

Report of the Site Review Team

King Saud University

Agricultural Institute of Canada

June 2010

**Report of the site visitation team King Saud University
College of Food and Agriculture Sciences, May 2010.**

Part 1

1.1 Introduction.

The AIC/OAQ accreditation facility for baccalaureate programs in agrology at Canadian universities was established in 1995 at the request of the deans of agriculture in Canada. At the time, the deans were aware of the increased mobility of agriculture graduates and wished to establish a quality assurance program to ensure that graduates met national and international standards. This outcome based accreditation facility is designed to ascertain if programs graduate students who meet the skills and knowledge standards of the education requirements for entry into professional practice of agrology in Canada. It has been successfully utilized in accreditation of programs at all Canadian universities offering agricultural education.

1.2 Accreditation request.

The Agricultural Institute of Canada was requested by King Saud University to evaluate eight programs offered by the College of Food and Agriculture Sciences for substantial equivalence to undergraduate agrology programs in Canada. These programs are as follows; Plant Production, Plant Protection, Animal Production, Food Science and Human Nutrition, Soil Science, Agricultural Engineering, Agricultural Economics and Agricultural Extension and Rural Society. A site team was assembled, consisting of Dr. Bryan Harvey (chair), Dr. Gaston St. Laurent, Mr. George Jones and Dr. David Chanasyk. Dr. Harvey is Director of Accreditation for the AIC/OAQ and experienced in accreditation. He is an emeritus professor of plant sciences at the University of Saskatchewan. Dr. St. Laurent is also experienced in accreditation including chairmanship of a site visitation team. He is an emeritus professor of animal sciences at Laval University. George Jones is also experienced in accreditation having chaired several site visitation teams. Mr. Jones is a retired agribusiness finance specialist. Dr. Chanasyk is a faculty member at the University of Alberta and a specialist in soil science and engineering. The site visitation took place at Riyadh May 13-20, 2010.

1.3 Site visitation.

The University contact for the site visitation was Professor Abdulrahman Aldawood. The site visitation team wishes to acknowledge the courtesy and efficiency of Dr. Aldawood. The following materials were provided as background information: A self-study report from the University including detailed CVs of all faculty and course outlines for all courses in the programs. We were also given self-study reports for each program under review. We were given access to the University website, which enabled us to gather an overall picture of the institution and its forward plans. Also taken into account were visitations to classrooms, laboratories, University library, the Preparatory Year Centre, and the University farms, where we observed animal facilities for goats, sheep, camels

and dairy cattle and research facilities for field crop and range research. The team also visited a date palm orchard.

A number of interviews were conducted to supplement and amplify the written materials. These included the Vice-chancellor, the Dean and Associate Deans of Food and Agriculture, Heads of departments and senior staff responsible for the conduct of the programs under review, University Library staff, other faculty, alumni, employers and students. The program for the site visitation team is appended to this report.

Part 2

General

2.1. Program Philosophy

The philosophy of the university is to provide distinctive education, produce creative research, serve society and contribute in building the knowledge economy and community through a learning, creative thinking environment, the optimal use of technology and effective international partnership. This philosophy is well articulated in the college plans and administration's wish to have the programs reviewed in order to ensure that they meet international standards is evidence that the university is serious about ensuring the quality of its programs and the students who graduate from these programs. Letters from and face-to-face interviews with senior administrators of the University confirm the University's commitment to the program and concurrence with its philosophy.

2.2. Program Objectives

The program objectives of all eight programs are explicitly stated in the self-study report and are consistent with the philosophy of the program. The programs are regularly reviewed by faculty committees, which include student input, as well as input from non-university sources. Individual courses are regularly reviewed by student evaluations as well as by faculty committees.

