SUBJECT REVIEW REPORT

DEPARTMENT OF AGRICULTURAL BIOLOGY

FACULTY OF AGRICULTURE
UNIVERSITY OF JAFFNA

26th to 28th September 2005

Review Team :
Prof. D. C. Bandara/University of Peradeniya
Prof. Kalyani Perera/University of Peradeniya
Prof. S. H. Upasena

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Subject Review of the Department of Agricultural Biology, University of Jaffna, Jaffna

The subject review of the Department of Agric. Biology, University of Jaffna was conducted at the University of Jaffna from 25th to 28th of September 2005 by Prof. Deepthi C Bandara, Prof. Kalyani Perera and Prof S.H.Upasena. This team had independently reviewed the self evaluation report submitted to each of them earlier by the department, and made their observations on the following, considering both the report and the site visit.

1. The appropriateness of the academic standards set for the program
2. The effectiveness of the curriculum in delivering the intended learning outcomes (ILOs).
3. The effectiveness of the teaching and learning methods in enabling the learning outcomes to be achieved by the students
4. The suitability of the assessments methods in measuring student outcomes.

They conducted the review under the following categories.

1. Curriculum design, content and review
2. Teaching, learning and assessment methods
3. Quality of students, student progress and achievements
4. Extent and use of student feedback
5. Post graduate studies
6. Peer observation
7. Skills development
8. Academic guidance and counseling

The process of review was as follows

1. Listening to the presentations made by the Dean/Agriculture and Head of Department of Agric. Biology
2. Discussions with the departmental academic staff – permanent and temporary, ELTU staff, computer center staff, student counselor, librarian and students
3. Observation of facilities in class rooms, laboratories and field, Central library, computer unit in the Faculty and Central Computer Center,
4. Documents pertaining to the categories under review
5. Self Evaluation Report

Reviewers made their individual observations regarding all aspects considered, made notes and discussed among them to arrive at a consensus.

The University of Jaffna: The University of Jaffna was first established in 1974 as the Jaffna Campus of the University of Sri Lanka, offering courses in Science and Humanities. The first batch of students was admitted in Oct 1974. In 1978, with the implementation of the University Act No 16 of 1978, it became an autonomous University named as the University of Jaffna. At present the University has 6107 students enrolled in all its' programs.

The Faculty of Agriculture: Since the necessity of establishing a Faculty of Agriculture was a long felt need by academia as well as the general public, the Faculty of Agriculture of the Jaffna University was established in 1990 at Kilinochchi. At that time, the facilities of the In-service Training Institute and the Regional Agriculture Research Center of the Department of Agriculture were used to commence the academic program. Later, the building belonging to the National Youth Services Center was acquired by the University. Although the Faculty of Agriculture was at Kilinochhi, due to the military operations which occurred in 1998 it was shifted to Thirunavely where the main University is located. At present it is still operating here. During the period from 1998 to now, they have acquired several buildings to accommodate class rooms, laboratories and other offices.

The Faculty of Agriculture offers only one degree program at present which is the B. Sc (Agric). The Faculty has six departments. At present the Faculty has 179 students. The Faculty has been unable to enroll the full capacity of 300 students allocated to them by the UGC at any time.

The Department of Agricultural Biology

The Department of Agric. Biology is one of the six departments of the Faculty of Agriculture.

The department of Agric Biology offers courses in all 4 years of the degree program contributing approximately 20% to the Faculty degree program.

The Department offers courses totaling 21 credits till the end of the third year, and this accounts for 16% of the total courses. Out of the total credits offered by this department, 54% is allotted to first three years' courses and 46% to the final year, which includes the four specialization courses and the research component (Figure 1).

