ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
Α.Δ.Ι.Π.
ΑΡΧΗ ΔΙΑΣΦΑΛΙΣΗΣ ΠΟΙΟΤΗΤΑΣ
ΑΝΩΤΑΤΗΣ ΕΚΠΑΙΔΕΥΣΗΣ

HELLENIC REPUBLIC
H.Q.A.A.
HELLENIC QUALITY ASSURANCE AGENCY
FOR HIGHER EDUCATION

EXTERNAL EVALUATION REPORT

DEPARTMENT OF AGRICULTURE, CROP PRODUCTION, AND RURAL ENVIRONMENT

PANEPISTIMIO THESSALIAS

23 April 2010

External Evaluation Committee

The Committee responsible for the External Evaluation of the Department of Agriculture, Crop Production, and Rural Environment of the University of Thessaly consisted of the following four (4) expert evaluators drawn from the Registry constituted by the HQAA in accordance with Law 3374/2005:

1. Professor ***George Vellidis*** (President)

   University of Georgia, USA

2. Professor ***Themis Michailides***

   University of California, KAC, USA

3. Professor ***Cristos Xiloyannis***

   University of Basilicata, Italy

4. Dr. ***Alexandros Arabatzis***

   European Commission

Introduction

The External Evaluation Committee (EEC) visited the Department of Agriculture, Crop Production, and Rural Environment (hereafter Department) at Panepistimio Thessalias (University) between 19-21 April, 2010. On 19 April, two members travelled from Athens to Volos on a University van while the other two members arrived independently – one each from Thessaloniki and from Igoumenitsa via Larisa. All four members met at the Xenia Hotel in Volos and were transported to the Department that evening for an initial meeting. There we met with the Chair of the Department (Προέδρος), two members of OMEA (Vice-Chancellors), and some members ΔΕΠ of the Department. The Chair of the Department, Dr. Maria Sakellariou Makrantonaki made an introductory PowerPoint presentation of the Department highlighting major points and at the end of the presentation answered questions raised by members of EEC. The Chair, the Internal Evaluation Committee, most of the ΔΕΠ members of the Department, and the two vice chancellors met the EEC members for dinner that evening. The atmosphere during this dinner was very collegial and we were made to feel extremely welcome (the famous Greek hospitality). The working dinner included cordial discussions about the evaluation, the criteria used, and the various steps of the evaluation.

On the 20th, we began our meetings with members of the Department. The ΔΕΠ members presented a series of well organized PowerPoint presentations in the state-of-the-art amphitheater of the Department. The series of presentations were logically sequenced and examples included the undergraduate and post-graduate studies programs, the Department's farm in Velestino, practical training, support of teaching, training, and mobility of professors and students (ERASMUS), etc.

After the presentations, EEC members met separately with groups of the staff and members of ΔΕΠ. The discussion during the meeting with the members of ΔΕΠ was very animated but always courteous. This was a very productive discussion because it appeared to us that honest opinions were presented. The discussions with staff members, though less animated, were also very productive. At the end of the day it was clear that funding, whether from state sources or extramural sources, was a major concern to all of the groups with which we met.

Following the meetings with Department personnel, the EEC was given a tour of the facilities (offices, teaching and research laboratories, computer lab, etc.) During this tour we noted the availability, distribution, and condition of the laboratory equipment. One obvious observation was that the distribution was uneven and some laboratories were well equipped while others were barren. The physical facility was in very good condition and left a very positive impression on us.

On April 21, 2010, the EEC met with the clerical staff (Γραμματεία), undergraduate, post-graduate, and doctoral students. We were very satisfied with both the tone and openness of the discussion with all of these groups. Seven undergraduate students met with us somewhat reluctantly (the Chair of the Department needs to be commended for encouraging them to meet with us) but once the meeting began, the students relaxed and the discussion was excellent. None of these students were leaders of the student organization. All of them were 5th year students. Finally, we toured the Department's farm at Velestino and from there departed for Athens.

Throughout the entire site visit, cooperation from all members of the Department was outstanding. We must also note that throughout the site visit members of ΔΕΠ repeatedly emphasized their interest in the outcome of the evaluation. Many members noted that the evaluation would provide a catalyst for improvement.

Documentation

The Department's preparation for the external evaluation was outstanding. A comprehensive series of documents were provided to the EEC at the beginning of the evaluation and additional documents were provided during the review process. Additional information was quickly provided upon request. Documents included internal evaluation reports, programs of study, student guides, hard copies of PowerPoint presentations, ΔΕΠ *curriculum vitae*, etc. The documentation provided was adequate for us to assess the Department.

We do however suggest to ΑΔΙΠ, that in the future, these materials should be forward to the EEC well in advance of the site visit so that members of the EEC have an opportunity to review the materials and ask more probing questions. Certainly, all these materials can be forwarded electronically. The most important document to forward in advance is the internal evaluation report.

Internal Evaluation Report

The EEC strongly commends the Department for providing an excellent summary document of their activities through the 2007-2008 and the 2008-2009 Internal Evaluation Reports (hereafter IER). We also commend them for taking the initiative to develop the IER. This is an excellent document from which to begin the process of self assessment. It clearly provides enough information for the EEC and other readers to obtain a general idea of the various activities of the Department. It clearly identifies some of the Department's attributes and problems and should therefore be regarded as an important guiding document.

However, it is our opinion that the future IERs can be improved. The current IER fails to fully identify some of the critical key inhibiting factors to the Department's Teaching and Research programs (identified in other segments of the EEC report) nor does it provide a consensus approach to how these problems may be overcome. Furthermore, the IER does not take advantage of the data available to the Department to conduct an in-depth self-evaluation. For example, student evaluations of graduate courses are available for several years. These data were not included in the report and presumably have not been analyzed at length in order to provide guidance to the ΔΕΠ for improving their course offerings especially at a time when major changes are being made to graduate programs.

