

**European Association of Establishments for Veterinary Education
and the Federation of Veterinarians of Europe
European System of Evaluation of Veterinary Training**

**REPORT ON THE STAGE 1 VISIT TO THE FACULTY OF
VETERINARY MEDICINE, UNIVERSITY OF PISA, ITALY**

30TH NOVEMBER to 4TH DECEMBER 2009

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INTRODUCTION

In 1999, the first EAEVE/FVE Evaluation Visitation of the Veterinary Faculty of the University of Pisa, Italy (FVMP) was made. Since then, many of the suggestions made in the Report have been enacted. The main changes over the last 10 years can be listed as follows:

1. Activation of the facilities at the Department of Veterinary Clinics (2000)
2. Completion of the Department of Veterinary Clinics, Veterinary Teaching Hospital (VTH) and the small and large animal kennels, wards and stables (Winter 2009)
3. Hiring of new young teaching staff
4. Introduction of the new course structure for the Degree in Veterinary Medicine
5. Greater commitment to Continuing Professional Development
6. Expansion and enhancement of relations with local stakeholders
7. Planning for the complete transfer of the FVMP to the new location in San Piero a Grado

Full details of these changes can be found on pages 1-9 of the SER.

In 2003, a revisit was made by the chairman and coordinator of the EAEVE/FVE Team in which it was concluded that not all problem areas had been resolved. See pages 10-14 of the SER.

From 30 November to 04 December 2009, a new full EAEVE/FVE Evaluation Visitation was made with a new Visiting Team of Experts.

The FVMP had prepared a very thorough Self Evaluation Report (SER), which was of great assistance to the Team and the Visitation Schedule was planned and realized efficiently.

1. OBJECTIVES & STRATEGY

1.1 Findings

The Objectives of the FVMP are complex in their entirety, but in simple terms are divided between 3 Mission Groups:

Mission Group 1: The first Objective of the FVMP is to provide and properly run the Veterinary Medicine Degree Course. (For thorough details see pages 17-19 of the SER)

Mission Group 2: The second Objective of the FVMP is to develop both basic and applied knowledge in the field of Veterinary Sciences, providing teachers, postgraduate students, other research fellows and undergraduate students with an appropriate environment to undertake serious research and to expand their research capabilities. (Details see Chapter 13 of the SER).

Mission Group 3: The third Objective of the FVMP is to provide excellent programmes for the period following on the Undergraduate Degree in terms of Postgraduate Education including Specialization and Continuing Professional Development. (Details see pages 20-30 of the SER)

In addition a Teaching Staff Quality Assessment is currently based upon scientific publications and a University Assessment System by Students organized through the FVMP but processed by the University.

1.2 Comments

The Mission Statements and the Objectives as set down in pages 1-30 of the SER are very complex and detailed and are more like an Operating Plan. This is not incorrect, but difficult to interpret in a brief overview.

1.3 Suggestions

1.3.1 It is suggested that one overall Mission Statement should be developed, followed by a few Main Objectives for the FVMP.

1.3.2 Although the Student Assessment procedure is in place, there is room for improvement and a transparent action plan based upon the results processed by the University should be developed to improve real participation.

2 ORGANISATION

2.1 Findings

The University of Pisa is one of the 70 Universities financed by the Ministry of Education and Research (MIUR) in Italy. For completeness, there are additionally 5 privately financed Universities.

The University has:

- 11 Faculties not situated on a campus, but scattered in and around the city of Pisa,
- A Rector and Vice Rector,
- A Council of Administration,
- An Academic Senate,
- A Students' Council.

The **Faculty of Veterinary Medicine** is situated on 2 Sites and offers 4 Courses:

1. Degree in Veterinary Medicine
2. Degree in Sciences and Technologies of Animal Production (first level)
3. Degree in Sciences and Technologies of Animal Production (second level)
4. Degree in Canine Breeding, Techniques and Training (first level).

The FVMP has:

A Dean and Vice Dean
A Faculty Council
A Faculty Executive Committee
A Faculty Teaching Committee
3 Degree Course Councils
Councils of the Specialization Schools

Full details of these structures can be found on pages 34-41 of the SER.

2.2 Comments

- Considerable improvements are expected from the ultimate move of the whole Faculty to San Piero a Grado. Phase 2 is currently being completed which is the move of the Clinics Department

2.3 Suggestions

- 2.3.1 It is essential that Phase 3 of the San Piero a Grado Site be commenced and completed as planned as soon as possible, in order to create a Veterinary Faculty Campus, which will bring significant physical, psychological and social benefits.**

3. FINANCES

3.1 Findings

The University is classically financed by the Italian Ministry of Education, University and Research.

The Faculty /Departments receive € 9.336 million from the State via the University (see Table 3.1.1.c page 45 SER) and other non-salary income of € 3.154 million (see Table 3.1.1.e page 46 SER).

The budget assigned to the University and passed on to the Faculty/Departments of approximately € 9.3 million is totally spent on salaries and benefits and further expenditure on establishment costs, teaching costs, research, building maintenance and misc. expenses total € 2.084 million. Breakdown can be seen in Table 3.1.2.a on page 46 of the SER.

The University subsidizes all maintenance and services costs.

The detailed financial data are contained in pages 44-51 SER.

Significant capital investment has been made by the University in building phases 1 and 2 of the new facilities, soon to be then Veterinary Faculty Campus, in San Piero a Grado, but at the time of the visitation, the financing of Stage 3 had not been secured by the University.

3.2 Comments

- The budget given by the State via the University leaves no room for either additional or often replacement personnel and the additional running costs for the Faculty assigned by the University are inadequate and do not take notice of the fact that the training of a veterinarian is one of the most expensive across the board in terms of facilities necessary and teaching intensity.
- There is a borderline situation where the number of Teaching Staff is concerned.
- There is a significant shortage of Support Staff in most areas of operation in the Faculty, but particularly in laboratories and research facilities, where postgraduate students and research fellows often have to perform support staff tasks, a situation which is a waste of precious teaching and research staff time.
- A full costing of the Faculty cannot realistically be made since the University partially subsidizes the maintenance and services costs for the Faculty.
- It is essential that the planned Stage 3 of the development at San Piero a Grado be completed as soon as possible in order to solve many of the limitations of the older town site.

