and it gave them a chance to use the material prior to examinations. Finally, the split classroom periods generally opens the opportunity for students to interact and participate without appearing overly aggressive.

Furthermore, the opportunity to present the subject matter during class gives the students all the more reason to use the handouts as a study tool. The split class periods also adds time flexibility in the length of time allotted to lecture, discussion, etc. The discussion period concerning the questions from the handout also gives the instructor some indication about where the students might need more clarification on a topic.

Student Reaction

The level of preparation varies among the students as well as from day to day for each student. Initially, the small number of students puts extra pressure on some of the students to get the discussion going. In order to involve all the students written discussion question answers were requested. For the most part, the written answers provided the necessary incentive to get the quieter students to participate in the discussion.

The level of detail provided in each handout raised some concerns among the students. Just as there are different learning styles, there also appeared to be different tolerances for repetition of topic material. This problem diminished as the handouts were trimmed to serve the learning styles in the class.

Handouts usually cover whole topics and therefore they contained a great number of readings and questions. Often students disregard or set aside the handouts until they have either more time or the inclination to tackle the tasks. In other cases, the handouts were heavily gleaned to get the things they wanted out of them.

Conclusion

From an instructor's perspective, the preparation of the handouts is the greatest drawback to the approach. It takes a great deal of time to prepare each handout as outlined by Gottko and Osterman. For a small number of students this requirement may deter its adoption.

In addition, too much information or the inclusion of too many ways of covering the same material discourages some of the students. Thus, the handouts need to be revised and updated to improve their effectiveness. Nonetheless, with revision even problem handouts can also become useful learning tools.

The split class periods helped to keep the students actively involved in the class. They did not feel harassed during the discussion period because they knew it was expected and they knew the topic questions beforehand. Given the small class this helped to improve the interaction among the students.

While the use of the feedback approach in small classes has a number of drawbacks, its flexibility helps to overcome most of these problems. Combined with the split class periods it provides a number of good ways for adapting the material to fit the abilities and the needs of the students. At the same time, it provides a setting for the students to become actively involved in learning the material.

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PRELIMARY EVALUATION

American Long-Term Agricultural Education by Tunisian Students

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and J.S. Tiedeman

Abstract

A survey of Tunisians who have graduated from agricultural universities in the United States reveals that students believe that the education they received was relevant and appropriate for the agricultural work that needs to be done in Tunisia. They were well prepared by the Tunisian school systems and felt the level of difficulty of courses to be equal to American universities. Tunisian students believed that their American advisors understood their special needs and requirements and effectively guided their programs. Students generally indicated that their graduate research would not have been possible in Tunisia because of lack of equipment and facilities. A large majority of former students believe that educational programs are a good expenditure of assistance money and should be continued.

Introduction

Since its founding in 1956 the Republic of Tunisia has had a strong commitment to education. At the time of Independence literacy was 15% and some 225,000 students were in primary grades. Secondary schools had 30,000 students, while colleges and universities were training about 2,000.

A major effort was undertaken to increase the availability of education to Tunisians. By 1970 the Ministry of Education received approximately 25% of

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the total national budget (a larger percentage than even national defense) and education was provided free to all students. The results were dramatic. By the 1970's, attendance in primary, secondary and higher educational institutions grew to 935,000, 195,000, and 10,000 respectively. Literacy currently is 62%.

By 1971 Tunisia's educational policies needed to be revised. Greater emphasis was placed upon applied science/technical and agricultural education. Today there are nine universities and colleges specializing in agricultural and related subjects training more than 1700 students. Current governmental plans call for graduation of 30 veterinarians, as well as 60 M.S. level, 130 B.S. level, and 160 A.S. level agricultural specialists each year.

The United States Agency for International Developing (USAID) has also encouraged agricultural education by funding both long term (degree) and short-term students. There are currently 40 Tunisian students in the U.S. studying agriculture with USAID sponsorship; more than 200 agricultural students have been sponsored for long term training. These individuals have strengthened the teaching and research faculties throughout the Tunisian educational and research networks. Many are employed by the Ministry of Agriculture as well as other national and international agricultural organizations.