Finally, action items are identified in the 2007-2008 IER. However, the 2008-2009 IER does not address progress made on those action items.

A. Curriculum

To be filled separately for each undergraduate, graduate and doctoral programme.

UNDERGRADUATE CURRICULUM

The general goal of the undergraduate curriculum is to provide the student with the knowledge and tools to function successfully in a modern but sustainable agricultural production system. The more specific goal of the curriculum is to create a "generalist" well versed in all the agricultural sciences. Although there is considerable debate in many countries about whether we should be training generalists or specialists, there is little consensus at the moment. We find that curriculum's goal to be appropriate. Nevertheless, it is not clear if the goal is reassessed periodically. Consequently, we do suggest periodic reassessment and we also suggest the formation of an external advisory committee consisting of stakeholders (graduates, farmer organizations, policy makers, scientific associations, etc.) who can advise the Department on changing societal needs. This committee can provide input on a number of curricular issues to be discussed below. We also suggest that the advisory committee help the Department craft a simple and straightforward mission statement for its undergraduate program.

Number of Courses and Duplication of Effort

To achieve the goal of educating students with a comprehensive knowledge of agricultural sciences, the curriculum contains a tremendous spectrum of courses. The program of study consists of 49 required courses and 11 electives. Almost all of the courses include lecture (theory) and laboratories (application of knowledge). Attendance is not mandatory for lecture sessions but is mandatory for laboratories.

This is a very large number of courses. Students are required to individually pass the lecture examination and the laboratory examination to receive credit for the course. Effectively this requires students to pass in excess of 100 examinations to obtain their degree. Review of course content revealed significant duplication. For example the following sequence of courses exhibits tremendous redundancy: "Agricultural Experimentation" and "Introduction to Informatics" (mandatory 2nd semester); "Biostatistics" (optional 4th semester); "Biometry" (mandatory 5th semester) and "Application of Informatics" (optional, 6th semester). Our observations were confirmed by our discussion with the undergraduate students who emphasized that this and other course sequences contained essentially the same material.

This type of duplication of effort and content unnecessarily inflates the number of courses needed to graduate and increases the time required to graduate.

We recommend that the appropriate Departmental committees carefully review all courses and course content to minimize duplication. This does not mean eliminating short reviews of material taught in previous courses.

Course Credits

We observed that all offered courses had approximately the same number of credit units and we question if this truly represents the content and teaching objectives of each course. We suggest the Department's appropriate committees carefully review each course and reallocate credits accordingly. In addition, the corresponding ECTS units must be evaluated carefully

to ensure the credits assigned to individual courses and the total number of ECTS credits for the curriculum concurs with Greek and EU requirements.

Practical Training (Πρακτική)

The goal of the practical training component of the curriculum is to provide the students with exposure to the job market and allow them to apply the knowledge and skills learned at the university. This component of the curriculum seems to be functioning well. Our only suggestion for improvement is to allow and encourage students to conduct this practical training in international settings as well as domestic settings. In this era of globalization, practical training in foreign markets or at foreign institutions should make graduates more competent and more marketable.

Undergraduate Research Experience (Πτυχιακή)

This is clearly the most rewarding component of the undergraduate experience. It allows the students to interact members of ΔΕΠ, doctoral students, and other staff on a regular basis. It inspires collegiality, establishes a sense of responsibility, and allows the students to integrate the knowledge they have gained since entering the university. The Department should be commended for providing the students with such an enriching experience.

Other Positive Items Affecting Undergraduate Curriculum

Good IT infrastructure. However, IT support for ALL students, staff, and ΔΕΠ members is done by a single person. Good library facilities. Open house for new students.

Other Negative Items Affecting Undergraduate Curriculum

The academic level of students is low and declining. It is expected to decline even further with the elimination of the threshold criteria in student entrance examinations (κατάργηση βάσης).

Suggestions for Improving the Curriculum

- The Department's Curriculum Committee must revisit and revise the curriculum to ensure that the sequence of suggested courses provides a logical and practical accumulation of knowledge that meets the Department's goals for educating its students.
- The Curriculum Committee must regularly review content of courses to avoid overlaps and ensure that new technologies and concepts are introduced in a timely fashion, and that the content of each course meets the course objectives.
- Courses which are redundant should be combined or eliminated. New courses addressing emerging technologies and concepts should be developed and offered as electives.
- As the sequence of studies progresses from year to year, students enroll in courses which logically require them to have knowledge gained from earlier courses. With the current system, students are able to enroll in these advanced classes without ever passing the earlier courses. Clearly, this predisposes the student to fail in the advanced courses. We suggest that the Department establish and **enforce** prerequisites for advanced courses. Effectively this means that a student will not be able to enroll for an advanced course unless the student has passed the prerequisite courses.
- Establish a mandatory seminar for all students in the Department during which ΔΕΠ members will present operational information about the Department to the students.

This seminar can be held once or twice per semester. Topics for discussion will include changes in the curriculum, ERASMUS, the importance of student evaluations and how they will be used to improve teaching, and other topics that directly affect the students. We emphasize that a method must be found to make participation by the students mandatory.

- Develop and distribute a syllabus at the beginning of each course. The syllabus should also be available on-line along with the course description. The syllabus should contain a detailed description of what material will be covered in class, how the students will be evaluated, what the professor expects of the students, and what the students should expect of the professor. Opportunities for students to earn added points towards their final grade should be clearly described in the syllabus. The syllabus acts as a contract between the student and professor.
- Improve and regularly update the Department's website so that it becomes a regular source of information for students. One or two of the Department's clerical staff should be trained to update the website so that information can be added on a daily basis. The website contains the course of study for the undergraduate degree program. The course names should be linked to a short description as well as a downloadable syllabus as described above.
- Formation of an external advisory committee consisting of stakeholders (graduates, farmer organizations, policy makers, scientific associations, etc.) who can advise the Department on changing societal needs and help formulate goals and deliverables.
- All instructors (lecture or laboratory) must either establish and maintain office hours or develop some avenue for students to contact them when they have questions about course content, assignments, and preparation for exams. Despite assurance by ΔΕΠ members that they have an open door policy, students unequivocally stated that they do not have access to their instructors outside the classroom.
- Allow and encourage students to conduct this practical training in international settings.