3.3 Suggestions

- 3.3.1 Representations must be made to the National Government with the urgent request to review the actual and future needs for veterinarians both at national and regional levels and to seriously consider a decrease in the number of Veterinary Faculties.**
- 3.3.2 The case should be made by the Faculty to the University, that the cost of training a veterinary graduate is higher than many other degree courses and that this should be reflected in the budget assigned.**
- 3.3.3 A thorough review should be made of the adequacy of the number of teaching staff.**
- 3.3.4 Urgent measures should be taken to resolve the deficiency of Support Staff.**
- 3.3.5 It is of prime importance that the planned Stage 3 of the San Piero a Grado site/campus be started and completed as soon as possible in order to resolve the problems associated with the old town site and facilities.**

4. CURRICULUM

4.1 GENERAL ASPECTS

4.1.1 Findings

A national curriculum fixed by law allows faculties some flexibility which leads to variation amongst Italian schools. Within each class, the Council of Degree Course (CDC) distributes the hours amongst the “modules” (which are the elementary components of the different classes), in accordance with the educational aims of the Degree Course. Proposals for curricular modifications must be approved by the Academic Senate, and finally by the Ministry. Every year, the teaching plan of the Degree Course must also be approved by the Faculty and then by the Academic Senate. Prior to the beginning of each academic year and whenever deemed necessary, the CDC, in consultation and cooperation with the teaching staff and the Degree Course Teaching Committee, establishes the organisation of the classes.

In the same way, the CDC has control of the calendar of the lessons and decides on the balance ratio between theoretical and practical teaching, within the limits dictated by law. However, teachers have a large autonomy in modifying this ratio.

Recently, some changes increasing the proportion of basic subject were introduced by the Ministry. Discrepancies between the European and specific Italian terminology were clarified and corrected during the visit. So that new (corrected) figures and indicators (ratios) attached as “corrections” to the original report now describe the existing situation, including classifications of “practical” and or “clinical” work.

No structured tracking system is organized within the curriculum.

4.1.2 Comments

- The Team welcomed the increase of “hands-on” activity in the final year of the undergraduate course. On the other hand, changes introduced recently especially with regards to the local Italian credit system, led to an increase in basic subjects, which contravene the ratios monitored by EAEVE.

- Sometimes there is more theoretical (direct) teaching than necessary; less emphasis has been put on self-learning (see below as for specific fields).
- There are some formal gaps in the curriculum - some topics are covered in other subjects than listed by the EU directive, but some substantially reduced: herd health management, preventive veterinary medicine has other content than it is usually understood; agricultural economics (see below); an integrative concept is missing in Animal Production and Clinics.
- The system of electives is not well organized and it is not in fact a tracking system with clearly declared objectives.
- There is a lack of really efficient cooperation and integration between subjects, modules, especially preclinical and clinical. A better collaboration between different teaching units at various levels would be beneficial for the faculty and especially for students.

4.1.3 Suggestions

4.1.3.1 Proportions between theory and practice and between direct teaching and self learning should be improved. The proportions between basic, preclinical and clinical subjects should be optimized, although necessarily within the limits of the national system.

4.1.3.2 The curriculum should reflect the modern integrative concepts of herd health management and preventive veterinary medicine in the new sense of the word. The corresponding topics should appear in the curriculum and syllabi.

4.1.3.3 Specific teaching objectives should be formulated so that the course is structured in relation to the current needs of the profession by the introduction of “tracking” into the clinical years.

4.1.3.4. Better integration between programmes of various courses, and groups of subjects, often teaching the same topics, should be implemented. The role of the CDC in this process should be essential.

4.2 BASIC SUBJECTS & SCIENCES

4.2.1 Findings

The curriculum hours in the basic subjects taught in the FVMP form part of the internal curriculum of veterinary students and are shown in the SER Tables 4.1.4.1.c, d, e, f and g. The number of hours divided across the “EC” subjects is shown in Table 4.1.4.I, page 62 of the SER. Some basic subjects and basic sciences mentioned in the EU Directive and the SOP are taught as independent subjects or parts of other subjects as is the case of Biomathematics that is taught jointly with Physics, and Professional Ethics whose contents are taught in various other professional subjects (Clinical, Animal production, Food Hygiene and Public Health subjects). Overall, the hours taught in basic subjects and basic sciences amount to 1,292.

Up to 48% of incoming students fail the admission test performed by the Faculty to verify their knowledge in Mathematics, Physics, Chemistry and Biology. To homogenize the students’ background, those failing the test are obliged to attend a “bridging course” in Mathematics, Physics, Chemistry and Biology during the first weeks of the 1st semester.

Several teachers of the basic subjects are not veterinary surgeons although their degree falls in the field of health sciences (Animal production, Physicians, Biologists, and Pharmacists). The basic subjects are well coordinated to avoid overlapping or gaps in their contents and are truly focused on covering Veterinary Medicine fundamentals as was recognized by students and professors of later professional courses.

The content of the basic subjects and the number of lectures is sufficient and generally the same as at other veterinary faculties. Anyway, the proportion of theoretical and practical classes should be better balanced by increasing practices. Also, in morphological subjects (Anatomy, Histology, and Embryology) students attend the Microscopy room for 30 extra hours working by themselves with the slides set under the microscope, without any recognition of these hours in their Diploma; these hours should be better used for standard supervised practices with the professor with a proportional decrease in lectures.

The groups at the practices are large (20-30 students per group) but well assisted with 1 professor, 1 technician and 1-2 PhD students to attend the students so, finally they all have access to hands-on supervised work in the laboratories and in the dissection room.

The number of the teaching and support staff at the departments teaching basic subjects is generally low.

4.2.2 Comments

- The basic sciences are taught with an emphasis on lectures usually accompanied with lecture notes. Although the teachers' advice against the students relying on notes provided, recommending e-learning and more updated methodologies, the greater percentage do seem to rely on the notes with a poor use of books, especially in the English language.
- The number of the support staff at the Departments teaching basic subjects is generally low; teachers have to carry out the work of technicians.

4.2.3 Suggestions

4.2.3.1 Increase practical classes and proportional decrease of lectures, especially in those subjects with none (Mathematics and Physics, Biochemistry, Molecular Biology) or very few hours of practices (Anatomy, Histology, Physiology, Pharmacology and Chemotherapy).

4.2.3.2 Avoid the translation into Italian of working manuals and/or books for the students by the professors and increase supervised problem based learning in basic sciences to force the use of books by the students.

4.2.3.3 The number of the teaching and support staff in the Departments teaching basic subjects and basic sciences should be increased.

4.3 ANIMAL PRODUCTION

4.3.1 Findings

The curriculum hours in the animal production subjects taught are shown in the SER Tables 4.1.4.1.c, d, e, f and g. The number of hours divided across the "EC" subjects is shown in Table 4.1.4.I, page 62 of the SER. Some subjects required explicitly by the EU Directive and

the SOP are not taught as independent subjects but they are covered in other subjects. Especially Animal Hygiene is fully covered in various subjects. Agricultural economics are not taught and are only partly covered, focused on financial management of veterinary practice.

Animal nutrition is veterinary-oriented, while other subjects are much less. All subjects are mainly taught by non-veterinarians (animal production engineers and/or biologists). In total, 5 veterinarians are involved in Animal Production teaching. Teaching load of some researchers seems to be very high. The subject contents (syllabi) are available in Italian on the Faculty's website. In general, they are complete in terms of crucial topics and species coverage. In Animal Husbandry, small companion animals are not taught.

