

# SUBJECT REVIEW REPORT



Department of Agronomy  
University of Jaffna

## 1. THE PURPOSE AND AIM OF THE SUBJECT REVIEW

The purpose of the subject review is to evaluate the quality of education of both undergraduate and postgraduate programmes and focus on the quality of student learning experience and student achievements. It is aimed at examining and reviewing the appropriateness of academic standards set for the program and the effectiveness of curriculum in delivering the intended learning outcomes described in the self evaluation report. It is also aimed at examining the suitability and effectiveness of the assessment methods used to measure learning outcomes relevant to the program.

The review team comprised of Prof. E.R.N. Gunawardena, Professor of Agricultural Engineering of the University of Peradeniya, Prof. K.D.N. Weerasinghe, Professor of Agricultural Engineering of the University of Ruhuna and Prof. M.J.S. Wijeyaratne, Senior Professor of Zoology of the University of Kelaniya. Prof. K.D.N. Weerasinghe served as the review chair.

During the review visit to the department, which took place from 28<sup>th</sup> to 30<sup>th</sup> March 2005, the following 8 aspects were separately studied using the facts presented in the self evaluation report.

- Curriculum design, content and review
- Teaching learning and assessment methods
- Quality of Students including students progress and achievements
- The extent and use of students feed back, qualitative and quantitative
- Post graduate studies
- Peer observation
- Skills development
- Academic guidance and counseling

The information related to the above 8 aspects were collected by having lengthy discussions with the Dean, who is the Associate Professor of Agronomy, Head of the department, members of the academic staff, a group of undergraduate students, by examining the documents provided by the department, by observing the facilities at the laboratory, lecture theatre, class room, Faculty computer center, field training unit, the meteorological station of the Meteorological Department and field units of the District Agricultural Training Centre of the Department of Agriculture which are used for the field training program, and by peer observation of the teaching process in a class room, field unit and in a laboratory.

## **2. BRIEF HISTORY OF THE UNIVERSITY, FACULTY AND THE DEPARTMENT**

With the enactment of the Universities Act No. 1 of 1972, all Universities which were in existence in Sri Lanka at that time became the campuses of one University, namely the University of Sri Lanka. Jaffna campus was established under the provisions of this Act in 1974 as the 6<sup>th</sup> campus of the University of Sri Lanka. The first Faculties of the Jaffna campus were the Faculty of Humanities and the Faculty of Social Sciences.

At present, the university has 8 faculties and 7 academic units. The Faculty of Agriculture was established in 1990 at Kilinochchi.

The faculty after its establishment acquired buildings from various sources to provide residential facilities for students and staff and also to accommodate lecture halls and departments. In addition, temporary buildings were also constructed. The faculty had 40 acres of paddy as well as units for livestock production. A branch library too was established with necessary books, journals and periodicals. The laboratories were also equipped with necessary equipment.

In August 1997, the faculty was shifted to Jaffna. Now the faculty is functioning with few buildings, some of which are owned by the university while some others are private houses leased by the university. It is to be noted that this displacement has created severe constraints with regard to the resources available to conduct the programme at the Department of Agronomy. The unavailability of a suitable farm with a paddy field is considered as a major resource constraint to conduct an effective practical programme.

The Faculty of Agriculture consists of 6 departments; Departments of Agronomy, Animal Science, Agricultural Biology, Agricultural Chemistry, Agricultural Engineering and Agricultural Economics and Extension. At present the faculty has 42 members of the academic staff (21 permanent and 21 temporary), 22 members of the supporting staff and 177 students.

The faculty offers a B.Sc. (Agriculture) programme of four years duration for the students who gain entry to the faculty on the basis of their performance at the GCE (Advanced Level) examination. The students may specialize in either Agronomy, Animal Science, Agricultural Biology, Agricultural Chemistry, Agricultural Engineering or Agricultural Economics, after 6 semesters of general study. The annual intake of the Faculty is 65.