POST-GRADUATE CURRICULUM

Over the past few years, the Department offered two post-graduate (Masters) degrees. One offered entirely within the Department and a second offered jointly with TEI Halkidas. On agricultural automation and controls. This second degree is unique and forward-thinking and displays a high level of interdisciplinary and multi-institution cooperation. The Department should be commended for this activity.

Both of the post-graduate programs (Masters) are in a period of transition. The ΔΕΠ have recently decided that the programs should be reorganized as one-year degrees rather than two-year degrees. In addition, entrance exams will be eliminated and a decision process has been developed to determine the admissibility of candidates. A primary factor in this decision process will be the final grade of the undergraduate degree.

The EEC strongly encourages the Department to reassess the educational goals of these modified programs so that the goals go beyond providing general education and address the future career of the enrolled student. For example, is the goal of a program to develop graduates for the job market (private or public sector), to train a future Ph.D. student to conduct research, etc. The content of the courses and other training provided should directly address these goals. It is our opinion that the current goals are too broad for a one-year post-graduate program.

We observed that all offered courses had approximately the same number of credit units and we question if this truly represents the content and teaching objectives of each course. We

suggest the Department's appropriate committees carefully review each course and reallocate credits accordingly. In addition, the corresponding ECTS units must be evaluated carefully to ensure the credits assigned to individual courses and the total number of ECTS credits for the curriculum concurs with Greek and EU requirements.

Our discussion with the post-graduate students (about 20) was very open and frank. In general, the students expressed satisfaction with their post-graduate programs and enjoyed the collegiality and day-to-day interactions with members of ΔΕΠ and other staff. This indicates a well functioning post-graduate program. The Department should be commended for this. Somewhat disturbing to the EEC was the admission by most of the post-graduate students that they were enrolled in the programs not out of professional or scientific interest in the topic they were studying, but simply because they were pursuing the additional points a Masters degree would offer them when applying for a public-sector job.

From a national perspective, we encourage the public sector to consider awarding these points **only** to candidates who have a Masters degree directly relevant to the job for which they are applying. This will naturally lead to students enrolling in post-graduate degrees relevant to their career goals and will result in better educated and more capable public-sector employees.

Graduate course evaluations have been conducted since the beginning of the programs but the results of the evaluations have not been used systematically to assess the quality of the post-graduate programs. We suggest that these data be reviewed and analyzed to assess the quality of individual courses and instructors.

Several post-graduate students who had received their undergraduate degrees from the Department indicated that there was some repetition in the content of the course materials. They did however indicate that the graduate courses were more difficult, covered more material, and provided more information. In contrast, students who were new to the Department did not make this observation.

Students enrolled in post-graduate programs are required to pay tuition. Many of the students in our discussion group indicated that to cover living expenses and pay tuition, they must work in non-related jobs outside the university. In other European countries (Italy for example), local governments secure funding from the EU to cover the training of Masters students enrolled in programs which prepare them for the job market. The Department and the University of Thessaly in conjunction with local governments are encouraged to explore this possibility.

DOCTORAL PROGRAMS

The Department's doctoral programs appear to be functioning at a high level. The doctoral candidates are satisfied with their interaction with members of DEP, are involved in the teaching program – typically in the laboratory segments and occasionally as lecturers, and perform research at high level. This is documented by publishing their work in international peer-reviewed journals. There are however several inhibiting factors as described immediately below:

Several doctoral students joined the Department through the national Iraklitos program. These students remain without stipends for over 2 years. This is an unacceptable condition and a great inhibiting factor to Ph.D. programs throughout Greece.

Many of the doctoral students are working with ΔΕΠ members who do not have extramural research funds. Consequently students sometimes find it necessary to purchase research supplies with their personal funds.

To graduate, doctoral students are required to publish 3 peer-reviewed journal articles.

Although it is understandable that the Department wishes to ensure that as many research results as possible are published, this policy appears unreasonable. It is not unusual for journal articles to take 18 months to reach publication. This type of delay may cause the candidate undue hardship if it prevents him/her from entering the job market. We strongly encourage the Department to reconsider this requirement and adopt a more flexible policy. One option may be to require that all journal articles be submitted to peer-reviewed journals prior to graduation or to require a combination of published and submitted journals.

Tracking Careers

The careers of students completing post-graduate and doctoral programs should be tracked to provide data for assessing the effectiveness of the programs in preparing students for the job market.

Foreign Language Requirement

We commend the Department for requiring proficiency in English for students enrolled in post-graduate and doctoral programs. By Departmental rules, students with a Proficiency Certificate in English are exempt from English language training. Because some students enter post-graduate programs several years after obtaining the Proficiency Certificate, we encourage the Department to ensure that these students are truly proficient. We suggest a simple, perhaps oral evaluation, to ensure this proficiency.

Student's Professional Development

Post-graduate and doctoral students are consistently encouraged to attend seminars, conferences and other activities which provide professional development opportunities. When possible, ΔΕΠ members arrange for registration fee waivers. However, travel funds are generally lacking and students are generally expected to cover their own travel expenses. This of course is an inhibiting factor without an easy solution.

B. Teaching

To be filled separately for each undergraduate, graduate and doctoral programme.

Overall, the Department has at its disposal and uses modern teaching methods and tools including electronic provision of teaching materials (e-class), PowerPoint presentations, communication via email, etc. The use of these tools and methods by members of ΔΕΠ is variable – some use these tools consistently while other use them rarely or never.