Two farms are extensively used for teaching purposes and allow the students to do practical work. Students are taught to handle various species of domestic animals, although it varies among subjects. In animal breeding, only demonstrations are used as teaching methods, while in Animal Husbandry and/or Poultry and Rabbit production basic practical approaches are taught.

The numbers of hours are not distributed equally among the subjects. A relatively smaller proportion is devoted to Animal Breeding. Agronomy is taught extensively and fully covers the crucial topics. Most subjects put emphasis on practical teaching: beside demonstrations, deskwork, lab work and extramural visits are organized. Practical examinations make part of some topics. In Ethology practical training is based exclusively on the supervised study of videos with no interaction with animals.

4.3.2 Comments

- Animal Production is well taught, but there is a gap in Agricultural Economics. The balance between theory and practice appears to be rational; the level of knowledge assessment (credits, examinations) is generally good.
- The Faculty Farm is an essential element in veterinary teaching and the Team believes that it needs greater investment and more attention to farm maintenance for increasing both the usability for teaching purposes and increasing the productivity.
- For all subjects in Animal Production, their veterinary orientation and context is extremely important for veterinary students.
- Complete species coverage in all subjects is very useful for students' motivation.
- There is a lack of coordination/collaboration/integration between the Department of Animal Production and the clinics, so no herd health management involving reproduction, nutrition, population medicine, husbandry and animal breeding is taught as an integrated concept.

4.3.3 Suggestions

4.3.3.1 The gap in Agricultural Economics must be corrected immediately.

4.3.3.2 Greater investment in the farm should be envisaged and more attention to its maintenance should be paid.

4.3.3.3 More attention should be paid to veterinary orientation of most of the Animal Production subjects

4.3.3.4 In all subjects, especially in Animal Breeding, teaching should cover all domestic animal species. For the sake of shortage of time, it is recommended to use more extensively self-learning approaches. To allow students to discriminate normal from pathological animal behaviour, practicals in Ethology should be performed in close contact with live animals in the clinical facilities, production units and experimental farm of the University.

4.3.3.5 It is absolutely essential that an integrated herd-health concept be developed. Inadequate contact and better collaboration with the Clinics, should be rectified immediately.

4.4 CLINICAL SCIENCES

4.4.1 Findings

Since the opening of the new premises in San Piero a Grado, a compulsory Small Animal emergency service has been run with the help of external contracted vets, selected by public competition... There is also an on-call emergency service for equine. It is not clear how students can be associated with it.

For the time being, there is no mobile clinic. The Faculty gives two main reasons for that: the fear of competition from private practitioners, and the fact that in Tuscany, the number of cattle is very low. Some large animal teachers, however, take students on their way to the farm or any kind of external work, when it is possible to organize it (and when students are present in the Large Animal (LA) rotation at that time). On the other hand, the Faculty accepts the fact, that most students are not interested in LA, and that the few who are, will complete the practical teaching with *ad hoc* elective in LA practice.

There are in fact no organized extramural programmes. The practitioners met, said, however, that they would like to take students in a more "official" way in their clinics.

With respect to the question if allocated hours are adequate and in balance with the curriculum, the visitors noticed with great respect that the teachers try to train the students towards the omni-competent veterinarian, thereby confronting the students with approaches and techniques in several domestic species. However, the confrontation with some species (cattle, sheep, and pigs) is limited and overall in this short rotation period the clinical exposure is limited with few possibilities for case responsibility.

An important aspect of clinical training is teaching the students about mechanisms of disease, i.e., patho-physiology. This is done in some disciplines but can be further improved with the creation of integrated courses in patho-physiology. For this purpose the teachers from the clinics, basic sciences and clinical sciences can sit together to make a syllabus on patho-physiology on respiration for example. Committees in other composition could then make syllabi on subjects such patho-physiology of circulation, hormones, etc. Thus bridges could be formed between clinics, basic sciences and clinical sciences.

The lack of integration and even coordination is also illustrated by the absence of a pharmacologist during the Vet therapeutics lectures in the 4th year.

In the current final year programme there are 8 weeks of clinical rotations (2 weeks small animal medicine, 1 week equine medicine, 1 week surgery, 1 week anaesthesia, 1 week diagnostic imaging, i.e., X-ray and ultrasonography, and 1 week large animal reproduction, 1 week small animal reproduction). There is no seeing practice to increase the clinical exposure. There is no mobile clinic. The rotation does not seem to include the areas of small mammals, birds, and "zoo medicine" (reptiles, amphibians).

For the practical teaching, the case load is generally speaking not sufficient for teaching the whole scope of medicine / surgery. About half of the about 4,500 cats and dogs are first opinion cases, including vaccination. Due to the lack of true “sub-specialities” (partially covered by external vets) the practical teaching remains very basic.

A great effort was made to structure the practical teaching with the help of a log-book, which has been in use since November 2009. The practical requirements represent a good basis for future clinical practice. Care should be given, that all students are able to fulfil the requirements in the Faculty, or to create opportunities to do so in a controlled manner (for instance during structured extramural and / or seeing practice in bovine or equine medicine). Teaching objectives need to be formulated.

The visitors were impressed by the highly motivated staff that is doing a tremendous job by making the maximum with a limited number of people and hindered by (for the time being) working on two locations.

The number of staff members in the clinic is too small to provide clinical training with sufficient depths. For example there are no (board certified) radiologists to provide modern diagnostic imaging with computed tomography and/or magnetic resonance imaging. It may also be very difficult, if not impossible, to provide adequate service in an intensive care unit.

As far as the opportunities offered for each student to handle parturitions, dystocias, displaced abomasums, traumatic reticulitis, milk fever, acetonaemia is concerned, considerable efforts are made by the teachers to cover these topics with good teaching material, but the Faculty does not consider the teaching of individual Bovine Medicine as possible in the Tuscany. Some teachers even feel that it is not necessary because of the small number of bovines in Tuscany.

It is believed that students are able to perform *an* ovaro-hysterectomy on a cat alone. It is partly done in the Faculty, partly in the city shelter.

The visitors were impressed by the facility for stray dogs which offers a great opportunity for teaching the students surgical procedures such as castration and ovaro-hysterectomy.

4.4.2 Comments

- Professions such as human medicine and veterinary medicine have made great progress by applying principles of natural sciences. In this context it is unacceptable that students are confronted with homeopathy and acupuncture, techniques that definitely have been demonstrated to be ineffective.
- Student participation in the clinics is hampered by the rule that students are allowed to work only for a period of 5 hours in one day. They are regarded as non-paid employees.

