculty’s Technical Bulletin Series.
oped countries where the need for or the investment in more specialized training is not generally warranted. While the research conducted by the faculty has had an impact in some areas of agriculture, that on other areas has been less; most success occurred when the focus was on applied research.

An obvious drawback has been that much of the research is site specific, i.e., in the Bekaa valley. The findings may not be applicable at all to the higher rainfall areas in the mountains or to drier areas in the Middle East. Other criticisms include the emphasis on crops such as corn, which is of minimal importance in the local economy; neglect of crops of local importance; little or no attention to soil erosion and the problems of non-arable land; use of machinery which is inappropriate for small-scale farming; and emphasis on large U.S. style production units. While the tendency of expatriates to adapt and implement the familiar to unfamiliar surroundings is understandable, long-term success of such program is only likely when research projects are carefully scrutinized and priorities established. The guidelines put forward by Hanson et al. (1977) for identifying such priorities in developing countries represent a significant step forward in this direction.

OUTLOOK

Though the impact of the faculty in the agricultural development of the region is undeniable, this impact can only be maintained or enhanced by responding to the challenges confronting the faculty. A departure from individual disciplines is needed. The university must focus on selected interdisciplinary programs where it can be competitive, and indeed, unique for the region of arid and semi-arid lands, involving an integrated approach to soil, water, and crop management; nutrition and health education; and agribusiness.

As part of a private institution, the faculty will continue to be plagued by financial and operational constraints. Although financial deficits may, in the short-term, loom large in the minds of those who control the university's destiny, the more intangible value of this "window on the West", with its implications for demand for Western technology as well as political relations, may be more important in the long term. The rapidly expanding investment in U.S. agricultural inputs and expertise by the oil-rich Arab countries can largely be attributed to the faculty's graduates dispersed throughout the region. In light of these considerations, continued and increased support from U.S. industry and AID is all the more compelling.

LITERATURE CITED