None of the seven undergraduate students with whom we met had listed agricultural studies as their top choice prior to taking the university entrance exams. In fact, for most of them agricultural studies was listed as a choice of last resort. If these seven students were a representative sample, then the majority of students enrolled in the Department's programs are there for similar reasons. This situation presents the Department with an overwhelming problem of underperforming students that is beyond its control. This is a systemic problem of the Greek higher education system and should be evaluated at the highest levels of government. It is clearly not in the best interest of the county to continue this type of selection process.

Student Attendance of Lectures

A major problem of the undergraduate teaching program is very low student participation during lectures. A by-product of this problem is that many students do not attempt to study the course content until just prior to the final examination. As can be expected, if students are studying the course material for several courses for the first time during the final few weeks of the semester, pass rates will be and are low. We suggest that the Department evaluate a number of strategies for encouraging students to attend lectures.

Mentoring:

After discussion with the undergraduate students, the EEC members discovered that the majority of the students present in the meeting were not well informed and expressed confusion about their courses and the expectations of their professors. It was also apparent that misinformation or lack of information leads to errors which extends the already long period required for most students to graduate (typically 6 to 8 years).

To address this issue and to establish closer relationships between members of ΔΕΠ and students during the early stages of their academic career we suggest that the Department establish a mentoring/advising program. Under this program, incoming students will be assigned a member of ΔΕΠ as their mentor/advisor. The student and advisor will meet regularly to discuss progress, plan for the next semester, discuss student mobility, and other appropriate issues. Meetings should at minimum be scheduled once a semester and to ensure that these meetings take place, students should not be allowed to enroll for the following semester without the proof of advisement (signature from their advisor).

Strategies for Improving Student Attendance

- Offer teaching seminars to all ΔΕΠ members to improve their instructional capabilities and make lectures more attractive to students. This may include but should not be limited to offering interactive feedback opportunities to students in the classroom (clickers), pod-casts, etc.
- Provide regular homework assignments which can be completed by the students primarily from information delivered during lectures. This will place an additional

grading burden on the instructors but it is worth the effort. Some of the post-graduate students indicated that they had courses with similar requirements at other institutions and were very satisfied.

- Quizes or other forms of short and quick evaluations of the students which not only encourages student participation but also encourages students to study the material as it is delivered.
- Assignments for which students must make oral presentations to their peers. In our experience, this greatly encourages participation – especially if students work in teams and there is some form of competition and acknowledgement of the best presentations.
- The teaching schedule of each course is posted in front of the Departmental Office (Γραμματεία) at the beginning of the semester as well as the Department's web page. This helps students plan their schedule for the semester. However, changes in the course schedule are not circulated by email nor posted on the Department's web page. This obviously causes attendance problems which can be easily remedied with proper information distribution.
- Establish the mentoring system discussed above.

Laboratory Exercises

From our own experience and from our discussion with both undergraduate and current graduate students who are graduates of the department, the laboratories are the must successful and instructive components of the curriculum. They provide the students with a hands-on application of the theory. The plant pathology laboratories were cited by several students as providing excellent learning experiences. The physical space of this teaching laboratory is very well equipped, well staffed, and run by an established faculty member. However, on the whole, the teaching laboratories are poorly equipped and even those which are equipped are populated with outdated equipment. The IER identifies this as critical problem and we agree with this observation and emphasize that many of the teaching laboratories are woefully underequipped. This puts both the teaching staff and the students at a distinct disadvantage because they are not able to realize their teaching and learning potential. We feel strongly that the central administration of the University of Thessaly is obligated to provide the resources to meet the educational needs of the Department.

Until this goal is achieved, we strongly encourage the faculty to maximize the use of available laboratory teaching equipment by pooling resources. One specific suggestion is to use the resources of well equipped laboratories for several courses which have similar needs. We acknowledge that scheduling becomes an issue especially since each course has multiple laboratory sections (lab enrollment is limited to 18) and the laboratories are also used for research activities. Laboratories are taught by a combination of members of ΔΕΠ, doctoral students, and other staff. This distribution of effort appears appropriate and satisfactory.

The Department's farm at Velestino is a living laboratory and is used extensively for demonstrating the application of the theory students are taught in the classroom. The farm which is described in more detail later is not used to its fullest potential for several reasons. One of the main reasons for this is distance from the Department's building in Nea Ionia (18 km). Transportation is an issue. The Department makes a solution to this problem a high priority.

Although a bus is highly desirable, it may not be feasible under current fiscal constraints. As an alternative, we suggest the coordination and scheduling of multiple laboratory exercises from multiple courses during a single 4 to 6 hour block during a single day. That way the students will be required to make a trip to the farm using personal means of transportation only once every 3 to 4 weeks. While there, the students can be divided into several groups

which can rotate between laboratory exercises. This model allows for several courses to conduct laboratories at the farm.

Lectures

In contrast to the laboratories, the undergraduate students with whom we met were strongly critical of the lectures. The EEC has concluded that this general dissatisfaction with lectures has several causes some of which are systemic and others are functions of student and faculty attitudes and personalities. In general, undergraduate lectures are poorly attended. It is typical for less than 30% of the enrolled students to attend lectures. This low attendance rate leads to a bad dynamic between professors and students. Students cited that on occasion, professors will cancel scheduled lectures when attendance is particularly poor (for example less than 5 students). This provides negative reinforcement to students who have made the effort to attend the lecture and makes it less likely that they will attend in the future. Although it is clearly demoralizing to instructors when attendance is so poor, canceling class for this purpose is patently unfair to students whom make the effort to attend and should not be permitted.