4.4.3 Suggestions

4.4.3.1 With the move to the new clinics and the current 5th year program there are opportunities to gear the curriculum towards the developments in the practice of veterinary medicine:

- **The objectives of the core curriculum and the tracks need to be defined.**
- **Once these objectives have been defined further top-down formulation of objectives can be accomplished in the years 1 – 4. This process may also make clear whether in some subjects in the early years the number of lectures can be reduced or has to be increased.**

- **It may very well be that once the objectives have been formulated the Faculty cannot provide all required teaching. In those situations students can be sent to selected practices or other Faculties, or alternatively teachers from elsewhere can be recruited.**

4.4.3.2 By adopting the philosophy of a core curriculum and structured tracks the students can stay longer with the area of their choice. In addition it is an alleviation for the teachers because no longer all information and skills have to be delivered to all students. The quality of the clinical training may be further improved by introducing with more emphasis the use of the problem-oriented medical record.

4.4.3.3 The visitors welcomed the concept of the students having to prepare a thesis. It is very positive that the students are confronted with research by doing some research themselves. The strength of this aspect may be further improved by aiming in these projects (in principal) at a report in the format of a publication. Some of these reports then could be published with the supervisors as co-authors.

4.4.3.4 Organize extramural courses in bovine medicine and surgery, eventually as part of the 20% “tracking” that is allowed by the Directive.

4.4.3.5 Due to the low caseload in some disciplines, the Faculty should consider a higher “tracking” (about 10 % now, vs up to 20% allowed in the directive).

4.5 FOOD HYGIENE & TECHNOLOGY AND VETERINARY PUBLIC HEALTH

4.5.1 Findings

The hours listed for theory, practical, and the arrangements for extramural training appear satisfactory. Underlying principles are taught in other courses, e.g. PCR taught in Genetics and Endocrinology in the first year, then repeated again in Infectious Diseases, and practical application is covered in Food Hygiene, students acknowledge that the subject is worthy of repetition..

Postmortem inspection of poultry is taught in Avian Pathology; students gain hands on experience during their extramural training.

Welfare requirements for transport etc are covered in legal teaching.

For group visits, a hired bus takes 50 students, any extra go by car, divided into small groups about 12, with extra vets from Sanitary Unit (SU) to assist by prior arrangement.

One visit each in the 4th year to beef, poultry, pig, milk, cheese, fish plants, about 5 hrs duration, records now kept of attendance, & if missed have opportunity to attend in year 5. During the 5th year 4 visits of about 5 hrs to processing plants (cheese, 2 meat, fish) are made. An internal tutor is present at all times during these visits.

The slaughterhouse practical training is given by an Official Veterinarian (OV) from the SU as above, + OVs invited as guest lecturers during theory classes/career advice.

Food Hygiene Department has a very good relationship with SU & Plant management Fish & poultry plants were good, with good viewing corridors.

Opportunity to participate in *Trichinella* testing plus good range of case material on computer record in the pig slaughterhouse in the Official Veterinarian's office, available to students.

4.5.2 Comments

- During the slaughterhouse visits, some examples of poor personal hygiene were observed, no hand/boot washing on entry, some inspection not carried out in accordance with EC regulations (bovine green offal not inspected), poor level of staining of SRM not corrected, cross contamination at evisceration evident in beef & pig lines, some poor clean/dirty separation). It is disappointing that students may observe some substandard practices, which if not then corrected by SU vets may leave students with the impression that this is acceptable.
- Poultry visit with students very useful, much better standard of hygiene control demonstrated by SU & factory, good level of interaction with students.

4.5.3 Suggestion

4.5.3.1 The new regulation for the liability for the health & safety of students while on slaughterhouse visits should provide an opportunity for the FVMP to consider the introduction of basic personal hygiene and dress code protocols for the protection of students while on these visits.

4.5.3.2 Specific attention should be given to the possibility of hair/scarves/clothing hoods/earrings catching for instance in plant equipment such as moving poultry shackle tines, so that all hair should be covered, earrings removed, & protective clothing covers all other clothing.

4.5.3.3 Smoking before entering & on leaving the plants results in close hand/mouth contact, in addition to any other aspects of hand hygiene. If it is not practicable for all visitors to wash their hands at entry and exit, consideration should be given to providing students with hand sanitizers and emphasizing the importance of minimising the possibility of cross contamination.

4.6 ELECTIVES, OPTIONAL DISCIPLINES & OTHER SUBJECTS

4.6.1 Findings

In principle students can choose any elective of their preference, even if not directly related to veterinary medicine. In agreement with a recent Ministerial decree in the near future there will be less freedom of choice. Within this framework the FVMP is offering courses in a wide variety ($n \geq 20$) of subjects (chapter 4.1.5 of SER).

4.6.2 Comments

- It appears that in Tuscany veterinary medicine is practiced in three forms:
 - Health care of companion animals (majority)
 - Equine health care
 - Mixed practices seeing food animals and often also companion animals (minority). Several of these practitioners are gradually moving towards full time work in companion animals.

- This development is not reflected in the present curriculum. In the final year there are electives but they are not structured in three tracks. The departmental structure is also not species oriented. During one of the clinical presentations the clinical structure was presented as follows:
 - Internal Medicine
 - Surgery, including Anaesthesia and Diagnostic Imaging
 - Reproduction.

4.6.3 Suggestions

4.6.3.1 Replace the free electives by 3 programmed tracks for companion animals, equines, and food animals. (Also see 4.4)

5. TEACHING QUALITY & EVALUATION

5.1 TEACHING METHODOLOGY

5.1.1 Findings

This is a very student-oriented Faculty and during the visit the team experienced many enthusiastic teachers. Standard training in all subjects is organised with lectures and practices during the first 9 semesters. The last semester (10th) is lecture-free and students are obliged to complete the practical training inside and outside the Faculty following the so called “*tirocinio*” and to prepare and defend the Final Degree Thesis. *Tirocinio* is a full practical training of 30 UFCs (equivalent to ECTS credits) or 750 hours that students should perform in laboratories of Microbiology, Pathology, Parasitology, Clinical Medicine & Surgery, Animal Nutrition and Husbandry, at slaughterhouses, and food processing plants (see Other practical training inside and outside the Faculty in Table 4.1.4.m, page 64 of the SER). The Final Degree Thesis is also mandatory for all students and consists of a research work accounting for 15 UFCs or 375 hours. Both *Tirocinio* and Final Degree Thesis are supervised by the teachers.

The theoretical part of the study is dominated by lectures that are mostly taught aided by power point presentations. The teachers strongly warn the students not to use their course notes as a substitute for the specialised books and journals. In many courses, the teachers have published books especially for their subjects to ease the reading burden and expenses for books to the students.

Computer aided or based learning is widely used in teaching through the Faculty web site opened 4 years ago and operational from the last 2 years. Professors are obliged by the University to register their lessons in the *Unimap* intranet with free access to the students and the public in general (http://clara.vet.unipi.it/index.php?category=IA_MV); also, most of teachers, in a voluntary basis, sit their presentations in a pdf format, images, and self learning materials, etc in the Faculty intranet (<http://clara.vet.unipi.it/>) that are downloaded by the students to prepare own works. Anyway, problem oriented learning is not generally used. Self study also needs to be more encouraged in form of mandatory participation in blogs, resolution and presentation of clinical cases even in basic sciences.

