



RE-ACCREDITATION OF FACULTY OF AGRICULTURE

**Date of the site visit:
24, 25 and 26 April**

2013
April

COMPOSITION OF THE EXPERT PANEL

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2. **Dr Eberhard von Borell**, Professor of Animal Husbandry & Ecology, Martin-Luther-University Halle-Wittenberg, Germany
3. **Dr Kendra Nightingale**, Department of Animal and Food Sciences, Texas Tech University, USA
4. **Dr Martin Wiedmann**, Department of Food Science, Cornell University, USA
5. **Ivana Tanasković**, Faculty of Food Technology, University J.J. Strossmayer in Osijek, Croatia, student

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INTRODUCTION

Short description of the evaluated institution

NAME OF HIGHER EDUCATION INSTITUTION: Faculty of Agriculture, University of Zagreb

ADDRESS: Svetosimunska cesta 25

NAME OF THE HEAD OF HIGHER EDUCATION INSTITUTION: Prof Tajana Krička, PhD

ORGANISATIONAL STRUCTURE:

28 departments

LIST OF STUDY PROGRAMMES (and levels):

Undergraduate level:

Agricultural Engineering
Agroecology
Animal Sciences
Horticulture
Landscape Architecture
Organic Agriculture
Plant Protection
Plant Sciences
Mediterranean Agriculture*

Graduate level:

Agribusiness and Rural Development
Agroecology
Plant Sciences
Organic Agriculture with Agrotourism
Phytomedicine
Animal Genetics and Breeding
Horticulture
Animal Nutrition and Feed Science
Landscape Architecture
Agricultural Engineering
Production and Processing of Meat
Production and Processing of Milk
Fisheries and Game Management

Specialist studies:

Animal Sciences
Fisheries
Executive MBA in Agribusiness and Commerce

Doctoral studies:

Agricultural Sciences
Agricultural Economics

NUMBER OF STUDENTS:

full-time 2411

part-time 0

NUMBER OF TEACHERS: 135**NUMBER OF SCIENTISTS: 126**

TOTAL BUDGET (in kunas): 82 459 294,04

MSES FUNDING (percentage): 75%

OWN FUNDING (percentage): 25%

SHORT DESCRIPTION OF HIGHER EDUCATION INSTITUTION:

With the creation of the independent and internationally recognized country of Croatia, in 1992 the Faculty of Agricultural Sciences is reorganized. Some of the institutes (Institute for Breeding and Production of Field Crops, Institute for Plant Protection and the Institute for Fisheries and Apiculture), separate, so from the 1 st May the Faculty operates as a unique scientific-teaching institution, without the institutes, under the new name of Faculty of Agriculture University of Zagreb. A great momentum in the independent country of Croatia is the increase of areas under permanent crops, especially under grapevine. The Faculty gives significant contribution to the improved methods for grapevine cultivation, grape processing and wine culture. The publishing activity of scientists is especially active on the topics of grapevine propagation, viticulture and study of the grapevine genetic structure by using modern methods. The independent Department of Seeds is founded, which is entrusted to establish and maintain the Plant Gene Bank. The scientific contribution of the employees of the Department of Seeds can be seen in the development and use of modern molecular methods for the identification of

cultivars, analysis of bio-diversity and genetic structure of indigenous populations and also the analysis of phylogenetic relations, along with the research from the field of statistical genomics (creation of genetic maps and the analysis of loci for quantitative traits). Special attention is given to the research of bio-diversity and the possibility of growing medicinal and aromatic plants. Valuable progress has been noted in the development of dairy production and processing, as well as in the establishment of the Reference Laboratory for Milk and Dairy Products in 2001. The Reference Laboratory is the first accredited laboratory that has been established according to the international standard HRN EN ISO/EC 17025 within the University in the Republic of Croatia. Likewise, as a part of the Department of Animal Nutrition in 2011 the accredited laboratory (standard HRN EN ISO/EC 17025) has been established for testing the physical-chemical traits of animal feed. Significant results have also been noted in Mycology. The secrets of mycelium culture growth of numerous mushroom species have been discovered and their commercial production has been developed. Also a large number of books on mushrooms have been published, the most significant being "Mushroom Encyclopaedia" (I and II). Attention worthy are also the results in research which has led to the advancement of apiculture technology in family farms as well as the introduction of pollination by bees in agricultural production. With the appearance of energy feeds, in the early 1980s and 1990s, the Faculty places significant emphasis on the scientific and professional research in the field of renewable energy sources, mainly from agricultural biomass.