2.3. Program Organization

The programs under review are offered by the College of Food and Agriculture but rely on other faculties at the University to provide courses in basic sciences and humanities and specialized areas not available within the college. Responsibility for curriculum development, maintenance and monitoring lies primarily with the faculty of the college. University wide standards must be met in these programs, and ultimately approved by faculty wide curriculum committees. This responsibility is carried out by college faculty committees, which have on their membership representatives of the student body. Proposals and recommendations from these committees are subject to approval by the full faculty Council.

The college indicated that it is regularly in touch with alumni and employers of their graduates to assess their suitability for the workplace and as a sounding board for proposed changes to the curriculum. This was confirmed in interviews with alumni and employers. The university, college and departments are in the process of establishing advisory committees. We commend this move but suggest that taking it all the way to the department level is probably unnecessary and will result in competition for good representatives and if it is not carefully managed conflicting advice. **In addition to what they are doing the College and University may wish to consider the establishment of**

an Alumni Association. This would facilitate ongoing contact with former students and thus keep them interested and supportive of the college's activities and aspirations.

2.4. Accreditation Coordinator

As indicated above, Professor Abdulrahman Aldawood is the accreditation coordinator and has worked with the AIC and the site review team throughout this process. He was designated for this role by the Dean of Food and Agriculture who has ultimate responsibility for these programs. Professor Aldawood was extremely accommodating of the needs of the site review team.

2.5. Faculty

Given the small number of students in the programs the current faculty numbers are ample, resulting in a high faculty to student ratio. The large faculty contingent supports expertise in a wide breadth of subject matter, which can be presented in the curriculum. Review of the faculty CV's indicates that their qualifications and activities are adequate for teaching the programs under consideration. Individual conversations with a number of faculty members also indicate an in-depth knowledge of their subject matter. It is noted that research output is being given a high priority in the University's future plans. We noted that there appeared to be good involvement of students in research projects and utilization of research activities and equipment in the teaching program. Extension and public service are clearly part of the expected activities of faculty members and there is a considerable level of activity in this area. While these latter areas are not directly part of the teaching program they do bear on it indirectly. Active researchers can bring the currency of their research programs to the classroom and enrich the student experience in doing so. It was our observation that students were involved not only in research but also in extension and community service activities, which also enriches their experience and will stand them in good stead when they enter the working world.

We noted that a majority of the faculty had taken their first degree at King Saud University. We support the policy of not permitting a student to take all of their degrees at King Saud University. Diversity in faculty is desirable and thus the University needs to develop a long term strategy to foster such diversity. **We recommend that faculty not take their sabbatical leaves at the institutions where they took their graduate degrees to further the notion of educational diversity.**

The site review team was surprised to learn that career advancement for faculty places less emphasis on teaching performance than on research. In addition, a considerable component of the teaching evaluation is based on quantity rather than quality. The result of this is a need to spread the teaching load simply to ensure that faculty can have it on their record. **We would suggest that the university/college review their policies in this regard so that those who are better at teaching and wish to do so can carry a larger proportion of the teaching and those who are better at research are not penalized for carrying a lighter teaching load.** Graduate training (teaching, committees and

supervision) and postdoctoral supervision should be considered as part of the teaching load.

We were pleased to see that faculty members are regularly evaluated by students and at key career points by the dean. These evaluations are used for career advancement and promotion decision making. **We suggest that consideration be given to adding individual teaching portfolios/dossiers and formal peer evaluations to the teaching evaluation process. We would also suggest that ways be found to give department heads greater means of ensuring that faculty members take remedial action when teaching deficiencies are identified.**

It is our understanding that there is no tenure system to protect academic freedom. Conversations with faculty, however, indicated that they do not feel inhibited in expressing their opinions on academic matters and they certainly encourage their students to do so as well.