Practical training is mandatory for the different subjects. Also, attendance at all lectures for a minimum of 70% of the hours is mandatory as a prerequisite to sit the examination. Practices usually begin with a short introduction by the teacher focusing on the procedures and fundamentals of the work that students have to perform with the control and help of the teachers.

Groups for practices varied in size and are well assisted by 1 professor with the help of 1 technician and 1-2 PhD students.

In general the students are happy with the teaching methodology at both the theoretical and the practical levels, especially in the clinical subjects and equine reproduction. In the first 3 years some students complained about the excessive amount of lectures in comparison with practicals.

The practicals are conducted in laboratories, clinics and in special institutions for this purpose (production units and Food Hygiene laboratory in "*Le Querciole*", experimental farm in "*Centro Avanzi*" or scheduled visits to slaughterhouses for example).

Although students know that the basic sciences and subjects are essential, some of them feel that their curriculum could reduce hours in these subjects to increase the training in professional subjects.

Students can receive personal tutoring via email and some departments such as Veterinary Clinics and Animal production offer discussion forums for students who are studying the subjects on different topics that may be of interest or specific clinical cases for teaching purposes.

All Departments at the Faculty have the doors open to students, who in his/her spare time want to collaborate in research activities as supplementary education.

Students can work directly in all the clinical services offered by the Faculty. In the small animal hospital students are present during the consultations, even in emergency service, and surgery at the Hospital and at the city's kennel. In large animal clinic there is a difference between the volume and quality of practices in horses and cattle. The horse clinic has good facilities and students are involved even in programmed embryo transfer; however students have limited practice in cattle.

Finally, once graduated, students may choose to follow internships in the Departments of Clinical Sciences at the University.

Student assessment of the quality of teaching is mandatory since the academic year 2002-03. They have to fill in a questionnaire and the results are used by the Ministry as a parameter to allocate funding to the Universities. Nevertheless, students' representatives think that teaching quality assessment is an empty exercise and no notice is taken of the students' feedback. Evaluation questionnaires and processing is explained in SER pages 109-113. Diagrams show a positive evaluation of the different courses by the students.

5.1.2 Comments

- The Faculty, besides having a dedicated and motivated academic staff needs to improve teaching quality and efficiency of the hours dedicated to teaching.
- Teaching is too focused on lectures instead of practices. To ensure enough hands-on training of students to acquire basic day-1 skills practices should be increased in all courses.
- It is supposed that the balance between lectures and practices should be decided by the Council of Degree Course but, in the practice, it is really decided autonomously by the professors. Also, the team noted that there are not specific learning objectives settled for the different subjects.

- Despite teachers warnings, course notes and manuals or books translated to Italian by the professors continue to be the most common information source used by the students.

5.1.3 Suggestions

5.1.3.1 Practices should be increased to a minimum of 30% of all teaching hours in the first 3 years and to 40-50% in the last two years.

5.1.3.2 Specific learning objectives should be settled for the different subjects with special emphasis in covering day-1 skills in clinical subjects.

5.1.3.3 Problem oriented teaching should be used to decrease theoretical training and to promote the use of important resources as books, journals and web-site available materials.

5.1.3.4 It is urgent to increase the volume and quality of hands on training of students in cattle clinic.

5.1.3.5 The Team recommends the Faculty to inform the students better about the importance and consequences of teaching quality assessment.

5.2 EXAMINATIONS

5.2.1 Findings

Oral examination is usually applied for most subjects. The Final grade is based in most subjects only in the oral examination; some subjects apply also written examinations as Biomathematics and Biophysics, Animal & Plant Biology, Anatomy, Ethology, Microbiology, Bacteriology, Virology, Epidemiology, Avian Pathology, General Pathology. Only a few subjects take into account practical work of the students, participation in E-learning and review of a topic.

At the beginning of each course the teachers propose the dates of the exams to be performed at the end of the first and second semester. In the exam schedule teachers also propose examination dates for students who work or are repeating the subjects (off-course students). The number of attempts is not primarily limited and students also can refuse the mark given by the teacher.

The examinations in many subjects constitute only one part of the final mark for the so called blocks (a group of related subjects). Students have a small personal booklet, in which they are required to record the dates and marks for all exams, class attendance and practice, which is stamped and signed by the teacher of each subject. In general, students are not happy with the obligation to attend lectures.

5.2.2 Comments

- The system of examinations is very complicated and not strictly regulated by the Faculty. The fact that a single "official" examination can be and sometimes (in case of two-semester subjects) must be composed of more "partial" exams depending on different persons, and the system of setting-up the dates of examinations motivate students to focus their attention on examinations rather than on attendance to lessons and practices. This is still emphasized by the non-limited number of attempts. Altogether it creates a complicated network of duties and students claim to be unable

to manage it. As a result, “off-course” students represent a large group of the total number of students, still complicating the system of examinations, often with a very long interval between the time when they passed theoretical and practical lessons and the examination. As examinations are often only partial and represent only a fragment of the whole subject, the efficiency of examinations can be questionable.

- Students are not very happy with oral exams, even accusing some teachers of varying the length of the test, its difficulty and therefore the final mark according to the student in question (it should be noted that in most oral exams only one teacher and one student are present).

5.2.3 Suggestions

5.2.3.1 A new examination system, more strict and better organized, should be envisaged. It should be first discussed within the Faculty, especially with students.

6. PHYSICAL FACILITIES & EQUIPMENT

6.1 GENERAL ASPECTS

6.1.1 Findings

Many activities of the FVMP are performed in four different locations:

- One in Pisa: The “old” Veterinary Faculty”, Viale delle Piagge 2, built in 1966, where students have the library, the classrooms for lectures and premises for some practices as those in Anatomy, Histology, Microbiology, Parasitology, and Anatomical Pathology (descriptions of these premises are shown in pages 120-127 of the SER). In a near future it is expected to complete a third phase of building to move all these old premises to San Piero a Grado.
- Three in San Piero a Grado, a town some 10 km far away from Pisa:
 - The San Piero Centre, new premises opened in 2000 to house the Department of Veterinary Clinics and horse stables, dog kennel and feline shelter. Also in this centre a new Veterinary Teaching Hospital was opened in December 1st 2009 during the visit. Facilities for equine breeding practices are very good and have a great educational value for students.
 - “Le Querciole” farm with the ground floor dedicated to laboratories used in practices of Food Hygiene and the first floor with a laboratory for avian reproduction. Around the farm there are other premises such a tread mill for horses and a variety of units for poultry breeding (chicken, ducks, pheasants-closed, goose, guinea-fowl, turkey-open air and eggs incubation). Descriptions of these premises can be found in pages 137-138 of the SER. **“Le Querciole”** could be considered a Faculty farm for the realization of the practical training in subjects as animal breeding, genetic engineering, animal behaviour and animal production.
 - The University Farm **“Centro Avanzi”** with 144 dairy cattle, 130 Pisana beef cows and 1,200 Massese breed of sheep. Students have practices of reproduction, Animal Nutrition and Animal Husbandry with the cooperation of the practitioner in charge of the farm.