All of the listed scientific-teaching accomplishments represent a good foundation for further growth and development of the Faculty of Agriculture, as the leading scientific-teaching institution in the Republic of Croatia.

The work of the Expert Panel

For its work the Panel drew upon the Self-Evaluation Report, prepared by the Faculty of Agriculture. A site visit was carried out on 24, 25 and 26 April. During the visit to the Institution the Expert Panel held meetings with the representatives of the following groups:

- The Management;
- The Working Group that compiled the Self-Evaluation;
- The Heads of Units
- Teaching Assistants
- The students, i.e., a self-selected set of students present at the interview;
- The Vice-Dean for Teaching and Students' Affairs,
- The Heads of Study Programs
- The Vice-Dean for Scientific Activity
- Research projects' leaders;

The Expert Panel also had a tour of the library, IT rooms, student register desk, classrooms and the laboratories at the Faculty of Agriculture, where they held a brief question and answer session with the students and staff who were present.

DETAILED ANALYSIS BASED ON STANDARDS AND CRITERIA FOR RE-ACCREDITATION

1. Institutional management and quality assurance

- 1.1. The Faculty is encouraged to improve their strategic planning process and to define and communicate more specific and focused areas where they will attempt to be outstanding. Their current goals appear to be too generic and vague. In addition, the Faculty should develop a clear and formal process for improved involvement of stakeholders in their strategic planning process.
- 1.2. The overall organizational structures seem to be appropriate, but a reduction in the number of departments is encouraged.
- 1.3. The review team has been unable to identify whether and how the Faculty has aligned specific goals with the goals of the overall university. We appreciate though that this may reflect a lack of specific clearly communicated goals for the university.
- 1.4. While the study programs may be aligned with a somewhat vague and generic mission, a more targeted and quantifiable mission statement is needed. After a more targeted and quantifiable mission statement is written, an alignment of study programs with the mission will be needed and this will likely require a reduction and strategic re-alignment of study programs.
- 1.5. The overall quality procedures seem to be short in quantitative goals and appear to often lack specific mechanisms for (i) measuring success and (ii) monitoring and rewarding progress and success. The Faculty is strongly encouraged to develop more quantitative procedures for quality assurance in teaching as well as research.
- 1.6. While data are collected from students, there is no clear evidence whether and how data are collected from stakeholders. As detailed in 1.1., the Faculty is strongly encouraged to develop formal procedures for interacting with stakeholders and collecting stakeholder feedback.
- 1.7. While teaching quality is measured through student questionnaires, improved mechanisms for evaluating teaching quality should be implemented (for example, peer review of teaching). Mechanisms for improving the teaching quality do not appear to be formalized and this should be addressed.
- 1.8. Research quality appears to be monitored, but it is unclear whether there are transparent formal mechanisms for doing so. Mechanisms for improving the research quality do not appear to be formalized and this should be addressed.

1.9. The Faculty of Agriculture does not have strong formal procedures in place for systematically monitoring ethical student behavior. For example, there is no record keeping that would determine whether students repeatedly show inappropriate behavior across classes (e.g., cheating, plagiarism). It is essential that this issue is addressed and that formal procedures are put in place to assure that students that cheat across different classes and multiple times are ultimately removed from the program. Similarly, it is not clear whether there is a formal process how concerns about behavior of teachers are addressed; it appears that students are not necessarily informed as to how concerns they may voice about teachers are addressed. For example, some students have voiced concerns about a teacher in computer science, which they feel have not been addressed effectively by the management.