Student to Teacher Ratios

The undergraduate student to ΔΕΠ ratio is approximately 15:1. With post-graduates and doctoral students included, the ratio is approximately 17:1. This is a reasonable ratio. The qualifications of ΔΕΠ are high and appropriate for the curriculum offered by the Department. However the distribution of teaching expertise may not reflect the emphases areas of the curriculum and this should be examined when the opportunity arises to replace retiring members or hire entirely new members of ΔΕΠ. Specific suggestions for adjustments should be made by the Curriculum Committee. In addition, the diversity of the curriculum (number of courses) sometimes results in the lack of expertise among the Department's ΔΕΠ to teach a specific specialty course. For example, a viticulture specialist is brought from another institution to teach the viticulture course. Although, this provides the necessary teaching presence, this person is not available to students for questions, assistance, etc.

Student Evaluations of Undergraduate Courses/Teaching

We highly commend the Department for initiating the process of course evaluations. It is extremely important for the service provider (the Department and members of ΔΕΠ) to have feedback from the customer (students) so as to ensure high levels of performance. We were provided with a summary of student evaluation scores. This summary was an average of all evaluations of all courses over a two-semester period. Overall, the official evaluation results indicate that students are reasonably satisfied by the teaching program and quite satisfied with the performance of the ΔΕΠ.

However, during our discussion with the students, it was quite clear that the student attitudes did not support these data. After extensive discussion, the students provided the following information. When asked why there is such a discrepancy between their oral description of the effectiveness of teaching during the lecture sessions and the written evaluations, the students stated that following one of the early evaluations, a professor received low teaching scores (around 2). In a subsequent class period, the professor berated the students as a whole for the low scores. The students claim that thereafter, they uniformly provide high teaching scores on evaluations to avoid similar scenes and because they felt that there was an implied threat from the professor with respect to their final grades.

First of all, it is completely unacceptable for a member of ΔΕΠ to have access to the evaluation scores before final grades are assigned. Furthermore, if such a scenario did indeed occur and is permitted to reoccur, then the evaluations are an exercise in futility. Students will not take the evaluations seriously and in fact the resulting data will provide false and misleading information about the health of the teaching program. This information should be verified, but we feel obligated to include it in the report.

***Specific Suggestions for Improving the Course Evaluation Process*:**

- Discuss the importance of the evaluation process with the students and assure them that it will be used to improve the teaching program (see suggestions about informational seminar).
- Discuss the results of the evaluations with student representatives.
- Review the evaluation form with someone who specializes in creating surveys to ensure that the evaluation instrument provides the necessary data.
- If not already included, add asection which allows student to make specific comments.
- Reconsider the timing of the evaluation. The survey is currently conducted unannounced during a lecture period towards the end of the course. Although this sampling period tends to capture the response of the students who regularly attend class, it may be a statistically invalid sample.

Student and Staff Mobility

Despite efforts to organize international trips, the IER acknowledges the relatively low international mobility rates of the Department's students. Low mobility is attributed primarily to lack of funding. However, our discussion with the students also indicates lack of awareness of readily available funding from programs like ERASMUS. Suggestions for informing students of these and other opportunities were presented in an earlier section of the report (informational seminars). The Department has been successful in pursuing extramural funding for student mobility programs. Two ΔΕΠ members were involved in separate US-EU consortiums that allowed a total of 14 Department students to spend up to 6 months in the USA. During the year that these grants were awarded, 2 of the 3 grants awarded to Greek institutions were awarded to the Department. One ΔΕΠ faculty member is currently involved in a similar proposal for post-graduate students. These activities are highly commendable

Similar mobility opportunities (ERASMUS, OECD fellowships, etc.) are available for staff and ΔΕΠ members. Although many ΔΕΠ members are well traveled, others are not. A concerted effort must be made to introduce this culture to the Department so that all its members have an opportunity to travel abroad and share ideas with colleagues at other institutes.

C. Research

For each particular matter, please distinguish between under- and post-graduate level, if necessary.

The presentation of the research program was very informative. During the presentation, successes and problems were discussed openly. An extensive discussion between the EEC and all 23 ΔΕΠ members was lively and open as well. The EEC wishes to commend the Department for this openness. It made our mission much easier and certainly more interesting.

The research programs have two general areas of emphasis – sustainable plant production and environmental assessment.

Facilities

The Department has, by any international standard, outstanding physical facilities for its research (and teaching) mission. The Department shares a fairly new building (less than 10 years old) with another academic department but space is not a limitation. Facilities are not a limiting factor for performing research. In addition, the Department manages a 15 ha research and teaching farm at Velestino, approximately 18 km from the main building.

The quality and level of instrumentation within the laboratories varies dramatically. Some laboratories which were established in the mid-90s – a period during which infrastructure funds were provided by the Greek state – are very well equipped but the equipment is aging and in almost all cases would not compare well to similar laboratories at other European or American institutions.

In stark contrast, laboratories operated by new ΔΕΠ members are completely bare of any instrumentation. Little to no start-up funds have been provided to new members of ΔΕΠ. This places the scientists in a very difficult position because it makes them uncompetitive when pursuing extramural grant funds. This is a problem that must be addressed at the university and state level. We strongly recommend that new ΔΕΠ members be provided with a reasonable amount of start-up funds.

Sharing of equipment across research programs is common and of course this is a very effective way to use available resources. ΔΕΠ members should be commended for this spirit of cooperation.

Funding for Research

Funding for research is a major concern for most members of ΔΕΠ. The Department has received 6.200.000 € in extramural funding over the past 7 years. At the University of Thessaly, the Department ranks 2nd only to the Department of Medicine in extramural funding. However, the majority of this funding has come as major grants to a few ΔΕΠ members. Consequently, a few research teams are well funded while others are not.

Throughout our site visit, there was a pervasive complaint by ΔΕΠ members about the level of state support for the research mission of the Department. The amount of State funds distributed to each scientist is approximately 600 € per year. Clearly, this is not enough funding to conduct any type of scientific research.