2.6. Students

The University requires completion of a high school diploma for entrance into the programs. This requirement is published by the University. Students are now required to take a common first year for science and engineering. We visited the building that houses this program and were impressed with the enthusiasm of the faculty and students and the quality of the facilities. There are advantages to this approach but it means that the students have no formal contact with the college during this program. **We would recommend that consideration be given to including a College of Food and Agriculture Sciences course into this program for students who have identified the college as their choice for enrollment so that these students are exposed to the fields of agriculture and food.** The college is aware of the need to contact students in this program including those who have identified other colleges as their primary choice. It is our understanding that the college of engineering is oversubscribed and thus there is a potential pool of students who could be recruited into **College of Food and Agriculture Sciences.**

Counseling of students occurs at several levels. There is a University wide counseling service, which is supplemented by the assignment of students to an individual faculty member in the College of Food and Agriculture Sciences for advice in academic program selection and personal problem solving. In addition, the College of Food and Agriculture Sciences provides more generic advice by way of seminars and open houses to explain college programs and activities. Students commented positively on the high level of availability of faculty members in the college and the close and caring relationship that they have with these faculty members, which extends beyond graduation.

Students are assisted in developing professional attitudes and contacts through field tours and internship programs, and also through charitable student activities. Mentorship and personal examples of dedicated faculty also contribute in this area.

2.7. Resources

As previously indicated, letters of commitment to the program, verified orally by senior administrators, indicate a high level of support for the program. The physical and human resources of the University are extensive and are available to the program. Classrooms and laboratories are adequate for the current level of enrollment. These are all wired for electronic communications. Equipment available in the laboratories is certainly adequate for the teaching of the programs on offer. This is especially true where research and service activities are under way which require up-to-date equipment, which is also utilized for teaching purposes. Some of the equipment is dated and a concerted effort will be needed to stay current. **We noted that in some laboratories dangerous chemicals were stored in breakable containers in open shelving. Hazard information sheets were not readily available in case of emergency. It is our understanding that the university is in the process of addressing their system in this respect and we would encourage it to do so with all due priority.** The University Library has extensive access to electronic databases and scientific journals, as well as a very large collection of hardcopy materials. Accessibility to the library is excellent, as is the service orientation of the library staff.

In addition to on-campus facilities, the University has two research farms, both of which are accessible to students on an ongoing basis. Transportation is provided for the students by the University. The on-campus facilities and these farms constitute a vital part of applied agriculture science programs such as these. One apparent shortcoming is a relative lack of activity in the landscaping aspects of ornamental horticulture on campus and at these farms. The on campus facility is under pressure for building space, which is unfortunate. **We suggest that there is an opportunity to showcase these facilities so that not only would there be university and college pride in them but it would also provide an opportunity to impress the Saudi public with the importance and beauty of agriculture and food.** It could be a destination site which people choose to visit on holidays and other times. It would certainly be an education tool for primary and secondary schools. We would urge the College and University to “think big”.

Part 3

Curriculum

3.1 General.

In the new programs, the initial coursework taken by the students is common to all science programs. During this portion of the program, the students are exposed to coursework in language, social and behavioural sciences, arts and humanities, mathematics and basic natural sciences. These courses are taken alongside students from other colleges in the University. This is good practice and assures the students that they are receiving equitable treatment and quality of instruction. As indicated above, however, it would be desirable for students to be given an introduction to agriculture during this first year. Once they enter the college in the second year, students are exposed to introductory agriculture courses, which provide them with an overall knowledge of the agricultural industry. Specialized coursework in their major is primarily taken in years three and four of their programs and builds logically on the base established in the first two years. Special emphasis is placed on English language proficiency in this common first year program and a couple of students we met in that program were certainly conversant in English. We would caution, however, that this will need to be enhanced in subsequent years especially since courses are offered in Arabic with little opportunity to practise English. **We suggest that the college needs to find ways to ensure that students attain and maintain a high level of English competency so necessary in the modern world.** It would be desirable to offer some senior courses in English. Students should be permitted (perhaps even encouraged) to submit reports in English.

Students are provided with ample opportunity to work in teams in order to address and solve problems and also to give various types of oral presentations and written exercises. The site review team felt that additional focus on teamwork should be given so that such activities are truly judged on a team basis rather than individual assessment of members who were given a common assignment. This might include some introductory basic information to the students on teams and how they work.