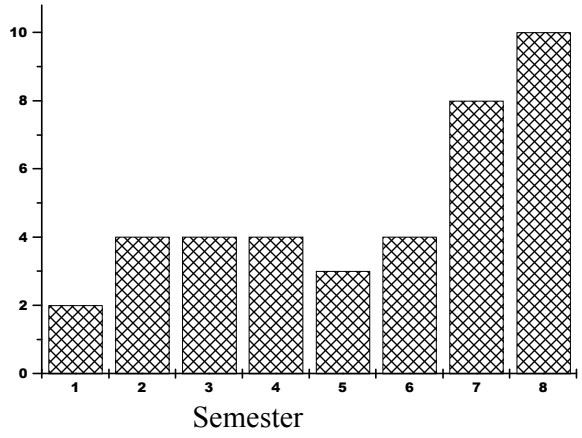

Figure 1. Allocation of credit hours to individual semesters of the four years in the B.Sc degree by the department of Agricultural Biology.

At present the Faculty has four batches of students and the new batch of students will be enrolled in March 2006. The students accommodated in the Department of Agricultural Biology in the current academic year 2005/2006 are given below:

Year and Semester	Academic year of Registration	Student Numbers		
		Total	Male	Female
First Year First Semester	2005/2006	41	18	23
Second Year First Semester	2004/2005	53	22	31
Third Year First Semester	2003/2004 A	29	12	17
	2003/2004 B	31	11	20
Fourth Year First Semester	2002/2003	5	3	2

The cadre availability of the Department of Agricultural Biology and their present position is as follows:

Designation	Cadre available	Present Position
Professor	01	Vacant
Senior Lecturer	01	Filled
Lecturer (Prob.)	02	Filled
Technician	01	Vacant due to death
Lab attendant	01	Filled
Labourer	01	Vacant

The reviewers observed that the Faculty does not have adequate resources and facilities to provide a conducive learning environment in this temporary setting. However the Faculty is very hopeful that they will be able to provide better facilities and a more effective program when they shift back to Kilinocchi at the end of 2006.

Aims and Learning Outcomes of the Department

The following were stated as the Aim of the Department in their Self Evaluation Report.
Enrich the knowledge of students with clear understanding of the fauna and flora complex, the principal elements of the plant ecosystem and the associated environment, emphasizing the need for the manipulation of the components in the ecosystem as well as the genetic manipulation of crop plants in terms of conventional and innovative procedures towards sustainable agricultural production and increasing productivity in our country as a whole and Dry zone of Sri Lanka in particular.

Thus the Department aims to provide degree students with

In-depth knowledge on the phenology of crops, life cycle of animals and pathogens and their role in the ecosystem

An exposure to the community and community livelihood systems; the problems of the farming community; differences in the farming practices, preference of crops between different agro-ecological regions and different ecosystems and traditional knowledge of crop cultivation

An adequate knowledge on the system-based approach that will enable them to adopt the holistic approach to all agricultural problems and develop solutions those are viable, feasible, effective, and acceptable to farmers and orienting towards sustainability.

An opportunity to expose them in to a research project to develop research skills in their chosen field of specialization and promoting their critical thinking to develop innovations which will immensely contribute to foster agriculture production

The enthusiasm and skills towards a continuous learning process and to facilitate the achievement of the above aims of the department

Intends to maintain an informal, supportive and responsive atmosphere in order to promote the enthusiastic learning towards a high completion rates.

Supports the teaching staff to widen their knowledge and strengthen the skill which ultimately leading towards their career development

Courses to gain experience and management skills to improve the quality in these aspects.

Learning Outcomes:

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

Earned a virtual understanding of the concepts in the holistic (ecological or systems) approach to learning and analysis of agricultural systems

Understood how this approach can be applied effectively and efficiently in working alongside farming community for the improvement in the productivity, profitability and sustainability of existing farming systems.

Realized the importance to give concern on the minimal use of high external inputs; safety of the environment against degradation and sustainable farming systems rely on natural inputs, resource conservation and minimum adverse effects on the associated living environment. In other words to have realized the essential features of Low External Input Sustainable Agriculture (LEISA)

Acquired both theoretical and applied knowledge on all biological aspects of the important regional crops as well as the crops of economic importance at national level and thus equipped them to act as facilitators in the farmer participatory programmes, of

alternative farming systems for the increased production in sustainable manner to ensure food security.

Mastered in all essential laboratory and technical skills needed for the biology based research and development of cost effective appropriate technological packages for farmers' use which are easily available to them.