The Department of Agronomy is housed in a rented building and possesses very limited infrastructure in terms of laboratories, lecture theatres and trained academic and technical staff to avail a very strong academic base. However, the review team noted that the enthusiasm and the dedication of the Dean, Head and the temporary staff who made use of all available outside resources to carry out the undergraduate training program to maintain the expected learning outcomes and the skill development of the students.

### **3. AIMS AND LEARNING OUTCOMES**

#### **Aims**

Understanding the agronomy of the major annual and perennial crops, with particular emphasis on those of the Dry zone and on sustainability of production is identified as the major objective of the department.

In this context, the department aims to provide students with:

1. degree programme that imparts in–depth knowledge of the agronomic requirements of these crops and the effectiveness of various field practices and cropping systems in fulfilling these requirements
2. Field exposure to rural livelihood systems; the constraints faced by farmers; differences in farming systems and component crops between different agro–climatic zones; and traditional knowledge in agronomy.
3. A knowledge based and a system–based outlook that will enable them to adopt the holistic approach to all agricultural problems and develop solutions that are effective and acceptable to farmers and sustainable.
4. An opportunity to carry out a research project to develop research skills in their chosen field of specialization and develop innovations which will contribute to greater agricultural production.
5. The enthusiasm and skills for life long learning.

To facilitate the achievement of the above aims, the department

1. aspires to maintain an informal, supportive and responsive atmosphere in order to promote enthusiastic learning and high completion rates.
2. supports the teaching staff in their career development and
3. offers courses to improve experience and management skill.

#### **Learning Outcomes**

On successful completion of the four-year course, the students are expected to have:

Gained a conceptual grounding in the holistic (ecological or systems) approach to understanding and analysis of agricultural systems.

Learnt how this approach can be applied in working alongside farmers for improvement of the productivity, profitability and sustainability of existing farming systems.

Realized the critical farming importance of moving away from environment degrading and unsustainable farming systems with high external inputs to

sustainable farming systems based on minimal use of external inputs, resource conservation and minimum adverse environmental impacts.

Acquired both practical and theoretical knowledge on all aspects of the agronomy of the important regional crops, and thus equipped themselves to act as facilitators in the participatory development with farmers, of alternative farming systems for increased sustainable production.

Mastered the essential laboratory and technical skills needed for agronomic research.

Developed critical ability and the capacity for scientific experimentation, including data handling, interpretation and presentation of research results.

Increased their capacity for self-directed learning through extensive reading, access to electronic information media and self-evaluation.

Acquired knowledge and management skills and computer literacy to seek employment both in public and private sectors.

#### **4. THE JUDGMENT ON THE EIGHT ASPECTS REVIEWED**

##### **Curriculum design, content and review**

The core program of three years duration offered by the department provides all students admitted to the Faculty of Agriculture with an adequate coverage of subject matter in the area of Agronomy with required knowledge and relevant practical and analytical skills. The research project carried out during the last semester provides a valuable learning experience in research methodology, data collection, interpretation and critical evaluation of a chosen topic. The subject sequence is also good. The broader curriculum content of the degree program reflects adequate academic standards and in the opinion of the reviewers, it enables the students to achieve the intended learning outcomes in the form of knowledge and understanding, intellectual skills and transferable skills in general.

Though the learning outcomes of the “Agronomy programme” are clearly spelled out in the self assessment report, the detail curriculum along with the learning outcomes of each course have not yet been finalized.

There is hardly any evidence that the curriculum has been reviewed systematically with stakeholder participation at regular intervals. However, new subjects have been included considering the current trends in order to improve relevance and employability. This has been done on the suggestions of peers and experts. The Alumni who participate at events organized by the Faculty also express their opinion for the improvement in curriculum. The review team strongly feels that this important activity of curriculum review should occur at regular intervals in a systematic manner. At the same time, the review team appreciates the difficulty of implementing this activity under the prevailing situation.