To date there has not been a detailed evaluation of the relevancy, appropriateness or efficacy of American education as it applies to Tunisians. Likewise, no assessment of the contribution of the returned agricultural scientists has been made. This study represents a preliminary analysis of the appropriateness and effectiveness of American agricultural training.

Methods

In the fall of 1988 the Tunisian Ministry of Agriculture, Mid-America International Agricultural Consortium, Oregon State University, and the Agency for International Development sponsored a Tunisio-American colloquium. This colloquium provided a forum for Tunisians who had received degree training at American Universities and invited speakers to help define agricultural systems and techniques that promote agricultural stabilization.

Every student that received long-term agricultural training in the United States with USAID sponsorhip was invited to attend and participate in this colloquium. Because there were such a large number of former students present, we formulated a questionnaire to assess the perceptions of these people regarding American University education. Of the more than 100 people attending the conference, 41 former students completed the questionnaire. The questionnaire was composed of statements to which the respondent could strongly agree, agree, disagree or strongly disagree. It also provided space for the respondent to indicate his/her educational background, area of specialization, current job and recommendations for additional facilities or equipment necessary to complete the mission of the Tunisian agricultural university and research programs.

Purpose of the Study

Questions asked of the former students were designed to provide information in the following areas:

1. To assess the preparedness of Tunisian students for academic work in agricultural fields at U.S. universities.
2. To assess the relevancy and effectiveness of American course work, field trips, research experience, and advising to students.
3. To determine if former students believe that education programs of this nature should be continued or if developmental assistance monies should be redirected to other activities.

Results and Discussion

A total of 41 completed questionnaires were returned by 6 B.S. level, 17 M.S. level and 18 PhD. level Tunisians. They represented 12 disciplines (table 1). Eleven of the respondents had received their degrees before 1980, the remainder after 1982 (table 2).

Preparation of Tunisian Students

The Tunisian public school system prepares students well for work in American universities according to 90% of the respondents (figure 1). The level of difficulty of the American courses was felt to be

Table 1. Areas of specialization of Tunisians responding to the questionnaire evaluating Degree training in the United States.

Field of Specialization	Number Responding
Agronomy	7
Animal Science	7
Agricultural Economics	7
Agricultural Education	2
Agricultural Engineering	1
Forestry	1
Horticulture	3
Library Science	1
Plant Pathology	1
Range Science	6
Soil Science	3
Statistics	2
	41

Table 2. Year in which the Tunisian responding to the survey received their degrees from U.S. universities.

Year	Number Responding
1966	1
1967	1
1970	1
1973	3
1974	1
1976	3
1979	1
1982	2
1983	5
1984	5
1985	6
1986	11
1987	1
	41

comparable to Tunisian university course work. One respondent wrote that the task of learning English was the most strenuous aspect of his program. When asked if Tunisian researchers and professors were technically equal to the American researchers and professors, 10% strongly agreed with the statement, 44% agreed, 29% disagreed and 10% strongly disagreed. Since many graduates of U.S. universities are currently in teaching and research roles we partitioned the responses. The Tunisians not currently teaching or performing research (14 respondents) were nearly evenly divided on this question with 1 (7%) in strong agreement, 5 (35%) agreeing, 6 (43%) disagreeing, 2(14%) strongly disagreeing and one (7%) no response.

Relevancy and Effectiveness

When asked if the overall degree training received in the United States was relevant and appropriate for the work that needs to be done in Tunisia, the majority of the former participants either strongly agreed (49%) or agreed (41%) (figure 1). Seven percent said that it was not and 2% strongly disagreed with the statement. Likewise, the Tunisians indicated that classes at American universities were relevant and informative (figure 1). Field trips were believed to be of value by 88% of the respondents and 73% of the former students strongly agreed (17%) or agreed (56%) that mid-winter seminars improve a student's understanding of America and is a good expenditure of Tunisian assistance money.

Tunisians generally felt that their research in the United States would not have been possible in Tunisia (figure 2) and indicated that the research facilities were superior in the U.S. (46% strongly agreed, 32% agreed, 2% disagreed and 2% strongly disagreed).

When given the statement "My American advisor understood my special needs and requirements and effectively guided my program", 34% strongly agreed with it, 54% agreed, 7% disagreed and only 2% strongly disagreed (figure 2).