Throughout the developed world, research scientists are now expected to conduct research with extramural funds (grants). The public research institutions have transitioned from being state-supported to being state-assisted. All Department scientists must accept this

new reality and prepare themselves to participate in this new competitive environment. Clearly, some have made this transition successfully while others have not.

The situation for Greek scientists is more difficult than in many other EU countries and certainly more difficult than for scientists in the USA. This is primarily because in Greece there are no reliable competitive funding sources at the national or local government scale. Consequently, Department scientists must compete for resources at the EU level. There the competition is fierce and success depends on joining interdisciplinary teams from several EU institutions. Several Department scientists have accepted this reality and are working hard to join EU teams and submit proposals. These scientists should be commended and rewarded for their efforts. The others must be motivated to do the same.

Extramural funding through EU teams is the only means to ensure the Department's viability at times of financial crisis. Extramural research funding is the only way to break the vicious cycle of low productivity-no research money experienced by many universities in Greece. This is the only answer to the standard line of defense\excuses blaming the lack of public funding for the problems that this Department and other academic departments in Greece are experiencing.

However, scientists can not be competitive if they work in bare laboratories. State funding must be made available to properly equip research laboratories with the major infrastructure needed to conduct research – especially for new scientists.

Research Publications

The Department has 23 members of ΔΕΠ all of which are required to conduct research and publish their results in peer-reviewed journals. Implied in this mission is the need to pursue extramural funding (grants) with which to conduct research. To evaluate the performance of ΔΕΠ members in these areas we requested and received *curriculum vitae* (CVs) from 22 of the 23 members of ΔΕΠ. Below is our analysis of this information. The analysis is for only 21 members as the 22nd just entered his new position.

Publications in Peer-Reviewed Journals Since 2003 (7 years)

Number of published articles	ΔΕΠ Members	% of Total ΔΕΠ
0-3	5	24%
4-5	0	0%
6-15	9	42%
> 15	7	34%

As with any academic institution, the level of productivity as measured by publishing varies significantly among scientists. This assessment is further complicated by the fact that in some sectors of agricultural science, data from which publications are created can be collected rapidly while in others, several years of data are required in order to publish. Nevertheless, the above data are indicative of productivity.

In the lowest performing category, there are 2 ΔΕΠ members at the rank of Professor and 2 ΔΕΠ members at the rank of Associate Professor. Under any standards and even with limited levels of funding, this level of performance can only be characterized as unacceptable.

In contrast, the publication productivity of the other 16 members of ΔΕΠ can be considered good to excellent. One member has published 85 peer-reviewed articles since 2003 and paradoxically remains at the rank of Assistant Professor.

Citation of the publications as reported by Scopus is good to excellent.

IΔΑΧ

The professional status of IΔΑΧ employees in the university system must be clarified. In the Department, 9 out of 10 hold doctorates yet by law they spend much of their time doing clerical work. They are not allowed to teach during normal work hours. However, all of them are allowed to teach after normal working hours via their 407 contract (part time) with the University. Their presence in the Department significantly lowers the student to teacher ratio (unofficially). In addition, none of them feel secure because at any time they may be reassigned by upper administration to other units or to mundane tasks. Such a practice is contrary to the principle of sound financial management and rational use of available human resources especially when such resources are skilled and willing to contribute to the teaching and research missions of the university. This is a systemic problem which should be addressed at the national level. To continue this situation indefinitely squanders the country's financial resources.

Impact of Research, Technology Transfer, and Funding from Industry

The EEC committee expected to see data on the impact of the Department's research program. We define impact as the benefit accrued by stakeholders as a result of the Department's research efforts – benefits to the general public, agricultural producers and industries. The Department's scientists were not prepared to provide this information with data but did provide some anecdotal evidence (adoption of greenhouse technologies, recycling waste water, etc). Typically, funding from industry is considered a benchmark of conducting research that is directly relevant to stakeholders' interests.

Existing success stories of cooperation with industry should be publicized and used to leverage addition funding from industry groups. Although this may be a new concept to many Greek cooperatives and industries, it is worth cultivating. It is a model that works well in much of the developed world and there are many examples of it working well in Greece as well.

In addition, Department scientists can apply their expertise to solving the problems of local governments. A good example of this type of effort is the study demonstrating the use of recycled wastewater from the Volos waste water treatment plant. Now, Volos is using this water to irrigate urban landscapes. It should be demonstrated to these local governments that a relatively small financial investment in research can provide them with large operational savings.

Even though Department scientists do not have an Extension responsibility, several of them regularly conduct field days to expose stakeholders to the results of their research. Some of the field days are very well attended. Field days are not limited to Thessaly. The scientists conducting these field days should be commended for their efforts.

Several international conferences have been organized by Department scientists and held in close proximity to Volos. One such example is the 6th European Conference on Precision Agriculture held in Skiathos during 2007. Attendance exceeded 450. Awarding the organization of such prestigious conferences to Department scientists shows that these scientists are held in high esteem by their peers.

Recommendations for Improving Research

- Unbiased evaluation metrics of performance for members of ΔΕΠ must be established at the university level or at the national level. These metrics must be used to evaluate the

performance of individual members of ΔΕΠ, the Department, and the University. A system must be established to recognize and reward high performers and motivate underperformers. Underperformers who refuse to improve their performance should be removed from the University. ΔΕΠ members, departments, and universities which are not fulfilling the mission entrusted to them by the taxpayers of the state are consuming resources which should be allocated to those who are performing.