The inclusion of experiential learning in the 7<sup>th</sup> Semester is an innovation that would help students to gain practical experience in farming. However, the curriculum with learning outcome for this course have to be properly laid out in order to conduct an effective programme and also to devise a proper assessment method.

The review team is of the opinion that this aspect could be judged as “satisfactory”

### **Teaching, learning and assessment method**

The review team observed that the academic staff strength in the department is inadequate to conduct an effective teaching programme when the course load to be covered by the Department of Agronomy (29% out of 100%) in the entire degree programme is considered. The commitment and the efforts of the Dean (Associate professor of Agronomy), Head of the Department and two temporary staff members in conducting the teaching programme are commendable. This situation would improve once the two staff members on study leave return to the country after their postgraduate studies. However, the cadre allocation has to be increased in view of the workload and the importance of Agronomy as a major discipline in the B.Sc. degree programme in Agriculture.

The review team is satisfied with the teaching process, especially with the delivery of lectures during which lecturers were able to obtain sufficient student response and feedback. In the practical classes, all students were given practical handouts. The objectives and the background information were explained to them at the beginning by the teacher concerned. However, there were few shortcomings in conducting the practical. The steps to be followed were not adequately demonstrated to the students. Both students and staff were of the opinion that the practical training that they receive have been not up to their expectation due to various constraints. The practical training related to Plantation and Export crops during study visits to various research organizations are far from satisfactory. The review team would also like to record that there are many constraints, such as large number of students in a group, non-availability of adequately trained staff, lack of space, equipment, labour etc in conducting the practicals.

There is a diversity of assessment methods used in the Department which complies with Faculty guidelines. The students are fully aware of the assessment procedure which consists of announced quizzes, midterm examination, presentations, practical examination, continuous assessment, viva-voce examination and the end semester examination. The end semester examination has structured and essay questions. In the opinion of the reviewers, the mode of assessment is comprehensive and can be considered as a strength. However, this type of rigorous assessment might lead student to surface learning in contrast to deep learning. Therefore, assessment procedure should also be reviewed along with the learning outcome during the next curriculum revision.

There is evidence that all theory papers are scrutinized by two academic members of the department. First and second marking were done by the internal staff members. The review team strongly felt the need of having external moderators and external examiners for transparency and quality assurance of the degree programme. Since there are practical limitations to implement the above suggestion, sample question papers and answer scripts could be sent to external examiners at regular intervals for their feedback.

Examination of samples of student work, mainly marked answer scripts of both theory and practical, final year research project reports and reports of assignments revealed that the student achievement in relation to learning outcome is satisfactory. For example, the questions were well balanced and carefully formulated to achieve intended learning outcomes. The students' answers reflected adequate preparation, understanding of the subject and the development of analytical and transferable skills.

The review team verified all the aspects related to teaching, learning and assessment described in the evaluation report and wishes to pass the judgment of 'good' for this aspect. The constraints under which the teaching, learning and assessment are being carried out were also considered in arriving at the above judgment.

### **Quality of students, student progress and achievements**

Students who gained admission to the Department of Agronomy comes from the general pool of students entering the Faculty of Agriculture through the centralized admission procedure operated by the UGC based on the results of the GCE Advanced Level examination. The number of students who chose the Agronomy as the field of specialization varied from 2 to 5 over the years 2000 to 2005.

There has been an improvement of the quality of students entering the Faculty over the years as shown by the Z score. The average Z score has increased from 1.2860 to 1.3208 from 2002/2003 to 2004/2005. The competence in English is highly variable. Students from remote, resource poor areas find it difficult to acquire the minimum knowledge in English language to follow the lecture programme which will hinder the effective learning. However, it appears that the students tend to acquire required language skills when they progress towards the end of degree programme. Therefore, the introduction of an intensive course in English before the student starts their academic programme would immensely help them to follow the course effectively.