2. Study programmes

- 2.1. The Faculty of Agriculture is offering a large number of study programmes, i.e. 9 undergraduate studies, 18 graduate studies, 2 doctoral studies and 3 postgraduate specialist studies covering the whole range of agricultural sciences. The faculty council is a major faculty body which – according to its statutes – has the authority to propose study programmes and to install faculty boards for monitoring, improving and adapting the study programmes. In total, seven such boards are presently installed and operative. Through these boards, study programmes have been adapted to changing needs in individual studies and on the level of particular courses (syllabus). Moreover, a framework for new study programmes has been designed in a TEMPUS project with similar European universities which is ensuring high quality programmes and compatibility with the Bologna criteria for a European higher education area. Thus, except for the participation of external stakeholders, functional procedures and processes with respect to improving study programmes are implemented.
- 2.2. The faculty council has established boards suggesting enrolment quotas according to both the needs of the labour market and the material capacities of the institution. To ensure that quotas are in line with the need for agronomists in the country, the faculty conducted monitoring studies of employment and unemployment of its graduates. These studies are a solid base for tailoring enrolment quotas.
- 2.3. The enrolment quotas are fully in line with institutional resources. The teacher to student ratio is 1:14.2, and sufficient usable space per student and facilities for a

high teaching and studying quality are available. The teaching conditions are by far meeting all the respective minimum criteria.

- 2.4. The learning outcomes and competences expected from graduates have been set for subjects (courses) within the study programmes. The learning outcomes defined are rather general and apply to almost all subjects in a given study programme. Instead of this, more specific leaning outcomes could be defined on the level of individual courses.
- 2.5. On the basis of the different study programmes, student learning assessment is carried out in a variety of ways (various types of exams) in order to assure an appropriate monitoring of the full range of learning.
- 2.6. The allocation of ECTS is mostly reflecting the realistic estimate of student workload, as it is based on generally used standards. In individual cases, the ECTS allocation has been corrected for better balancing the student workload.
- 2.7. The study programmes offered are fully conforming to international standards such as the suggestions of the Association of European Life Science Universities and the IAAE. In addition, all studies follow the Bologna criteria of the European higher education area which ensures both international recognition and student mobility within student exchange programmes.
- 2.8. Apart from classical lectures, a number of teaching approaches such as lab exercises, practical exercises, seminars, field excercises, professional projects and internships reflect the different nature and needs of particular subjects for knowledge transfer, which is encouraging autonomous student learning. For some laboratory courses, however, facilities and equipment are not available for full individual student participation, therefore courses are held as demonstrations rather than true excercises.
- 2.9. Knowledge acquisition options through supplemental and individual resources are fully implemented at the faculty. For a number of subjects, online resources are available with teaching materials such as presentations and case examples. Moreover, the faculty library facilitates access to both electronic materials and textbooks, journals and other materials.
- 2.10. Internships are part of the teaching process in the programmes at the Faculty of Agriculture, and internships are carried out at the faculty and partly outside (family farms etc.). External internships are criticized both in the self-evaluation report (see p. 99) and in student questionings as a mere formality with a low impact in the overall programme and therefore require future attention for

improvement. In particular, it should be considered that internships in the industry could improve the employability of graduates.

3. Students

- 3.1. There is a big discrepancy in foreknowledge of students which is necessary for the undergraduate studies at the Faculty of Agriculture, and they are evaluated unevenly depending on the study. Some of study programmes enroll candidates who have previously graduated from a gymnasium, while other programmes mainly enroll students who have graduated from a professional school. Furthermore, evaluation of the quality of enrolled students also includes interest and motivation, regular attendance of classes, as well as continuous individual work. We recommend more stringent criteria of evaluation upon admission.
- 3.2. The Faculty supports students in their extracurricular activities. At the level of the Faculty, they established the International Relations Office which maintains an active cooperation with an array of foreign faculties through the CEEPUS and ERASMUS programmes. Also, they established a subsidiary of the Student Union, Student Association of Agriculture (STUDA), subsidiary of International Association of Students in Agriculture and Related Sciences (IAAS Croatia), etc.
- 3.3. The Faculty offers counselling and mentorship through study coordinator who "takes care" of students by acquainting them with their obligations and their rights during the study, and provides them basic information on the studies and teachers. Aside from the study coordinator, the teacher - mentor is at the disposal of the students and helps them in solving their problems. On the third year of undergraduate studies, in certain study programmes, public discussions on graduate studies are held in order to help students choose the graduate study that they desire. Also, students with special needs can address the coordinator for students with disabilities. We noticed that there is a need for establishment of better professional orientation because students claim that there is a lack of informations about job opportunities.
- 3.4. According to the Regulations on student standard, students have right for health insurance, right for subsidised housing and food, right to temporary employment, right to payback study costs on the basis of study success and other rights. There is no possibility to house students at the institution of higher education, but students use the capacities of the Student Centre and private accommodations. They have a Central Agricultural Library with sufficient number of resources. For the purpose