Students are also exposed to good levels of experimental learning in class laboratories, field trips to farms, government ministries, and private institutions and organizations. Moreover, an internship program is required and in the opinion of the site review team is well managed as a positive educational experience. Given the urban origin of many students, this aspect of the program is particularly important. It does, however, involve a considerable investment of time on the part of faculty, which is effort well rewarded. **It is important that the faculty involved in this activity be recognized for the intensive work involved to ensure its success.**

Part 4

Individual Programs

4.1 Plant Production

The plant production program is offered by the Plant Production Department of the College of Food and Agriculture Sciences. The philosophy of the program is to provide fundamental education in plant production sciences meeting international standards. The objectives based on this philosophy are to graduate students who are self-reliant, effective communicators, computer literate, skillful and knowledgeable in the theory and the application of plant production sciences. This is a large department with 23 professors, 17 lecturers and 25 researchers. The expertise of the faculty represents a broad range of plant sciences. Most of the faculty members have postgraduate training from North American or European universities. They are active publishers and have a good knowledge of their discipline areas.

The department has access to a number of well-equipped teaching laboratories supplemented by an even larger number of research laboratories. Greenhouse facilities exist, adjacent to the building on the main campus and also at off campus farms. Field research facilities exist in a minor way on campus and more extensively on the off-campus research farms. Access to commercial farms for student teaching purposes appears to be good.

4.1.1 Current Program

The current program builds logically on basic sciences offered in the first year and a half program. Students are also exposed early in the program to introductory agriculture related courses, including agricultural economics. The upper years are used to provide specialization in the plant sciences. Students are exposed to applied aspects of their area by visitations to field facilities and commercial farms and enterprises and also in the cooperative training course. They are given many opportunities to work in teams and also to communicate orally and in writing. The students do not have many electives but cover a wide range of plant related subjects. Students graduating from this program are well accepted by employers who feel that they are well grounded in the field of plant science. Strengths of the program include a very broad exposure to plant sciences. Areas which could be improved include greater exposure to economics and agribusiness, plant protection and a larger number of elective courses. **This program provides an education opportunity which is comparable to Canadian universities and thus the site review team recommends that it be given full equivalency status.**

4.1.2 New Program

The new program has students enrolling in a common preparatory year. Given the minimal exposure to economics, the college should require that students take the Islamic Economics class during this year. The students in this program are not exposed to

agriculture or food courses until the second year and thus the selection of a major is delayed until the latter part of the second year. Specialization takes place in years three and four. The new program consists of fewer required courses and more electives. The site review team views this as a positive change. **The department may wish to consider streaming in this option probably along the lines of the M.Sc. offerings; e.g., horticulture, agronomy, range and forestry.** This could be easily done by packaging the required specialization courses slightly different and then suggesting to students a menu of electives to give depth in one of these areas. The changes made to the program are positive in the opinion of the site review team. The low student numbers in this important area are a serious concern and the department will have to engage in an active recruitment program to attain viable numbers of students. **Since the new program offers much the same program packaged in a manner which is only slightly different to the current program, the site review recommends full equivalency status for this program.**

4.2 Plant Protection

The Plant Protection program is offered by the Plant Protection Department, College of Food and Agriculture Sciences. This is a large well established department which came into existence at the outset of the college in 1965. The mission of the department is to prepare highly qualified students, scientifically and practically via conducting experiments and encouraging public awareness. The objective of the program is to produce qualified graduates in the fields of plant protection. This philosophy is reflected in the program offerings of the department. The department has 44 regular faculty and 14 others for a total of 58, 17 in plant pathology, 31 in entomology, and 10 in pesticides. The department has three chairs. The majority of the faculty members have PhD training at North American or European universities. They are knowledgeable in their fields and well published. Many are involved in outreach activities. The department is aggressive and image conscious which is reflected in the growth it has undergone in recent years and good student numbers in its program. The department has access to three teaching laboratories, one in each of their primary areas: entomology, plant pathology, and pesticides. These are well equipped and suited to the designed tasks. In addition, the department has modern well equipped research labs which also support the undergraduate function. As well as these laboratories, the department has a number of facilities which contribute to the teaching experience. These include: two apiaries one at the experiment station at Dierab and another at **Al-Dirieah**; an insect museum with a large collection of indigenous and alien species which is an excellent tool for teaching especially insect systematics and it has links with a number of foreign museums; controlled environment growth chambers; five greenhouses two on the main campus, two at **Al-Dirieah** and a fifth at Dierab; a scientific drawing unit and; an information tool unit.