Though the assessment procedure is very comprehensive, the review team was informed that the students do not always receive marks during the semester on time to assess their achievements. There is a delay in releasing the final mark. This problem could also be attributed to the unavailability of adequate staff. However, every effort should be taken to release the marks of the continuous assessments during the term time in order to help students to continuously improve their performances.

The review team noted that the progression rates of the students majoring in Agronomy are satisfactory. The programme completion rate is also good. The information provided by the Department indicates that the students who major in Agronomy are readily employed in diverse fields. This indicates that the subject matter they have learnt and the interpersonal skills they have developed are useful in securing immediate employment. The wider subject coverage and the development of English communication skills and presentation skills are also considered as contributory factors to the above achievement.

The overall quality of students, their progress and achievement under difficult circumstances could be judged as 'good'.

### **The extent and the use of student feedback; Qualitative and quantitative**

The review team noted that students' evaluation of some of the courses is done at the end of the course by requesting the students to express their views on a sheet of paper. The department is in the process of adopting a formal course and teacher evaluation procedure by the students. In this process, the teacher distributes a form and obtains the students' feed back on several aspects such as the organization of the course, stimulation of the interest on the subject, encouragement of discussion,

use and the quality of the reference material, punctuality of the teacher, aims and the objective of the course, comprehensiveness and coverage of the syllabus and the quality of the available learning resources. However, the review team noted that obtaining student feedback is not carried out in an organized manner. The department may consider carrying out of this process by the dean's office at the end of every course.

There is no evidence for analyzing students' feedback qualitatively and quantitatively. It is recommended that such an analysis is carried out by the deans' office and the feedback is provided to the teacher after releasing the results of the particular course.

Students provide some feedback at the faculty board meetings as well. The review team was also informed that the students provide the feedback through informal meetings with the teacher. However, although feedback is provided by students, for some issues such as delaying the release of results of both continuous assessments and end semester examinations, it appears that no action has been taken to rectify these issues, probably due to the constraints related to the small numbers of the academic staff. Nevertheless students are satisfied with the action taken to purchase library books even though the number of copies purchased is not adequate.

When the above aspects are considered, the review team is of the view that the extent of the use of student feedback could be judged as satisfactory.

### **Postgraduate programmes**

The University of Jaffna has a Faculty of Graduate Studies, which handles the postgraduate degree programmes.

The present capacity of the department with respect to academic staff and the technical support available to conduct the postgraduate programs is inadequate. During the entire history of the department only one M. Phil student had been registered. The review team noted that the infrastructure and the other facilities available in the department are also not adequate to carryout the postgraduate research. However, it is commendable that the two permanent staff members are involved in the supervision of postgraduate research of some students registered with a foreign University. These two senior teachers conduct lectures for the postgraduate students registered at the Faculty of Graduate Studies.

Considering the limited resources available and other constrains the involvement of the academic staff in postgraduate programmes could be judged as "satisfactory".

### **Peer observation**

The review team noted that a formal peer observation system is not in operation in the department. However, limited measures have been taken to maintain the quality of the teaching programme through peer observation. The review team was informed that peer observation of practical classes of some of the courses such as, Computer Application in Biostatistics is in practice. It was revealed that this peer observation process is helpful in enhancing the teaching quality of the junior staff.

There was no evidence for peer observation of the teaching conducted by the visiting staff.

The review team strongly feels that the peer observation of the junior staff should be carried out by the senior members of the staff at the practical classes. This should be done at all practical classes and field operations. Further, the explanatory notes prepared by the junior staff for the practical classes as well as the lecture notes prepared by the junior staff should be peer reviewed by the senior teachers.

Although this aspect has to be further improved, even with the resource constraints, it was noted that there is some peer observation at the department. As such this aspect was judged to be “satisfactory”.