of teaching Physical Education classes, Swimming and Riding, sport activities of student associations and recreation the locations at the institution of higher education, the hall at the Faculty of Forestry, swimming pool in Utrine and the equestrian club facilities are used. We notice that the problems are small capacity of restaurant and lack of laboratories and premises for individual and group study work.

- 3.5. Evaluation methods that should be used for learning outcomes are declared by the subject coordinator. The evaluation of the learning outcome is conducted through various forms of classes (laboratory, auditory and field exercises, practicum exercises, seminar papers, professional projects, internship, final and graduate papers) and through various forms of knowledge evaluation (preliminary exams, written exams, oral exams), or with a combination of all of them. Furthermore, they implemented an e-learning system (Merlin), but only a small number of teachers allow students to attend the exam by way of the mentioned system. Students are not introduced to the formal appeal strategies and we found apparent irregularities at exams (as exceptions).
- 3.6. In 2004, Faculty established Association of Graduated Engineers and Friends of the Faculty of Agriculture University of Zagreb, but the Association has a very small number of members. We recommend establishment of a stronger alumni association so that students can get information about employability and, at the same time, the Faculty will get information about the needs of society which will lead to restructuring of study programmes and enrolment quotas.
- 3.7. According to the self-evaluation, students of the Faculty of Agriculture participate in the work of the Faculty Council, Study Council and Board for Teaching and Appointment of Teachers, Board for International Cooperation, Board for Quality Assurance and Ethical Committee. During our site visit and during the meetings with students, we got the information that students are not participating in decision making processes - they are allowed to express their opinion, but mostly it's not taken into consideration. We see this as a huge problem and we recommend improvement because students should participate in decision making processes, and both students and the Faculty members should work together to enhance the quality of the Faculty and the quality of teaching. As students grow unsatisfied and feel that their opinions and input are often not taken seriously, they often reduce their participation and become less motivated and interested in continuing at the Faculty.
- 3.8. Faculty of Agriculture has an active website, which has general information on the Faculty, and future students have at disposal information about each study

programme as well as the criteria and procedures for enrolment (there is also a student service of the Faculty of Agriculture). Faculty regularly attends the University of Zagreb Fair and, in previous years, the employees and students of the Faculty of Agriculture had visited the Agricultural schools in Zagreb and Kaštels, where seniors were informed on the study programmes. We noticed that there is a need for the improvement of level of information, particularly to the beginners and there is a lack of information about their employment opportunities.

- 3.9. Students can express their opinion and proposals through University survey, anonymously via a mailbox which is placed at the entrance to the Faculty Administration. The other option for the student is to personally express disagreement to the subject coordinator. Certain teachers conduct mini-surveys on their own, for the purpose of self-evaluation which gives them guidelines to improve quality. Also, on the third year of undergraduate studies public discussions are organized.
- 3.10. Students can express their opinion, but the system does not fully work because students are not informed about the results of those surveys or anonymously sent complaints, and mostly their complaints and opinions are not taken into consideration. They claim that there is no need to write complaints in those surveys because nothing changes no matter what they say or write. We see this as an enormous problem and we recommend urgent improvement because students should participate in decision making processes and they should be informed about the results of those surveys at the level of the Faculty.