All these premises are described in detail on pages 119– 152 of the SER.

The Faculty has agreements with bovine, swine and poultry slaughterhouses for the teaching of food hygiene and food safety in all the major food animal species. There is also access available to a number of food processing companies for meat, milk, cheese and fish products.

The old buildings of the Faculty in Viale delle Piagge are not in a good condition. The lecture halls are equipped with computers and projectors, so in all lectures, practices and seminars computer aided presentations can be given but the number of seats in the lecture halls and laboratories is not appropriate for the group size. There are no common places for students such as a reading room or a cafeteria. The faculty offers students a number of coffee and soft drinks machines.

Computer rooms for practices and for free access of students are too small.

The laboratories are well equipped; all necessary examinations can be carried out by students. Individual equipment (e.g. microscopes, computers) is common.

Students in Viale delle Piagge use the University facilities shared with other degrees on the Campus (Medicine and Surgery, Pharmacy, Law or Engineering School) as the university cafeteria or other libraries or sports facilities under convenience. The range of sports at the University of Pisa is very diverse and students seem very happy with it; they only must register and pay a small fee per practice.

The long distances between the different Faculty premises force the students to use public transportation (regular bus) or more commonly their own vehicles (cars or motorcycles) to move from one part to another. Sometimes the Faculty offers students a van to drive a maximum of 8 students to attend practices inside or outside the Faculty. In some cases the teacher him/herself drives the students in his/her own vehicle to the destination.

Some students complain that they only can take a bus departing at 8:00 from the bus stop in Pisa, some 10 minutes walking from the Faculty in viale delle Piagge to reach San Piero a Grado town centre and therefore still have to walk about 1 km from the bus to the new facilities.

In "*San Piero a Grado*" students do not have a cafeteria or dining room. There are just a few snack machines, soda and coffee, so they should move to eat outside or bring their own food. In this part of the faculty, students have a wide Parking area for their vehicles. In the inside students have a wide area with large tables for work in groups and a couple of computers and printers for free use.

Students have Wi-Fi connection available in the different complexes in both "*Viale delle Piagge*" and "*San Piero a Grado*"

In the field of equine re production, students also go to practices into the Stallion Centre of Tuscany Region (Istituto Incremento Ippico) at "*Sterpaia*" a breeding centre in the natural park "*Migliarino, San Rossore and Massaciuccoli*", due to its extensive artificial insemination programme for the conservation of autochthonous horse and donkey breeds.

6.1.2 Comments

The size of lecture rooms is not adequate for the current student population. Even in the new premises in San Piero a Grado, there still is no lecture hall for the total number of students of a year.

The visitors did not see small rooms necessary for small group teaching.

The laboratories used for practicals are well equipped and students can do individual work but are in general too small for the group size, specially dissection room, necropsy room, microscopy rooms 1 and 2 and computer rooms.

All organs and carcasses used in Anatomy and Necropsy room are stored inside plastic containers in a cold room until their periodical removal by the company in charge of the waste management contracted by the University.

In the necropsy room, good facilities to prevent formalin exposure of the students and staff were seen. Entrance of students and professors are independent through changing rooms. Students are protected by a white coat, surgical gloves and disposable plastic wedges. Some members of the team were allowed to enter necropsy room directly through a side-access door. This possibility is not acceptable.

Health and Safety is managed by the University Security Service. Biohazard warning signs were adequately placed where they are required as were fire extinguishers and eye wash facilities, but some of them were useless since eye washers' bottles were empty.

Some basic subjects should use the facilities and animals of the production units in "*Le Querciole*" and those of the University farm in "*Centro Avanzi*" to increase hands-on training of students in animal handling during the first years and also to teach biosecurity measures in Preventive Veterinary Medicine. Very few support staff is involved in animal care both at the production units in "*Le Querciole*" and at the University farm "*Centro Avanzi*" to ensure the organisation and development of good practical training with the students.

6.1.3 Suggestions

6.1.3.1 Allocate common places for students and staff in the new premises of San Piero Centre like cafeteria, dining room and lecture room.

6.1.3.2 Immediately after the complete move of the clinics to the new facilities in the Veterinary Teaching Hospital, it is a matter of urgency to remodel the old Faculty in Viale delle Piagge to enlarge dissection room, necropsy room, lecture halls and computer rooms.

6.1.3.3 The creation of small rooms for group work is advisable.

6.1.3.4 A more extensive use of the production units at "*Le Querciole*" and the University farm "*Centro Avanzi*" by Basic Subjects and Preventive Veterinary Medicine is encouraged.

6.1.3.5 Accessory door in necropsy room should be closed for the direct access from the outside and kept only for emergency exit from the inside.

6.1.3.6 Eyewash facilities must be maintained in good conditions for immediate use when necessary.

6.1.3.7 Pathological anatomy should offer protection clothes and boots to substitute entirely the clothes and shoes of students before entering necropsy room.

6.1.3.8 The Faculty should request the local authorities in charge of the public transport service to increase the number and frequency of buses from Pisa to San Piero a Grado.

6.3.1.9 At least one lecture hall with capacity for a whole year should be available.

6.2 CLINICAL FACILITIES & ORGANISATION

6.2.1 Findings

The new clinical premises were opened on the day of the arrival of the team and seemed operational.

As mentioned briefly in 4.4 in principle there is a clinical division according to species, but hierarchal structure is still that of a division according to disciplines (internal medicine, surgery, and reproduction).

In the part of the new building devoted to surgery (in use since 9 years), the facilities are adequate. A reorganization of the rooms (operation theatre, preparation) is planned, but has not been completed yet.

For internal medicine, the move has not yet been completed, but the planning of the room distribution seems to be adequate.

Once the new clinical facility has been completed, the facilities are certainly adequate with regard to space, although some of the modern tools for diagnostic imaging are missing. There is for instance only 400 mA / 100 kV X-Ray for small animals, and portable X-Ray for horses.

In principle the clinics do have clinical laboratory facilities (haematology and biochemistry), but because of the slow completion of the buildings (see also above), it may take several months until these laboratories are operational.

In the new clinical building, there are good laboratory facilities. Some work on external samples is performed, but the competition with private labs seems to make extra development difficult (except for some very specific analysis that needs to be offered in the future).

It is planned, that during the night, students and staff will have access to all labs, and will be able to perform emergency lab work (including blood-gases).

Compared to the old hospital, the opening hours have been extended, which is convenient for the clients and makes the clinical service more attractive. There is a common reception, which distributes the patients corresponding to their medical problem. The role of an administrative step between the entrance and the first medical care was not clear. The use of a computerized patient record is of central importance and seems to be well integrated.