4.2.1 Current Program

As in the other college programs, the early semesters are devoted to basic sciences, introductory agrifood sciences and communication skills. Specialization occurs in upper years. The program is structured so that students are exposed to production courses

especially plant production and the three areas of department expertise. Elective selection permits greater depth in one of the areas depending on the student's interest. The program is well integrated with the plant production program as one would expect. The students are given opportunities to work in teams and to exercise written and oral communication skills in a number of courses. The graduates of the program are well received by employers and are viewed as high quality graduates with good knowledge and skills in plant protection. **The site review team recommends full equivalence for this program.**

4.2.2 New Program

The new program incorporates the common preparatory year now required of all students. It contains many of the basic courses that were present in the first year of the previous program. A number of basic science courses, however, are now taught in term three and four, thus leaving less room for specialization courses. This has been handled by reducing the compulsory course requirements and increasing elective choices. The end result is very similar to the old program achieved in a somewhat different manner. **The site review team recommends full accreditation equivalence for this program.**

4.3 Agricultural Extension and Rural Society Program

This department was formed in 1990 to offer degrees, and to conduct teaching and research in agricultural extension and rural development. Since inception, the department has developed teaching, research and consultancy resources that allow it to meet the objectives set by the College. In 2005, due to an inadequate enrolment of students in the AGEX degree program, it was suspended. Recently (2008-09) the department has been engaged in restructuring the program with the intention of resuming its delivery to students.

While no students have graduated from the program in five years (2005-2009), the department is intact and is being supported with faculty, support staff and resources, it continues with research activities, service to the college with course delivery, community involvement, and continuing professional development of faculty and staff. The department is active and involved in supporting the College, University and community. They are ready and able to enroll and graduate students.

Faculty and staff of the AGEX department were observed to be both active and dedicated to teaching research and rural development. Courses continue to be developed, improved and delivered to students at the College in key knowledge and skill areas that are essential in the workplace. New programs for the modified College offerings include course content in Agricultural Co-operatives, Sustainable Agriculture, Environmental and Ethical issues. The department as well, provides a valuable service to the rest of the College using their extension skills and methodology.

4.3.1 Current Program

The current program was suspended and no students have been graduated in five years. The team was unable to judge the graduates or final outcome of the program and thus no recommendation could be made regarding its accreditation status. Meetings with students, graduates and employers supported the need for extension programs, and many of the skills and knowledge presented in AGEX courses. Graduates from other programs who had taken classes in this department were positive about the courses and the need for them.

4.3.2 New Program

The Agricultural Extension program has been modified to conform to the University's requirement to have all science and engineering students take a Common Introductory Program. While this accommodation requires that the Agricultural content be given in the remaining six sessions, this has been achieved and for the purposes of accreditation, the modified program is substantially equivalent to the existing program.

This degree program has had no enrolment or graduates for the past five years. There is a functional department that has been active in teaching, research and service to the College and community. New course offerings to service the programs would be minimal and well within the capability of the department staff. Meetings with students, alumni, employers and faculty and staff show an underlying support for this body of knowledge and practitioners of it in the workplace. The Department and College will have to invest adequate resources in recruiting students into the degree program for it to be viable. Apparently, the college has made the decision to continue the program. The AIC will need evidence that a workable plan is in place to recruit sufficient numbers of students into the program to make it viable. Before AIC agrees to any form of accreditation for the program, this evidence must be provided.