4. Teachers

- 4.1. A number of external associates are engaged in the Landscape Architecture study; while we applaud interdisciplinary efforts that are required to teach landscape architecture, it will be important that the effectiveness of this approach is monitored.
- 4.2. The main way of replenishing human resources is by recruitment and training of research assistants. The research assistants are mostly Faculty graduates, but there are also graduates from related faculties (Faculty of Food Technology and Biotechnology, Faculty of Veterinary Medicine, Faculty of Science), and from other faculties. More efforts to recruit human resources with longer training outside Faculty of Agriculture and preferably outside Croatia may facilitate introduction of new ideas and approaches. The limited lateral mobility (meaning mobility from

other institutions both within and outside Croatia) needs to be addressed and the faculty is strongly encouraged to develop quantitative goals for recruitment of teachers from the outside (an example of a quantitative goal would be "By year XXXX, at least XX% of teachers should have received at least one degree from outside of Faculty of Agriculture). Institutions with limited influx of outside ideas will not only be less likely to implement change, but also, as outlined in this blog (<http://blogomata.wordpress.com/tag/forms-of-corruption/>) carry a higher risk of corruption. An increased number of outside teachers would thus likely have a beneficial effect on the institutions at a number of levels.

- 4.3. The student teacher ratio has increased over the last few years, which largely seems to be due to increased enrolment. The effect of this increase on teaching quality will need to be carefully monitored. In particular, as limited practical and hands on training in animal science related disciplines (particularly limited opportunity for students to gain hands on experience with live animals) were observed, it is important to assess whether less favorable teacher-student ratios may interfere with the ability of the faculty to provide more hands on training, particularly in animal science.
- 4.4. While the student full time ratio appears to be appropriate, it is not clear whether the Faculty management has attempted to define the optimal ratio in the context of its study programs.
- 4.5. While some courses on mentoring and teaching are available for teachers, the availability of additional courses on teaching and pedagogy could facilitate improved training of teachers. In particular, it would be helpful if poor assessment of teaching for a specific teacher could be linked to a requirement for continuing education in teaching and teaching methods; this would seem to be particularly important as older teachers appear to be less likely to receive formal training in teaching.
- 4.6. There appears to be limited assessment of teaching above and beyond simple standard student questionnaires. We thus recommend implementation of a peer review system for teaching to provide for better assessment of teaching qualifications and performance.
- 4.7. No formal procedures for assigning teaching workloads appear to be laid out.
- 4.8. It is unclear how the institution assures that teachers hold a substantial commitment to teaching and research and how the institution assures that these commitments are not compromised by external interests.

5. Scientific and professional activity

- 5.1. The Faculty of Agriculture has a large number of departments and is thus active in numerous agricultural research areas. The members of the faculty are producing a remarkable scientific output with papers appearing in high impact journals such as Nature Genetics and in different Q1 journals in agricultural sciences fields. This ensures high international visibility and is in line with the strategic faculty goals of excellence in scientific research and scientific leadership in the SE Europe region. While the institution has very clear statements and targets on quality research, the monitoring and evaluating of success indicators is only partly implemented.
- 5.2. The Faculty of Agriculture has a strategic programme of scientific research which is focusing on cooperation both domestically and internationally. The faculty has defined nine priority areas of scientific activity, in which cooperation with the industry and with other scientific organisations appears important because of the complex nature of the topics and the interdisciplinary approaches needed.
- 5.3. Apart from teaching, the faculty is fully acknowledging scientific research as the major component of its overall activity. This is particularly evidenced by the faculty's strategic goal of leadership in the field of agriculture in SE Europe.
- 5.4. The faculty has installed a number of policies to support young researchers which comprise increasing the PhD applications, mentor workshops, international PhD co-mentorship, prizes for excellence in scientific publishing or support for international activities. Apart from that, providing well-equipped laboratories and other research facilities such as agricultural experimental stations with appropriate mechanization are considered important prerequisites for the advancement of young scientists. These supporting policies appear particularly important, as young researchers also have a significant teaching workload which might be preventing in the development of individual research skills.
- 5.5. While scientific excellence is a major strategic goal and excellence is immanent throughout the faculty, the institution has also developed incentives for high quality publishing such as prizes for the best two scientists. Given the size of the institution, awards for a larger number of researchers should be provided towards a broader stimulation of research excellence on the overall level of the faculty.
- 5.6. The faculty is clearly encouraging academic publishing as evident from the policies mentioned before. The faculty is also the publisher of two open-access peer-reviewed journals in the general agricultural field. These journals are indexed in different databases, but they are not in the WoS list of journals and do not have an impact factor. These journals are undoubtedly important for publishing results of regional

relevance and applied research topics. However, in some cases they might prevent authors from publishing interesting research in higher quality journals with an impact factor.