### **Skills development**

Skills development is an essential feature of an agriculture degree program where graduates have to be availed of specific skills to use the natural resources while maintaining the sustainability. Skills development is more likely to succeed if teaching, learning and assessment methods in the subject they study are designed to facilitate development of personal skills simultaneously with the acquisition of subject knowledge and understanding. The review team noted that all courses offered by the department have a considerable amount of practicals, field training, field visits, and research components enabling the students to develop both professional and technical skills. In addition to regular practical classes, students are given an opportunity to work in farmer fields where they acquire multitude of skills including those in communication, social interaction and working in groups. Assignments and the final year research projects help to develop writing skills, presentation skills and communication skills. The department also involves in conducting the final year common courses to develop computer application skills and field experimental skills. However, the review team recommends incorporation of vacation training programs in plantation and other sectors to provide hand on experiences on plantation agriculture, which is inadequately addressed at present.

Assessment methods adopted by the department clearly indicate the availability of mechanisms to evaluate personal skills as well as subject knowledge and understanding. Announced quizzes, MCQs, structured questions and essay questions are designed to look into the subject knowledge and understanding while practical examinations are designed to test the hands-on experience and analytical skills of the students. The final year project work is designed to test variety of skills such as subject specific skills, communication skills and report writing skills. However, there was no evidence to show that the employers of graduates have been consulted regarding their opinion about the skills of the students.

The reviewers are satisfied that the programme is designed to facilitate skills development of students. However, lack of senior members with good experience in the field of Agronomy was observed as a serious obstacle to develop correct agronomical skills among students.

The review team judged this aspect to be “good”.

### **Academic guidance and Counseling**

Academic guidance and counseling are mainly provided during the orientation period, i.e., during the first few weeks of the university life of the students. There is one



Giving hands-on experience in practical classes to each and every student in the practical group.  
Availability of sufficient number of computers  
Well balanced questions  
Continuous assessment  
Diversity of assessment methods  
Designing of questions to test knowledge as well as analytical and communication skills  
Scrutiny of question papers by two numbers of the academic staff  
Marking of answer scripts by two examiners.

Weaknesses: Absence of external moderators and examiners  
Steps of practicals are not adequately demonstrated  
Insufficient internet facilities.  
Limited number of trained staff  
Limited infrastructure facilities

Judgment: Good

### **3. Quality of students including student progress and achievements**

Good Practices: Availability of a mechanism to improve Presentation and English language skills

Weaknesses: Non availability of Intensive English Programme at the beginning of the course hinders effective learning.

Judgment: Good

### **4. The extent and the use of student feedback: Qualitative and quantitative**

Good practices: Implementation of teacher evaluation system  
Taking action on some issues raised by students

Weaknesses: Student evaluation is not carried out in an organized manner.  
No formal meetings with staff and students such as those of student-staff committees  
No analysis of students feedback  
No action taken on some issues raised by the student

Judgment: Satisfactory

### **5. Postgraduate programmes**

Good practices: Supervision of postgraduate students even with limited staff  
Teaching postgraduate courses even with limited staff

Weaknesses: Limited infrastructure facilities  
Limited number of staff

Judgment: Satisfactory

## **6. Peer observation**

Good practices: Peer observation of junior staff in some classes by the senior teacher

Weaknesses: No peer observation in theory classes  
No peer observation of visiting staff  
No peer observation of discussion notes and lecturer notes prepared by the junior staff

Judgment: Satisfactory

## **7. Skills development**

Good practices: Identification of development of various skills as learning outcomes  
Employment of satisfactory mechanisms to develop interpersonal skills

Weaknesses: Lack of senior staff with good experience in Agronomy.

Judgment: Good

## **8. Academic guidance and counseling**

Good practices: Good interaction with students and teachers  
Provision of good academic guidance during orientation programme  
Peer mentoring by students

Weaknesses: No formal training on counseling for student counselors  
No personal counseling system where few students are allocated to one teacher.

Judgment: Good

## **Overall judgment**

Of the eight aspects reviewed four are judged to be good and four aspects are judged to be satisfactory. None of the aspects reviewed are judged as unsatisfactory.

**Overall Judgment - *Suspended***