Developed technical skill and capability for scientific experimentation, including data handling, interpretation and presentation of research results.

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

Motivated group-learning process towards a team work to understand the beneficial nature of such an effort.

Acquired knowledge and management skill to be professional in agricultural biology based disciplines and to seek readymade employment both in public and private sectors.

Curriculum Design, Content and Review:

The Faculty has adopted the Course Unit System in a semester based curriculum since 1990. It is one of first to adopt this system and it is commendable. As at present the Faculty offers a four-year degree program of 156 credits in 8 semesters. This number was felt to be too high and exceeding the currently accepted norm of 120 credits. Since the Faulty has not undertaken a major curriculum revision after inception, it is suggested that while reducing the credit number, that the department gives necessary attention to the revision of their courses while maintaining the depth to cover the intended learning outcomes.The curriculum that was developed in 1990 has been revised periodically and at present is satisfactory. However, certain skills and disciplines needed in Agic. Biology could be included in a future revision.

Since the Faculty and the department are operating in a course unit system, there is possibility for credit transfer and lateral mobility as a means of promoting social harmony. The degree program has already identified level descriptors which is good, since there is a core program which gives the essentials and a specialization program which gives students the flexibility to pursue a subject of their preference. The fact that the faculty ensures fair distribution of students to all departments while still accommodating student preference with due consideration being given to the their merit performance is appreciated.

As a department, Agric. Biology makes a significant contribution the curriculum by offering 6 courses in the core program and 7 courses in the specialization program. However due to the limited staff availability (some are pursuing post graduate studies at present) the department is unable to offer all its' elective courses which is a disadvantage for the department curriculum since it does not lend to a balanced program for the majoring students. It is suggested that the department takes measures to overcome this situation at least by hiring temporary cadres or visiting staff. The availability of a visiting professor at present is appreciated since it is apparent that his contribution is valuable in

the current situation. The fact that the department has identified their cadre requirement to offer an effective program and their reluctance to suppress a senior cadre position in order to recruit junior members is appreciated since this shows they do not want to compromise quality.

The subject matter covered by the course contents of this department is satisfactory. The reviewers are of the view however that the sequence of the two courses, Entomology and Acarology, and Plant protection and Epidemiology should be altered so that they are offered within the same year sequentially. In redesigning the course content, some caution should be exercised so as not to repeat certain topics of the AL syllabus in the Environmental Biology section. Also in the curriculum revision it would be good if one or two courses are designed to include molecular biology and gene manipulation for the specialization students of Agriculture Biology to be parallel with the advancements made in this discipline globally.

The reviewers adjudged this aspect as **satisfactory**.

Teaching, Learning and Assessment Methods

According to the available documentation, every course offered by the department consists of in class theory and practical sessions. Also in each course, both theory and practicals had relevant handouts in order to achieve the ILOs. The department makes necessary arrangements to make these available to all the students. Innovative teaching methods were also apparent especially in the course Experiential Learning where students spent time with farmers from the nearby community. It would be a good move if the department could extend this practice to other courses as well so that students obtain hands on experience as much as possible.

The commitment of the staff members to the Teaching/Learning/Assessment (TLA) strategy is commendable especially considering the low staff numbers at present. According to the observations of class room teaching all members of the department used a range of teaching aids and it is recommended that this practice is continued. However it was felt that the quality of the visual aids (legibility) could be improved for better impact.

The reviewers also observed low cost strategies, an in situ approach and the maximum utilization of available resources for the TLA. The majoring students are provided with appropriate research projects at the departments as well as at external resources.
All courses had independent learning assignments by which their writing skills and presentation skills are improved. Within the lecture, teachers use the Question and Answer method also for clarity of explanation.
The facilities (especially acoustics of the class rooms) available for teaching however are not complementary to teaching. Since the Faculty would be moving to Kilinochchi, no improvements are done to the infra structure.