- 5.7. The faculty keeps well track of its scientific productivity in different ways. In particular, the faculty's annual report has a focus on scientific output and is useful for systematically monitoring and measuring output for a period of over 90 years.
- 5.8. The faculty is involved in various locally funded professional projects and activities which is ensuring knowledge transfer and has a significant economic impact in the agricultural sector. Many of these projects are addressing common problems of the agricultural sector, while others are very specific either to Croatian conditions or to Mediterranean agriculture. Transferring such professional projects into scientific projects, in particular with respect to Mediterranean agriculture appears as an opportunity and strategic advantage of the Faculty of Agriculture at the University of Zagreb as compared to central European universities.

6. International cooperation and mobility

- 6.1. The faculty mostly implemented measures that facilitate and promote mobility of students from other higher education institutions. This is specifically true for students coming from other study programmes and universities within Croatia. There are however language barriers for students coming from outside of Croatia, as implementation of a full study programme in English has not yet been accomplished. Development of English study programmes with specialised courses having the potential to attract students coming from Mediterranean countries (such as viticulture, agroecology and tourism) is highly recommended.
- 6.2. Students have the opportunity to complete some portion of their programme abroad. This is used by some students and should be further developed, providing stipends and support. The institution has already signed a number of contracts with other national and international universities that could be used for this kind of collaboration. Students with international experience will be more competitive for national and international employment. International projects (mainly European) should be used for postgraduate student exchange.
- 6.3. The faculty mostly encourages international cooperation and mobility of its teachers. There are clear strategic goals for this. However, there seem to be some restrictions in that teachers do not have sufficient time and flexibility to go abroad as their teaching commitment at the institution is a limitation for this. This concern

was expressed by some of the teachers. Another problem relates to language problems. This is more obvious for some of the older teachers. Visits from outgoing and incoming teachers seem to be rather short and restricted to single lectures within conferences or project meetings given at the host university. The faculty should provide additional support to allow longer visits (e.g. teaching for one semester) for outgoing and incoming teachers.

- 6.4. The faculty is involved in international associations of similar institutions contributing actively to joint goals. These network contacts should be further developed and used for partnerships within international projects, and not only restricted to activities such as the organisation of conferences and participation at seminars.
- 6.5. The faculty has not sufficiently ensured conditions for attracting students from abroad. This relates to language barriers and a lack of international study programmes as already mentioned under 6.1. There is a potential for increasing attractiveness by providing programmes that specifically target problems of the Mediterranean region. This could be developed in collaboration with other Croatian institutions of higher education.
- 6.6. The faculty has developed a number of international cooperations through EU Lifelong learning programme, Erasmus programme, European projects and bilateral agreements. Thirty four Erasmus agreements were signed during the last three years. Compared to that relatively high number of agreements, the number of exchange students for long-term visits (one semester or longer) is very low. Again this has to do with the lack of international programmes. Activities such as the participation in the Tempus project "International Joint Master Degree in Plant Medicine" should be further encouraged for other disciplines. The faculty seems to be aware of the strengths' and weaknesses for their future international activity as shown by their SWOT analysis. The International Relations Office has and should increase their efforts for competent support of international exchange and assist researchers for project application and management, mainly for EU funds.

7. Resources: administration, space, equipment and finances

- 7.1. While in some areas, appropriate resources are provided for students, in other areas that appears not necessarily to be the case. A specific additional concern is represented by the limited student opportunities for practical work with live animals. While we are well aware of the specific challenges with offering

opportunities for practical work to all students, we encourage the Faculty to pursue innovative approaches to enhance the opportunities for students to gain experience with live animals. For example, we found that faculty have developed a course that collaborates with a local private riding club in close proximity to the Faculty to offer students the opportunity to work with live horses. Initiatives like this are an excellent example, how innovative approaches can be used to facilitate student learning.