In the off-hours the 24 h service is performed by outside clinicians, with one or more of the teachers on call. See chapter 4.4

In the new facilities there are adequate treatment and hospitalization facilities, for both small animals and horses. At the present time, not all buildings are in use, some of them are even not definitely allocated (horse isolation). Care should be given to distribute the rooms following a logical working path, to avoid organizational limitations.

Isolation facilities are present for small animals, but not in use. There is a good quarantine facility for horses. The plans of the isolation for horses have been accepted by the state veterinary services, but don't fulfil the EU directives completely.

In principle the hospital has room for taking in extra cases for teaching purposes, although the visitors did not notice wards for small mammals, birds, reptiles, etc.

6.2.2 Comments

- Many rooms and laboratories have already a purpose but it seems that several months may be required until these rooms can actually be used.
- In case the tracking system (as suggested in 4.4) is going to be introduced, this could be the moment to change the departmental structure according to species.
- The clinical laboratories do not carry out external work to any extent. The responsible teacher feels that this might be an option for increasing the number of samples and thereby introducing automated analytic equipment. However, he is afraid of going into competition with commercial laboratories.
- The new facilities will be adequate with regard to space, but not with regard to equipment. As indicated in 4.4 the introduction of (new) units such as diagnostic imaging (including computed tomography and/or magnetic resonance imaging) and intensive care will be seriously hampered by the absence of sufficiently trained staff and technicians. In this context it should also be mentioned that visitors noticed that there are no formal training opportunities for animal nursing in Italy.
- Although there is a 24-h service, one may wonder whether the introduction of outside clinicians in the end sufficiently guarantees good academic work-up of clinical cases and a good development of intensive care medicine.

6.2.3 Suggestions

6.2.3.1 The Team recommends that new facilities should be planned as units including new basic devices and personnel.

6.2.3.2 Buildings were seen which are designed as Isolation Facilities, but a Standard Operating Procedure needs to be developed as a matter of urgency to ensure correct usage for all animal species.

7. ANIMALS & TEACHING MATERIALS OF ANIMAL ORIGIN

7.1 Findings

For Anatomy (SER p154-155) fresh organs of large animals from slaughterhouses and fresh cadavers and carcasses of small ruminants and pigs are used for dissection purposes. Digestive or nervous system organs from ruminants cannot be used as a consequence of the application of current Legislation about protection against TSEs. Other stored materials used in the practicals of Anatomy are bones, skeletons and dried or Formalin fixed, Ethanol maintained organs and pieces of animals.

For necropsy (SER p 156-158), supply is dependent upon the cadavers of companion animals from the deceased or euthanized patients at the Veterinary Clinics service and from private Small animal clinics of Tuscany province. Large animals' cadavers come from private practitioners and farms. The service of Pathology also receives wild animals to perform parasitological, bacteriological, virological and pathological studies.

Necropsy caseload is shown in SER table 7.1.3 page 157. Students perform a good number of necropsies in poultry, rabbits and companion animals. Necropsies in food producing animals are focused mainly in small ruminants and pigs, with a poor cattle caseload as a consequence of the application of the in force regulations about protection against TSEs.

This situation is provisionally solved by the exposure of students to a high number of pathological viscera from slaughterhouses.

For the training in clinical sciences, the opportunities are variable. For bovines, students can perform practical training in the University farm (about 240), at the farm of the Department of Animal production and some private farms willing to receive them (ex. Mr. Salvatori's organic farm of about 100 beef cows and 3 bulls). There are about 33 yearly bovine consultations in the clinic but no true Herd Health medicine. However, the students have access to the Faculty farm, which may give some insight in the animal production. Students have also the opportunity to participate to the work in the organic farm, which is very well structured and organized. Moreover, they are invited to visit several farms in the Region of Tuscany.

For the ovine, Mr Ori's farm can be used (1'200 milk sheep), whereas the caseload of the clinic is very low (about 1 sheep / year). Concerning the pigs, students can be trained at Brunella Pulidori's farm (6 sows, about 50 piglets / year), Stassano farm (500-600 sows) and Torre a Cenaia farm (about 18'000 pigs reared / year).

The situation is better for the equine. Student can see between 160 and 300 horses / year in consultation (80 - 100 hospitalisations/ year). As other opportunities San Rossore farm (40 stallions, 10 Donkey Jacks; 30 - 40 yearlings), I Mandorli horse breeding (50 mares), some horses at Le Querciole, the farm of the Dept of Animal production, and the agreement with La Piaggia private equine breeding centre (80-100 mares foaling / year) should be mentioned. Moreover, an important number of mares (20 in the fall to 60 during the breeding season) are continuously housed in the paddocks of the Dept of Veterinary clinics. The hospitalisation of problem foals in the well recognized Intensive Care unit for foals brings interesting cases to the students.

For the small animals, 3,200 - 4,200 dogs and 700 - 900 cats are seen yearly in the clinic, partly referred, partly 1st opinion clients. Stray dogs from the City of Pisa are treated and handled regularly by students in public kennels. The small animal clinic has no consultations for exotic pets. Poultry and rabbit can be handled at farm of the Dept of Animal Production (Le Querciole); Mr. Ricchi's poultry farm (about 90'000 laying hens) and Mr Pampaloni's rabbit farm (400 does and 15 males).

Therefore the ratio R11 (Students / food producing animals = 0.38) is too low, the same would be true for the R12, if horses are not included (Students / individual consultations = 0.01, including individual equines outside the faculty = 1.15). The other ratios are satisfactory.

Due to the lack of staff, the Faculty is outsourcing a part of the sub-specialities to practitioners. This is particularly true for horse medicine and surgery and small animal medicine.

Supervised visits are made to at least three types of slaughterhouse, a milk and cheese plant, one or two meat plants, fish market or fish packing plant. These visits are for observation & to inform the student's choice for their 63 hours of Extra Mural Studies (EMS) placements.

Students need to seek prior approval from the department for these EMS placements. The department prefers that these are done in Tuscany, but elsewhere would be approved if they were satisfied that a suitable tutor would be available via a Local Sanitary Unit (LSU) or similar. Approval may be refused if it is not considered a suitable placement, to ensure that students experience the necessary range of species and hands on inspection under supervision of the LSU Official Veterinarian during placement.

The tutor (e.g. LSU OV) provides written evaluation of the student, who completes a project report covering the period & feedback on the placement.

7.2 Comments

- Despite the large number of pathological viscera from slaughter house used in Pathological Anatomy (SER Table 7.1.3, page 157), the number of healthy viscera from cows and dogs in Anatomy is not optimal (SER Table 7.1.1 Page 155). An increase in the use of fresh carcasses and viscera instead of formalin treated animals, especially with cows and dogs would bring Anatomy closer to clinical aspects.
- In the clinics, the opening hours have been extended, which brings more clients and therefore more potential teaching cases. The outsourcing of some specialities could however negatively compete with this, and should be considered only as a transient solution. In that regard, the caseload seems sufficient for the maintenance of skills and competences of the staff in most clinics, with exception of the bovine.