When queried about the attributes of American schools, Tunisians said more independent thought and problem solving was involved and that an individual had more freedom to focus his/her training on those topics of most interest and value (figure 2). Several respondents indicated that the American system concentrated more on applied aspects of agricultural science and was less theoretical than the approach followed in Tunisian universities. Ninety-four percent of the respondents strongly agreed or agreed with the statement, "Even if we had the laboratories, computers and other facilities an American university education would be beneficial" (figure 3).

Since many of the former students have administrative responsibilities, we asked if more training in administration and personnel management were necessary. Response was mixed: 15% strongly agreed, 42% agreed, 29% disagreed and 12% strongly disagreed.

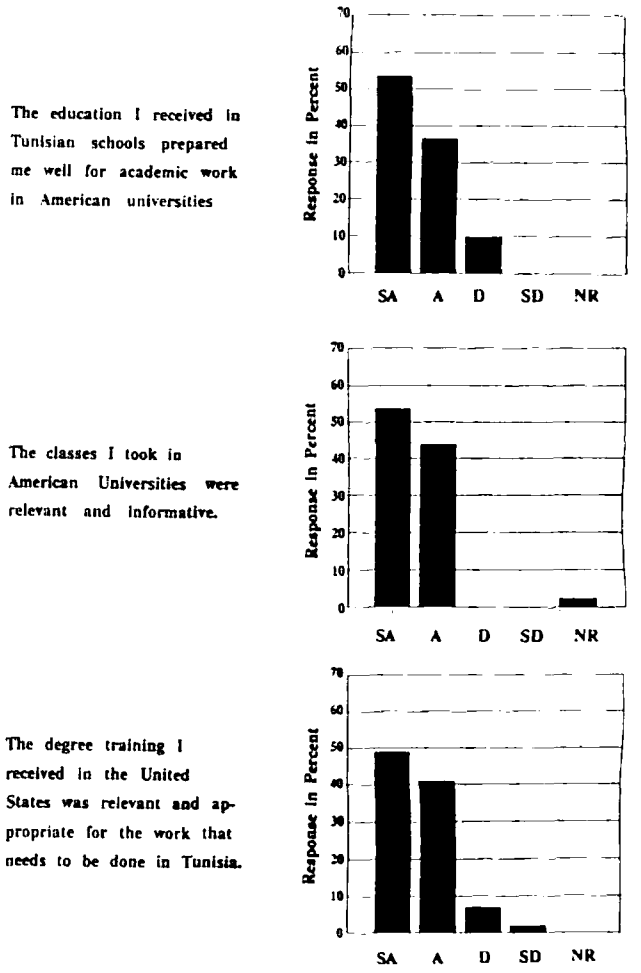


Figure 1. Response of Tunisian students to questions regarding their educational preparation and relevancy of U.S. courses and degree training. (SA = Strongly Agree, A = Agree, D = Disagree, SD = Strongly Disagree, NR = No Response).

Are Returning Students Being Utilized Effectively?

When given the statement, "My technical skills are being used effectively in Tunisia", 17% agreed strongly, 46% agreed, 22% disagreed and 15% strongly disagreed (figure 3). Many of the respondents indicated better facilities and coordination of effort among institutions was needed in Tunisia. It was also suggested that merit pay for university teachers and researchers would contribute to a more productive system. In spite of a general satisfaction with the training they received in American schools, 22% of those questioned indicated that Tunisian agriculture was not better because of long-term training programs in the U.S.

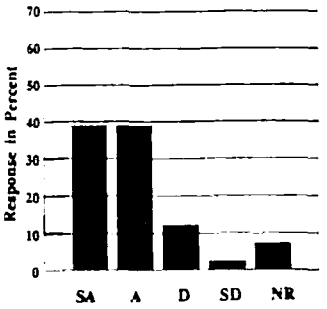
Should Educational Programs in the U.S. for Tunisian Students Continue?

Of the statement, "It would be better for Tunisia if we trained our people in Tunisia and spent American assistance money on commodities and tangible goods" only 7% strongly agreed, 7% agreed, 63% disagreed and 22% strongly disagreed (figure 3). When asked what types of training were necessary the former students indicated that both long-term (degree) and short-term (technical) training was necessary with an emphasis on degree training.