- 7.2. Appropriate non-teaching staff seems to be employed.
- 7.3. There may be some opportunity for offering some training in teaching and pedagogy to non-teaching staff to facilitate their ability to interact with students (even if their primary mission is not teaching). Otherwise appropriate training seems to be provided to non-teaching staff.
- 7.4. While some laboratory equipment and protocols are aligned with international standards, others seem to be lacking (e.g., the animal nutrition lab).
- 7.5. As noted under 7.4., for some areas the equipment provided does not allow for use of current technologies. Considering the challenging fiscal climate, the Faculty is encouraged though to focus their efforts to provide current technologies and support in specific strategic areas rather than trying to provide support for all areas.
- 7.6. The library is open for users on work days (except Saturday) from 7:30-16:00. Downsides of the library are the lack of space, equipment level and the computerization level. The number of books, textbooks, and especially foreign journal titles corresponds to the library status as the parent state library of the agriculture profession.
- 7.7. In accordance with the Law on the Budget, and the Law on the Execution of State Budget for Science and Higher Education, the competent ministry supervises the use of income of science and higher education institutions, which they as users of the budget funds achieve on the market. The budget income makes up around 84% of the total income, while the income from Faculty's activity makes up 12.4 to 13.7% of total income. We recommend strategic controlling of the money flow.
- 7.8. For the operating costs and development needs of the Faculty, the following is allocated from Faculty's income:
 - from regular scientific projects of the Ministry of Science, Education and Sports (MSES) 8% of the total project income

- from other MSES projects, the projects of the Ministry of Agriculture, as well as other ministry projects 10% of total project income
- from the cooperation projects with the economy, local government and self-government and other professional activities 15% of total income
- from tuition for postgraduate studies 40% of total income.

FINAL REPORT AND RECOMMENDATIONS BY THE EXPERT PANEL FOR THE ACCREDITATION COUNCIL

ADVANTAGES (STRONG POINTS)

- implementation of e-learning system
- establishment of Faculty of Agriculture Foundation which encourages excellence by handing out scholarships, grants and awards to students and young scientists
- internationalization of existing study programmes
- establishment of a Centre for Professional Studies and Lifelong Education

DISADVANTAGES (WEAK POINTS)

- There are limited opportunities for students to acquire and improve their English language skills and very few if any classes at the BS or Masters levels seem to be currently taught in English. While some plans to address this seem to be in place, the Faculty should develop and implement more ambitious plans to improve English instruction, including at the undergraduate level.
- While the Faculty of Agriculture often appears to have appropriate goals for their program, these goals are rarely quantified and often there are no mechanisms in place to assure that strategies are implemented to facilitate achievement of the stated goals.
- While the Faculty of Agriculture appears to have good industry relationships, including a number of professional projects funded by industry, the relationship with industry and strategic planning could be strengthened further by implementing a formal industry advisory council with a charter that includes a requirement for regular council meetings with FAGR teachers, assistants and students.
- The Faculty of Agriculture does not have strong formal procedures in place for systematically monitoring ethical student behavior. For example, there is no

record keeping that would determine whether students repeatedly show inappropriate behavior across classes (e.g., cheating, plagiarism). It is essential that this issue is addressed and that formal procedures are put in place to assure that students that cheat across different classes and multiple times are ultimately removed from the program.

- There seem to be concerns by at least some students that they and their concerns are not always taken seriously by teachers and management. This is not necessarily true for all students, but appears to be an issue for at least some. For example, students feel that their complaints and concerns about teachers may often not be effectively addressed and they feel that communication of how concerns are addressed is often missing. Unfortunately, our review of attendance of students at the Faculty Council meetings seems to support a certain level of dis-enfranchisement between student and other member of the faculty as supported but typically poor attendance of these meetings by the elected student representatives.
- unequable workload of teachers
- short term mobility of young scientists and teachers
- disproportion of ECTS scores and workload of students
- limited number of lecture halls, lack of student laboratories specifically equipped
- lack of highly sophisticated equipment required for innovative research
- overlapping between optional courses
- students are not informed about the results of students surveys and they are not involved in decision making processes
- no alumni association is installed, so students don't have information about employability and working opportunities
- evaluation of internship is not formal and some students get signature without working
- students are not introduced with the formal strategy of appeal and we found apparent irregularities at exams (as exceptions)