It appears that the program qualifies for accreditation except for the current lack of enrolment and graduates. This, of course, is troubling. Certainly the agricultural industry in the Kingdom needs the expertise of agricultural extension practitioners in the agricultural business and farming communities as well as to have a strong role in the CFAS.

The site review team recommends provisional accreditation equivalence. Full status is subject to the college providing a body of information and supporting studies, surveys and other material information and data that an adequate number of students enroll in the next five years.

If adequate student enrolment fails to materialize, the Site Review team recommends that the college seriously considers other options. These options could include but are not limited to the inclusion of agricultural extension as a minor in other programs or possibly as a specialization in the general degree.

4.4 Agricultural Economics Program

This program has the highest number of graduates and is second in enrolments in the college. Demand by enrolling students is considered by the department as reasonably high. The faculty and staff in terms of numbers and credentials meet the AIC requirements for accreditation. Faculty and staff that the Site team met with seem enthusiastic about their program and the role it has in Saudi agriculture. The modified program contains treatment of important societal issues and includes course material in environmental and ethical issues and a course in Water Economics. The department has focused on country specific issues and has completed recent studies and projects in Future Saudi Agricultural Development, Impact of Saudi participation in the World Trade Organization and a strategy for the Agricultural Development Fund.

Course outlines indicate key topics of land and water resource management, agricultural finance, and international trade are being addressed. Cultural preferences that impact finance and ethical governance are being incorporated into course offerings. The department is well placed to be an important influence in encouraging the College to incorporate more business knowledge and training in course offerings to students.

Interviews with students, graduates and employers indicated that the department was held in positive esteem as sources of relevant research and of well trained and capable graduates.

4.4.1 Current Program

The current program is a balanced one providing good exposure to general agriculture in plants, soils, animal and foods. A broad selection of courses includes basic and specialized opportunities to study country, regional and International issues. **The site review team recommends full accreditation equivalency status for this program.**

4.4.2 New Program

The modified program has been changed to accommodate the University requirement for all science and engineering to take a uniform first two sessions. Using a mixture of compulsory and elective courses both inside and outside the department creates a program that is very similar to the existing program and attains equivalent standing for the purposes of accreditation.

The site review team recommends full accreditation equivalence status for this program.

4.5 Animal Production

In Saudi Arabia, the commercial production of poultry and dairy is carried out on intensive farms, while the production of sheep, goats and camels is extensive and scattered across the country. This program is offered by the Animal Production department. The philosophy of this program is to give students a strong understanding of

the scientific disciplines of animal science and the practical applications. Most laboratory sessions are conducted within the campus while hands-on experience takes place at the farm. Well equipped laboratories on the campus are available for teaching and research. **The site team recommends that animal rooms inside the department be brought up to international standards. For animal welfare as well as health and safety reasons, new facilities on the campus or elsewhere should be developed with appropriate storage, containment and access provided. A central laboratory animal unit on the campus or a special unit at the new farm facility could be constructed to provide small experimental animals.**

Field trips are used for production courses. Access to animals for practical experience is very important in the teaching role especially since many of the students are from urban environments with little or no exposure to farm animals. This needs to be close by to provide ready student access. We commend the department for the efforts it is making to provide such exposure. The total enrollment for this major is around 43 students. The department has 24 professors involved in delivery of the program supplemented by a number of lecturers hired to teach courses in animal production. These faculty members are actively engaged in research and public service activities which complement the teaching role. They are active publishers and are knowledgeable in their various fields of animal science expertise.