The students participated actively in the practical. It was good to note that the students completed recording of the practical within the class time. Several opportunities are provided for independent learning during the program. Group activities and team-work are also encouraged and implemented. Almost all the courses had assignments, reports and presentation components. Assessments and report writing improves certain skills such as writing and speaking. Therefore attention should be paid and the TLA strategy

could be modified to develop other necessary skills such as relevant technical skills, leadership skills, group dynamics and teamwork also.

A special word of appreciation is appropriate for the contribution by the ELTU instructor in assisting the students to improve their language ability and skill. The service of the Head of Department in trying to accomplish all aspects necessary for the smooth running of the department is commendable. The contribution extended by the visiting professor in this regard as well as the contribution by the temporary members is appreciated.

The two courses in Business English and Computer applications taught in the first year appear to support the learning activities of students.

The assessment strategy adopted was 70% for theory and 30% for practical. Continuous assessment is conducted in certain courses. The effectiveness of continuous assessment could be improved by releasing the marks of quizzes, midterms etc., before the end-semester exam to make it more formative. In addition, it is recommended that attempts should be made to release the end semester examination results at least before the mid semester break in the subsequent semester.

From observation of the minutes of the departmental meetings, it was apparent that necessary emphasis is given by the departmental staff to the aspects of teaching and learning by including lectures, practical, purchasing of books, research and specialization students, research of staff, infrastructure, and outreach activities as regular agenda items.

Considering the above the review team adjudged this aspect of the review as **good**.

Quality of students:

As any other faculty or department in the University System, the department of Agric. Biology does not have a choice regarding the new entrants. Within the last 12 years, approximately 10-20% of the students in any class (batch) have selected Agic.Biology for specialization, which is satisfactory in a Faculty which has 6 departments. The range of GPA of the students selecting Agric. Biology was between 2.8 and 3.2. Within a range of 7 – 27%, students preferred to carryout specialization in Agricultural Biology and in four batches the students topping the batch selected the department for their specialization. Of the specialization students, two students secured first class, 15 students secured upper second class and 13 students obtained lower second class. Only one student passed without class.

Based on this information the review team felt that the quality of students opting to study Agric. Biology is satisfactory. Discussions with students revealed that the usual waiting time for the first job had been about six months. However, after the Tsunami the waiting time has been reduced to nil, and the first salary of the graduates was very significant.

Thus, this aspect was adjudged **satisfactory** by the reviewers.

Students' feedback

Student evaluation of teachers and courses had been initiated at the beginning of this year. A set of questionnaires was available for all the subjects. Students' comments revealed

the use of good teaching methods, teaching aids (handouts), use of simple English, sharing of experience, clarity of lectures, informative nature of lessons, inclusion of new information by the teachers as positive aspects of the teaching and courses. Some suggestions for improvement were, use of Tamil words to explain first semester lectures, more field visits, improvement of laboratory facilities, early release of marks, more projects, more crops for breeding method practical, to combine biotechnology with relevant courses etc. which the reviewers feel would be comments that would definitely improve the teaching and courses.

Special mention is worthwhile of the following courses

Experiential learning: The strengths of this course were that it gave additional knowledge, was good for career development, was well organized, linked theory with field situation, and that it used a participatory applied approach. Some improvement is necessary in monitoring of students, field visits by the coordinator, and record keeping by the coordinator. Students had also suggested that more time is allocated to this course, to allow opportunity to present the outcomes by students every month, and that this practice is extended to other courses.

It is also recommended that the common courses in 4100 series be shifted to 2nd and 3rd years so that students could reap the benefit of these courses during a longer period of their study program.

In the course on Plant Physiology and Environmental Biology the sections on Ecology, Ecosystems, Niches, Food chain etc that are taught in the advanced level ought to be replaced by more advanced or relevant course content.

For the course in Integrated Pest Management, it would be beneficial to include practicals. For the course in Crop botany, it would be best if the identification of crops is done in the field itself since this would give a more realistic setting about the crops.