RECOMMENDATIONS FOR IMPROVEMENT OF QUALITY

1. Management of the Higher Education Institution and Quality Assurance

- The faculty of Agriculture faces considerable current challenges, as do academic institutions throughout the world. In the Faculty of Agriculture, there does not seem to be an effective mechanism to facilitate difficult decisions, e.g., closing of field stations, consolidation of departments, denial of employment beyond age of 65, etc. There may be some opportunities for more effective decision making and implementation of new strategic initiatives. For example, the faculty may consider a request to the ministry to be allowed to develop a model system to hire a „professional“ dean with a pro-longed term that is willing to implement difficult and truly strategic decisions (we heard at least once that administration may be unwilling to make difficult decisions as he/she would create enemies for himself/herself).
- We recommend that the faculty is given greater freedom to operate the field facilities, including freedom to rent out facilities to commercial partners, which would support costs of running these facilities. Our interviews suggested that the faculty of agriculture inquired about these possibilities in the past and was told by the University of Zagreb that such arrangements were not possible.
- We suggest that the Faculty of Agriculture implement more formal accounting procedures for their field stations to truly assess the relative costs for relevant activities. For example, for some field stations the cost per hour of practical student engagement could be calculated, which would, in the long term, facilitate more informed decision making about the optimal management of these facilities

2. Study Programmes

- External stakeholders (a.g. from alumni group) could be included as advisors in boards for improvement and innovation of study programmes.
- More specific learning outcomes should be defined on the level of individual courses.
- For some individual courses, facilities and equipment should be upgraded for better laboratory excercises.

- Improvement of quality of external internships with better recognition of the internship (e.g. in a post-internship seminar)

3. Students

- to establish disciplinary measures for students who cheat on exams
- to provide more courses on English because it's necessary to attract students from abroad
- to formulate stringent criteria for the enrollment
- to keep contact with alumni and gather information about employment to see whether there is a need for reduction of enrolment quotas
- to solve disproportion of ECTS scores and workload of students
- to provide more oral exams because students leave the Faculty with a lack of ability to express themselves as highly educated persons
- to provide more practical work / exercises
- to organize meetings to inform students about the results of surveys and all the information regarding the Faculty work to reduce or organise better study programmes and courses – we noticed some overlapping
- to provide more information on mobility, working opportunities and employability
- to improve organization of exams (e.g. to prevent a situation such as: 6 exams take place in 2 days)
- to establish mechanisms for fair and independent exams
- to introduce students with mechanisms of appeal
- to provide the same quality of teaching in Zagreb and in Split (Mediterranean Agriculture)

4. Teachers

- More efforts should be made to recruit teachers with longer training outside Faculty of Agriculture and preferably outside Croatia, as this may facilitate introduction of new ideas and approaches in teaching and research.

5. Scientific and Professional Activity

- It is recommended that the Faculty be given freedom to reward successful researchers and in particular those that successfully compete for grants and external funding. For example, these researchers may be given teaching relief to reward them for their research success.
- There appear to be no effective mechanisms to deal with faculty that show low or limited research productivity. This should be addressed in the future.
- A monitoring procedure to quantify success and quality in the scientific activities through defined success indicators should be implemented.
- The faculty's policy of awards for research quality and excellence should be intensified.
- Addressing topics of Mediterranean agriculture as a strategic research advantage of the University of Zagreb as compared to Central European universities.

6. International Cooperation and Mobility

- Development of study programmes that are taught in English, with specialised courses having the potential to attract foreign students, particularly from Mediterranean countries.
- Strengthening the International Relations Office at the faculty
- Supporting faculty members for longer visits for teaching and research at foreign institutions.

7.Resources, Administration, Space, Equipment and Finance

- To provide better equipment in laboratories and practicums for teaching
- To provide infrastructure and the highly sophisticated equipment required for innovative research