In the Animal Production program, students have a very large core of animal science courses. The new program comprises 18 electives in animal science and six free credit hours outside the department. Students take two courses in agricultural economics, one required course in plant science, one in agricultural extension and none in soil science. A general course, Botany 102, is required in most majors. Principles and ethics related to the raising and handling animals are covered in each production course. There is no Veterinary College at King Saud University, however, one required course and two elective courses are available for Animal Production students. Environmental related issues are taken into consideration. The program has strong cooperation with the governmental and private sectors. The ANP Cooperative Education course ANP 406 is very important and essential for students. Students have a very positive attitude regarding their relationships with their professors, the cooperative course and the overall program.

4.5.1 Current Program

As indicated above, this program provides basic sciences and introductory agriculture courses in the first part of the program and then logically builds onto this specialization in the upper years. Skill development including team problem solving, computer literacy and oral and written communications is provided for in the program. Graduates are well accepted and respected by the employers. **The site review team recommends full accreditation equivalence for this program.**

4.5.2 New Program

The new program is very similar to the current program. The Common Preparatory Year provides coursework which used to be delivered in the first part of the current program. Introduction to agriculture and animal specialization is built on this base using many of the same courses as before. More elective choices are available in the new program which the site review team views as a positive improvement. **The site review team recommends full accreditation equivalent status for this program.**

4.6 Food Science and Nutrition

According to the new trends and policies of King Saud University to improve study plans to meet the requirements of academic accreditation, the Department of Food Science and Nutrition developed a B. Sc. Program in Food Science and Human Nutrition. At the eighth semester, a differentiation happens, one for male students (Food Science) and one for male and female students (Nutrition). However, all students by the end will be offered a B. Sc. degree in Food Science and Human Nutrition.

The team noted that student skills development was satisfactory. Twelve credit hours are taken from other departments in the College: Economics, Microbiology and two engineering courses. The faculty of the department represents a broad range of expertise that is available to provide the breadth and depth that the program contains. They have access to a range of well equipped laboratory and pilot scale facilities which are available for teaching. This is a strength of the department.

This department had the highest level of undergraduate enrolment (133) in 2009 and the greatest number of graduates (19). The 37 faculty members are engaged in research, public service and teaching. Department contributions in the area of society service represent 25% of the department effort. The department established the Saudi Society for Food Science and Nutrition and is also responsible for the production of the Society's scientific journal. The department maintains a very strong cooperative relationship with the governmental and private sectors another positive aspect of the program.

4.6.1 Current Program

As indicated above, the current program provides a basis in the sciences and an introduction to agriculture and food. It also provides for development of the required skills. Graduates from the program are well accepted by employers. **The site review team recommends full accreditation equivalence for this program.**

4.6.2 New Program

The new program incorporates the Common Preparatory year now required of all science and engineering students and builds additional science and agrifood education onto that base followed by specialized knowledge in food science and nutrition. As in other

programs, the new program is very similar to the current program incorporating more electives. The site team supports the expansion of the new elective courses providing for a broader expression of student interest in current World and Regional Agricultural issues.

It is understood that general courses in agriculture are being removed from the current curriculum in the development of the new program. It is recommended therefore that the college consider offering summer training, after the first and second year, to students entering the college without farm or other related experience. The new curriculum includes 17 credit hours (Cooperative training and Graduation project) that help students to gain professional training and hands-on experience which broadens their background and helps them to identify career opportunities. **The site review team recommends full accreditation equivalence status for this program.**

4.7 Soil Science

The Department of Soil Science was formally established in 1965, and produced graduates until 2008. This is a strong department with a strong suite of soils courses. Departmental laboratory facilities and technical support are very good. Consultations by several faculty members with government ministries enhance the image of the department and appear to have been influential in determining government policy. The development of an ISO environmental testing laboratory for soil and water samples showcases the department, enhances the environmental awareness of the College and provides a unique and timely learning experience for students and may help in recruitment. The contribution of this department to a broader environmental initiative at KSU is strategic. The Soil Science Department can be a leader in this initiative, and perhaps an opportunity for a chair exists here. **The site review team found that across all programs, awareness of environmental issues could have received additional prominence and recommends that the College assure itself that this area is given the attention it deserves.**