This aspect of the review was adjudged **satisfactory.**

Peer evaluation

Currently there is no formal mechanism in the Faculty to evaluate teaching skills and abilities of staff by fellow academics. In recent times however, the department has initiated a mechanism for peer evaluation. The staff members also informally discuss their strengths and weaknesses in teaching, teaching methodologies adopted, assessment methods practiced etc. Student evaluations are also discussed at department meetings. Thus necessary adjustments are discussed among staff members for implementation. The review team also noted that the senior members were present when the junior members conducted practical classes. The relationship among department staff members was also conducive to build up a good peer evaluation mechanism in the future

Thus this aspect of the review was adjudged **satisfactory.**

Postgraduate studies

The department of Agricultural Biology has dedicated staff to support a post graduate program. However, the number of academics available are very limited and the infra structure , laboratory and field facilities are minimal. The department is having its' planned program of post graduate studies to be initiated at Kilinochchi once the Faculty of Agriculture with it's Department of Agric. Biology shifts in late 2006. The staff of the Department is hopefully waiting for this opportunity. Judging by the current staff available and how they dedicate themselves in the limited facilities the review team is of the opinion that they will progress well. The team judged this aspect of the effort towards post graduate studies as satisfactory. However, the cadres at present, facilities, interim arrangement of the Faculty makes it difficult if not unfair to make a judgement.

Skills Development

The Department of Agric. Biology being an applied field of science, has designed subject specific skill development in the study program. The Experiential Learning course of the 7^{th} semester and the research project in the final semester are specially designed to develop subject specific as well as interpersonal skills. In the experiential learning course, the students are involved in learning by doing of the required practices such as pest and disease identification, methods of pest and disease management, collection of specimens, and communication with farmers on related issues of Agriculture Biology. At the end of the semester, the students are expected to write a report of this experience. This allows them to develop their organization skills, leadership skills etc. It also gives them the opportunity to identify real world problems, recommend control measures, communicate with farmers, and relate theoretical knowledge to practice in an on farm situation.

The final year project is designed to develop skills such as subject specific skills, communication skills, numeric skills etc. The mastery of these skills is evident in the fact that these students find employment as soon as they graduate with a minimum waiting time. The students also have considerable access to develop IT skills and also use it in their presentations and report writing. In the English language teaching, the teaching program is most appreciated by the students as the English instructor is very innovative. The recently developed facilities such as internet, lease line and networking has improved their IT skills.

This aspect of the review was adjudged **good** by the review team

Academic guidance and counseling:

There is a senior student counselor for each Faculty who functions directly under the Vice Chancellor. In addition every 10-15 students are assigned an academic advisor. All first year students are given an orientation program. The student counselor is available to the student body for academic and personal counseling.

The review team was satisfied with the Faculty Hand book published in year 2000. Discussion with the students revealed that the hand book was not provided to the students during orientation or soon after. They also said that there was a curriculum revision in

2004 and that it was not available to the students either in the library or anywhere else. They feel that the current syllabus incorporates the revised curriculum but a new edition of the hand book is still to be published.

The review team feels there is an adequate interpersonal relationship among the staff and students. The students are very quiet and practice patience and tolerance. The teachers are dedicated and committed. Thus this combination of teacher and student attitudes speaks of a bright future for the department of Agriculture Biology in particular and the faculty of Agriculture in general.

Although the student counselors have not undergone any formal training,. they do a remarkable job. The review team recommends a formal training be given to the student counselors. This aspect of the review is adjudged as **satisfactory.**

Conclusion

After considering all 8 aspects of the review process, the review team is of unanimous opinion that a very strong point in the Department of Agric. Biology of the University of Jaffna is the dedication and commitment of its' staff members. Their untiring efforts to offer the department study program under trying conditions, minimal resources and low number of available staff is truly commendable. By taking note of the recommendations made herein and the transfer of the department to a permanent setting would undoubtedly improve the quality of their program.

Curriculum design, content and review	**Satisfactory**.
Teaching learning and assessment methods	**Good**.
Quality of students including student progress and achievements	**Satisfactory**
The extent and use of student feedback, qualitative and quantitative	**Satisfactory**
Postgraduate studies	
Peer observation	**Satisfactory**
Skills development	**Good**
Academic guidance and counseling	**Satisfactory**
Overall Judgement	**Suspended**