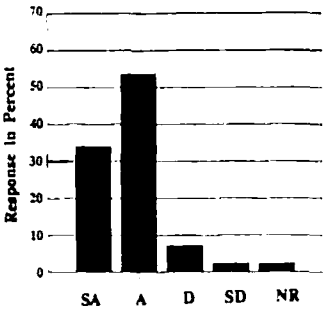
Conclusions

On the basis of this preliminary survey, the Tunisian students that have been selected for training in the United States in agricultural disciplines have been well prepared for university graduate programs. The level of difficulty is approximately equal for students in both systems. Course work, advising and research programs in American schools are believed to be both relevant and appropriate for the work that needs to be done in Tunisia. Degree training in the U.S. was perceived by students as permitting greater independence and freedom to design one's own program than does the Tunisian university education. Among former students, there was strong support for continuation of both long-term (degree) and short-term (non-degree) technical training in the United States.

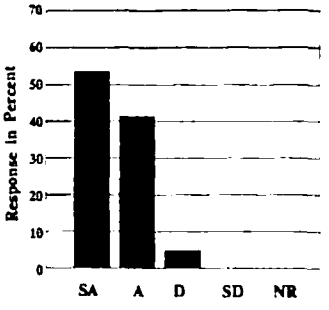
The research experience that I had in an American university would not have been possible in Tunisia because Tunisian schools lack the equipment and facilities.



My American advisor understood my special needs and requirements and effectively guided my program.



Compared to Tunisian schools, American schools encourage more independent thought and problem solving.



Compared to Tunisian schools, American schools permit the student to focus his/her training on those topics of most interest and value.

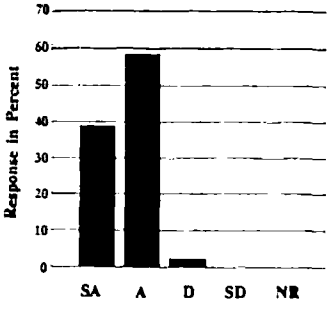
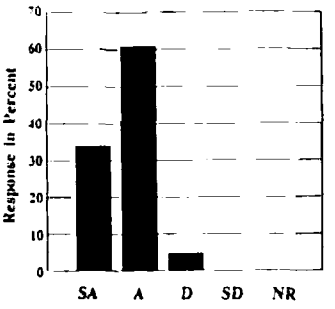
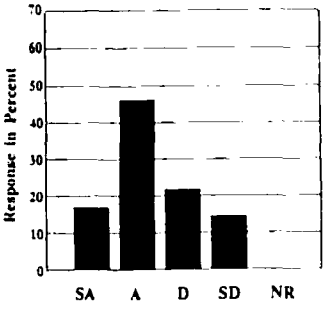


Figure 2. Response of Tunisian students to questions regarding their research experience, advisors and attributes of American universities. (SA = Strongly Agree, A = Agree, D = Disagree, SD = Strongly Disagree, NR = No Response).

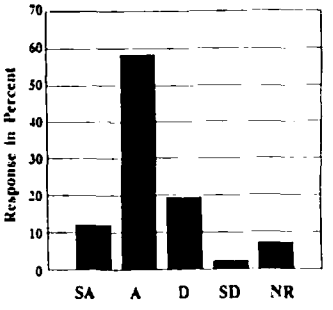
Even if Tunisia had the laboratories, computers, and other facilities, an American university education would be beneficial.



I and my technical skills are being used effectively in Tunisia.



Tunisian agriculture is better because of long-term training programs in the U.S.A.



It would be better for Tunisia if we trained our people in Tunisia and spent American assistance money on commodities and tangible goods.

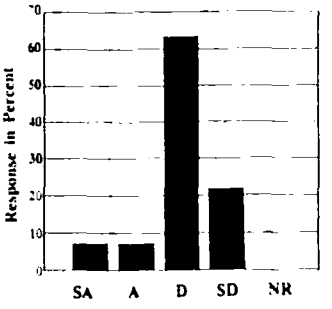


Figure 3. Response of Tunisian students to questions regarding the utilization of the skills they acquired in American universities and their perception of the value of future U.S. training of Tunisians. (SA = Strongly Agree, A = Agree, D = Disagree, SD = Strongly Disagree, NR = No Response).