4.7.1 Current Program

The undergraduate program has been suspended for several years due to a recent refocusing of government strategies with respect to food production; so there are currently no undergraduates enrolled in the program. **Nonetheless, this program has provided an education opportunity which is comparable to Canadian universities and thus the site review team recommends that it be given full equivalency status.**

4.7.2 New Program

The department is in the final stages of introducing the soil and water sciences B. Sc. degree program within the College. The proposed undergraduate program linking soil and water is appropriate and timely, highly pertinent to the Kingdom and builds on the strength of the academic staff. The program is similar to the current program and builds

on the Common Preparatory Year. There is every reason to believe that it will turn out quality graduates as in the past. Uptake of the new program by students remains unknown. Initiatives by the Department with regard to recruitment are on-going and are critical to getting preparatory year students to get to know the program; hence recruitment needs full attention. **The site review team recommends provisional accreditation with the requirement that the College/Department demonstrates adequate enrollment in the program before full accreditation equivalence is granted.**

4.8 Agricultural Engineering

This is a strong department with a diversity of courses. Laboratory facilities and technical support are excellent, and the water engineering component has been enhanced with the addition of a flume to the facilities. Other resources include educational farm machinery and tractors, various irrigation systems, greenhouses, crops storage facilities, and a complete meteorological station used for training. Workshops including wood, metal and electronic fabrication and repair facilities for the Department are also a strength. Linkages with two other departments in the college (Soil Science, and Food Science and Nutrition) already exist and undoubtedly can be enhanced to mutual benefit. The presence of three chairs in the department: date palm processing, water and precision agriculture is a major strength. Consultations by several faculty members with government ministries are strong.

4.8.1 Current Program

The current undergraduate program is designed to provide students with most of the basic sciences and engineering in the first two years of the program. It provides students with the opportunity to take courses in the last two years in all four traditional agricultural engineering fields: farm power and machinery, water and irrigation systems, food and biological processing, and farm buildings and environmental control. Students take courses in each of the areas of concentration. Students have computer applications integrated into their courses and have access to the two College computer laboratories. Students are exposed to various sectors of society through their two graduate projects.

This is a strong undergraduate program and enrollment has been consistent for the past five years. The number of graduating students though is low, especially for the past two years, this is puzzling, given the large total program enrollment. **This program provides an education opportunity which is comparable to Canadian universities and thus the site review team recommends that it be given full equivalency status.**

It appears that agricultural engineering graduates are paid less by the government departments than their fellow graduates in other engineering disciplines. This inequity is something which should be discussed with the government.

4.8.2 New Program

A modified program has been submitted by the Department and awaits approval. It includes, like all the other programs in the College, a preparatory year. The subsequent years in the program allow students to develop a stronger background in at least one of the four areas within the program: farm power and machinery, water and irrigation systems, food and biological processing, and farm buildings and environmental control. Emphasis on water engineering and food processing seems appropriate for the Kingdom. The department might consider extending its elective list, especially in List B so that students can get exposure to other departments and disciplines (e.g., more Soil courses). The oversubscription by students of the Engineering program at KSU may be a recruitment opportunity for the department, as is the preparatory year. **The new program is similar to the current program and given the success of that program the site review team recommends full accreditation status for this program.**

5 Summary of Accreditation Recommendations

5.1 Programs Recommended for Full Accreditation Equivalence.

Agricultural Economics current program
Agricultural Economics new program
Agricultural Engineering current program
Agricultural Engineering new program
Animal Production current program
Animal Production new program
Food Science and Human Nutrition current program
Food Science and Human Nutrition new program
Plant Production current program
Plant Production new program
Plant Protection current program
Plant Protection new program
Soil Science current program

5.2 Programs Recommended for Provisional Accreditation Equivalence

Agricultural Extension **and Rural Society** new program
Soil Science New program

6. Summary of Suggestions and Recommendations.

To be extracted from text and added here.