- Establish a culture of pursuing extramural funding and of joining national and international teams to improve competitiveness. Members of ΔΕΠ will need to increase their initiative to network with colleagues within the Department and national and international laboratories to compete for national and European grants.
- We suggest that several members of ΔΕΠ form internal interdisciplinary teams which can better partner with EU institutions to pursue major funding
- The distribution of space among ΔΕΠ members is uneven with established members generally having control of larger and better spaces. As members retire, new hires appear to inherit the space. A Departmental committee should annually evaluate laboratory space needs and propose reallocation of space as needs change and new areas of research are established.
- We suggest that the Department initiate a process of strategic planning with which it defines research goals for the short, medium, and far-term. The goals should include deliverables to stakeholders (private and public sectors). The Departmental advisory committee described earlier should play a key role in this effort. Future state-funded resources should be targeted towards meeting these goals.

D. All Other Services

For each particular matter, please distinguish between under- and post-graduate level, if necessary.

Clerical Services

The clerical services provided to the members of ΔΕΠ, staff, undergraduate and doctoral students the Department's main clerical group (Γραμματεία) is satisfactory. The three staff members in this clerical group appear highly motivated and efficient. However, they are using mid-20th century methods. All the records are kept on paper. All official communication with the university's central office is done on paper. The bureaucracy is appalling and results in a tremendous waste of significant human resources. This area requires immediate attention by the University. Mail service from the Department is terrible as there is no reliable means of taking outgoing mail to the central University offices. The University is obligated to provide a reasonable solution to these problems which unnecessarily reduce efficiency.

Clerical services are provided to the post-graduate programs (Masters) and students primarily by ΙΔΑΧ employees with doctorates. The post-graduate students are not satisfied with the level of clerical support they receive. The issues with ΙΔΑΧ employees is addressed both earlier and later in the report.

IT Services

IT services are generally good although some infrastructure problems exist. A fiber optic line between the Department and the main offices of the University will soon resolve internet access issues. The Department's computer lab is well equipped in terms of computers but lacks proper cooling and lighting. Technical support is provided by only 1 full-time staff member.

Suggestions for Improvement of Other Services:

- We recommend a thorough evaluation of the clerical support functions of the various staff members. There seems to be a large number of people involved in clerical support and there must surely be ways to improve the efficiency of this task.
- One permanent IT person is sufficient for all current demands. However, when this person is absent for any reason, there is no IT support. We suggest that the Department train a current staff member or hire a part-time IT person to respond to peaks of demand and provide general IT support when the full-time IT person is absent.

Research and Teaching Farm (Αγρόκτημα) at Velestino

The Department manages a Research and Teaching Farm (Farm) of approximately 15 hectares located at Velestino about 18 km from the Department. The EEC was given a tour of the Farm during the morning of 21 April accompanied by four ΔΕΠ members, 1 doctoral candidate, and one staff member who all contributed to explaining the various activities taking place at the Farm. The Farm currently has two missions. It is used as a living teaching laboratory and as a site for field experiments.

It is currently staffed by one staff member and has an annual operating budget of 40.000 €. Although we were not provided with a detailed budget of how these funds are expended, we

were assured by the Department's chair and several ΔΕΠ members that the funding is inadequate. Certainly, the farm is understaffed during periods of the year when field work is taking place. It is impossible to properly maintain the farm with one staff member who must also dedicate his time to ensuring the field trial are in good working condition, manages general maintenance and other Farm operations and assists with teaching laboratory activities.

The general appearance of the Farm was poor. Roads were in unsatisfactory condition while the borders of plots were covered by weeds and not well defined. The permanent building facilities were not well maintained and lack heating, cooling, and internet connections. The reported reason for these deficiencies is the lack of adequate funding.

It is the opinion of the EEC that the Farm is underutilized. With the exception of a few projects, it appeared that the available land resources were not being fully utilized. This likely has many causes the most important of which may be the lack of extramurally funded research projects. The current condition of the Farm is such that it cannot be used for field days during which new technologies, new experimental and commercial cultivars, and new systems of cultural practices can be demonstrated to stakeholders.

One of the Departments top funding priorities is to increase the budget allocated by the University of Thessaly to the operation of the Farm.

Suggestions for Improving the Use of the Farm

- The Farm should become the face of the Department to its stakeholders. It should become a showplace of current technologies, practices, and trends in agriculture.
- The building facilities need to be maintained regularly and heating, cooling, and internet access should be added to at least one of the buildings.
- One full-time staff member is reasonable for the size of the Farm. However, funding is needed to hire seasonal workers during periods of the year when there is a large amount of field activity and intensive maintenance such as mowing is needed. Lack of funding for maintaining Farm infrastructure is also a serious problem and should be addressed by the University.
- The expense of travelling to and from the Farm in personal vehicles was cited as an inhibiting factor particularly by students. Because it is not possible for doctoral students and others conducting research to use University vehicles to travel to and from the Farm, we suggest that a framework be established for researchers to be reimbursed for mileage at a fixed cost (€/km). These funds can be expended from laboratory budgets or extramural funds.
- Grant funded projects which will be conducted at the Farm should budget funds for maintaining the sites and funds for travel to and from the Farm.
- Every effort should be made to convert the Farm into a showplace of modern agriculture technologies and methods. This includes demonstrating new cultivars of crops and trees, equipment, tillage operations, greenhouses, etc. Some ongoing activities are directly applicable. The Department should implement regular Field Days and invite stakeholders to visit the facility and learn. Partnerships with industry (in return for subtle advertising) can assist with the operational costs of the Field Days.
- We suggest a Departmental committee to oversee utilization and maintenance of the Farm. This committee may already exist, but we are not aware of it.

.

E. Strategic planning, perspectives for improvement and potential inhibiting factors

For each particular matter, please distinguish between under- and post-graduate level, if necessary.

At the National/State Level

- The national entrance exams force students to pursue degrees in areas which do not interest them. This system is anachronistic, unproductive, and should be changed.
- The current system of 5 + 2 + 3 years used by the Department and other departments in Greece does not meet the current needs of the job market in the private sector. The training required of university graduates has changed over the past 40 years.
- A framework should be established for rewarding departments found to be performing well by external evaluations. Likewise, the framework should also establish consequences for departments found to be underperforming.
- A framework for evaluating the performance of members of ΔΕΠ is absolutely necessary. There are too many members of ΔΕΠ who are underproductive. The framework should provide real incentives for high performance and real consequences for poor performance. ΔΕΠ members should be evaluated for their teaching and research responsibilities. Evaluations should be conducted at regular intervals by appropriate administrators or committees of peers. This is particularly important for members of ΔΕΠ who have reached the rank of Professor and for who there are at the moment no consequences for underperforming.
- Develop a national or university-level digital data bank where performance data can be entered by each scientist. Data should be accessible to administrators at multiple levels who are responsible for evaluating performance. Associated national-level metrics of performance should be established. Rewards should be established for high-performing departments and scientists.
- Between AEI and TEI there are 28 departments of agricultural sciences. This is too many for a nation of 11 million people.
- Within universities, there are too many administrative divisions – there are too many departments. Many departments are populated with too few scientists (ΔΕΠ). A minimum number of ΔΕΠ per department should be established. Some EU countries have selected this minimum number to be 40.
- Within departments, there are frequently too many sections (τομείς) resulting in unnecessary bureaucracy within departments.
- Establish streams of funding for major pieces of equipment which increase the competitiveness of departments and universities. To maximize the investment, a framework should be developed for intra-departmental, inter-departmental and intra-university use of this equipment.
- The professional status of ΙΔΑΧ employees within the universities must be clarified.
- Start-up funds should be available for new scientists. It is completely unreasonable to hire a new scientist and not provide him/her with the tools to succeed.
- A framework should be established for transferring technology developed at the AEI and TEI to the public and private sector. The national investment in research must pay dividends to the taxpayers. Publishing scientific journal articles is not enough.
- Public sector jobs provide preferential treatment to candidates with post-graduate

degrees. The public sector should award these points only to candidates who have a Masters degree relevant to the job for which they are applying.

- Incentives must be established to increase the mobility of students, staff, and members of ΔΕΠ.

University Level

- Within universities, there are too many administrative divisions – there are too many departments. Many departments are populated with too few scientists (ΔΕΠ). A minimum number of ΔΕΠ per department should be established. Some EU countries have selected this minimum number to be 40.
- Within departments, there are frequently too many sections (τομείς) resulting in unnecessary bureaucracy within departments.
- Develop a framework within which universities, in this case the University of Thessaly, work with regional governments to establish educational goals for the regional workforce and research goals to solve regional problems.
- An academic department should have the legal authority to manage its budget and the chair of the department should have legal authority to manage the budget. When financial management decisions which affect the department are made at the university level, it increases the level of bureaucracy, increases the level of frustration, and decreases productivity.
- Establish incentives for interdisciplinary (interdepartmental) degrees at the graduate level.
- Establish incentives for internationalization of degrees at all levels.
- Establish incentives for international mobility.
- The Department's main clerical group (Γραμματεία) operates using mid-20th century methods. All the records are kept on paper. All official communication with the university's central office is done on paper. The bureaucracy is appalling and results in a tremendous waste of significant human resources. This area requires immediate attention by the University.
- Better funding for the Research Farm so that it can become a "Model Farm" which will attract local agricultural producers to come and learn about the latest agricultural innovations.

Department Level

- Existing and proposed departmental committees should take the suggestions provided in this document and in the IER seriously and should not be reluctant to propose major changes when necessary. The ΔΕΠ council (Γενική Συνέλευση) should deliberate and act upon recommendations in a timely manner. Student participation in these decisions is encouraged.
- Agreed upon changes should be implemented rapidly.
- Establish ΔΕΠ advisors for undergraduate students.
- Teaching evaluations should be used for assessing and improving teaching performance.
- Redistribute space to create common-use laboratories that will house equipment used by many scientists. Create an internal framework for funding and operating commonly used space and equipment.
- Decrease the number of courses by eliminating redundancies.

- Secure more funding for the Research Farm so that it can become a "Model Farm" which will attract local agricultural producers to come and learn about the latest agricultural innovations.
- Distribute available human resources (staff) according to teaching and research needs.

F. Conclusions:

For each particular matter, please distinguish between under- and post-graduate level, if necessary.

The Department of Agriculture, Crop Production, and Rural Environment at the University of Thessaly is relatively new. Despite this, we find that the Department's teaching and research accomplishments are significant. A recent study by the University of Athens indicated that approximately 87% of the Department's 2005 graduates were employed in a sector related to their studies. The distribution of the graduates between the public and private sector was about even. These data are the greatest testament that the Department is meeting its mission of training students to become productive members of society.

In general there seems to be excellent collegiality between all employees of the Department. This is very positive and necessary if changes which require consensus are to be implemented.

The collegiality extends to the relationships between the Department's employees and its students. We were particularly impressed by general satisfaction of the Department's post-graduate and doctoral students despite the financial problems most of them face. The Department's greatest strength appears to be the mentoring of its post-graduate and doctoral students.

Nevertheless, there is room for improvement which is achievable through better internal organization and better use of existing physical and human resources. Some of the problems faced by the Department originate at the University or are systemic to the Greek higher education model and are beyond the Department's control.

We have identified both broad areas and specific items which can be improved. The most important changes we suggest are to the undergraduate curriculum. Despite the success of past graduates, the curriculum needs significant change to meet the challenges of tomorrow. Suggestions for improvement for this and other items have been provided under each of the individual categories for which the evaluation was conducted and will not be repeated here.

THE MEMBERS OF THE COMMITTEE

Name and Surname	**Signature**
1. Professor ***George Vellidis*** (President) University of Georgia, USA	
2. Professor ***Themis Michailides*** University of California, KAC, USA	
3. Professor ***Cristos Xiloyannis*** University of Basilicata, Italy	
4. Dr. ***Alexandros Arabatzis*** European Commission	