7.3 Suggestions

7.3.1 More fresh carcasses and viscera from cows and dogs should be used instead of formalin-treated ones in the dissection room for practicals in Anatomy.

7.3.2 The caseload in bovine medicine and surgery have to be extended.

7.3.3 The outsourcing of sub-specialities (small animals, horse) should be progressively reconsidered

8. LIBRARY & EDUCATIONAL RESOURCES

8.1 Findings

The main library is at the "*Viale delle Piagge*"; it is composed of two small rooms with books in basic sciences, clinical, and other professional fields necessary to support teaching of the students. The number of seats and the size of the rooms of the library are not adequate to meet the needs of the students. There is also available a DVD digital library. Opening hours are from 8.30 am to 19.30 pm, including Saturdays and is extended during exam periods until 10.30 pm.

There are also a large number of small libraries at the different services and departments in "*Viale delle Piagge*", "*Le Querciole*", and *San Piero Centre*. Students have access to all of them and there they can consult and take the books on loan.

In "*San Piero a Grado*" there is an area for reading or work in groups for the students with tables and 2 computers and a library, 4 X-ray view boxes as well as access to a variety of clinical cases for students to consult and study.

From the website of the Faculty students can check the availability of the books and search or browse virtual journal articles online.

Full details of the library and its services are given on pages 174-181 SER.

8.2 Comments

- At present the library facilities are cramped, but this will be resolved when they are moved to Stage 3 at San Piero a Grado, hopefully in the near future.

- The students seem to be happy with the staff and the access and breadth of services of the library.
- There are rather limited opening times Monday to Thursday 08.00h – 19.00h and Friday 08.00h – 14.00h. It is considered that these are minimum times and that these should be expanded to Friday afternoon and Saturday.
- The students only have access to electronic books and journals from the University Intranet and cannot access them from their laptops at home. The sites have full Wi-Fi access.

8.3 Suggestions

8.3.1 The move to San Piero a Grado should be facilitated as soon as feasible.

8.3.2 Opening hours should be extended to Friday afternoon and preferably on Saturday until late afternoon. This might well require additional staff.

8.3.3 Access to electronic resources should be made available to students from their own laptops.

9. ADMISSION & ENROLMENT

9.1 Findings

The Veterinary Medicine Degree in the FVMP is a 5-year course, with a limited enrolment. The "*numerus clausus*" is proposed every year by each Faculty but the final number is decided by the Italian Ministry of Education, in theory on the basis of the resources available in each Faculty to guarantee a certain level of teaching quality and mainly on the demand of the job market. The budget allocated to the Universities by the Ministry is also based on the numbers of students.

At present, the number of new students who can be admitted every year at the Veterinary Faculty has been progressively reduced to 79, plus no more than 5 students arriving from outside the European Union Countries. Two of these 5 places are reserved to students arriving from the People's Republic of China (actually only one Chinese student is registered). In the past, the "*numerus clausus*" reduction was also based on the last EAEVE evaluation report and calculated ratios.

There is an admission exam at the national level fixed by law. Motivation of students for studying veterinary medicine is not assessed by this examination. According to the Faculty, it does not reach a sufficient standard for a veterinary school. Therefore a "bridging course" is offered by the faculty for those students who have not complied with the faculty standards.

In theory students should graduate in five years. However, only approximately 20-25% of students reach this goal, which at least partly due to the system of examinations. After the fifth year students can continue to be registered as veterinary students (they have to pay their annual registration fee as usual): these students are called "*off-course students*" ("*studenti fuori corso*"). If they have already attended all courses (and obtained the relative "*attendance signature*") they can continue to study and to pass examinations on their own, while if they are missing proof of attendance to one or more classes they must re-attend that/those class/es in order to be able to pass this examination (see Chapter 5).

9.2 Comments

- According to this system of selection, Italian students must sit for an examination of access which is held on the same day in all universities in Italy and can only enter in the university in the city where the student perform sit this exam, in this case in Pisa). Students are not happy with this system because they can lose a complete year if they fail to pass this examination.
- Budget restrictions represent for obvious reasons negative implications of recent reductions of the “*numerus clausus*”. On the other hand, lower numbers of students represent a potential for improving the quality of teaching in terms, taking into consideration especially use of old facilities and in the new premises, more intensive hands-on practice.
- The level of knowledge of new students in Biology, Chemistry and Physics seems to be very variable and is not resolved by the admission procedures. The Team was impressed that the Faculty runs a “bridging course” in order to try to even out this knowledge level.

9.3 Suggestions

9.3.1 When a reduction of the “*numerus clausus*” is considered to be necessary, it should not be motivated only by budget restrictions, but by room for improving the quality of teaching. This decision should be taken at Faculty level, not by the University or the Ministry.

10. ACADEMIC & SUPPORT STAFF

10.1 Findings

According to the SER the staff : student ratio seems to range between 8.4 and 12.0, depending on what courses are calculated

The ratio of the teaching staff : the support staff has been calculated as 1 : 0.88.

10.2 Comments

- The visitors got several signals of strong dedication and approachability of the staff, attitudes that are highly appreciated by the students
- As general comment on the number of staff members of the Pisa veterinary faculty it can be said in agreement with earlier remarks in the chapter 4.4 and 6.2 that the teaching staff is too small to cover all areas of veterinary medicine in sufficient depth. Several areas in, for example, companion animals cannot be developed because of lack of staff. The number of budgeted staff positions is just around the critical mass required for a Veterinary Faculty.
- In some instances the high teaching load of researchers is interfering with their research obligations.
- The ratio of the teaching staff to the support staff can be regarded as low, leading to the situation that the teaching staff performs tasks that could be carried out by support staff.

10.3 Suggestions

10.3.1 It is difficult to make suggestions when the present Italian framework (Table 9.1.1.a of SER) has to be taken into account. Italy has too many veterinary schools and consequently the finances made available to veterinary education are spread thin. There is a need for a reduction of the total number of Faculties in Italy which should be accompanied by recognition by the Central Government that the Veterinary Training is one of the most costly of studies. A corresponding rise in Specific Veterinary Faculty Budget assignments to the Universities for direct transmission to the Veterinary Faculty should result in improvement in the available financial means for each (of the remaining) veterinary establishments. This in turn would allow the employment of more staff members i.e. better in-depth coverage of areas that now remain underdeveloped.

11. CONTINUING EDUCATION

11.1 Findings

Continuing Profession Education can be regarded as a primary aim of the FVMP.

Many teachers of the FVMP are involved in different type of CPE. After a period of lower activity, due to intense promotion of CPE from the veterinary associations, the FVMP regained a pole position in this field in Tuscany. The development of Master courses and Degree courses gave the opportunity to combined offers (post-grade modules open to students (free) and graduates), which makes the CPE very attractive.

From the 156 events organized by the FVMP during the last 10 years, 53 were intended for small animals, 10 for horse, 24 farm animals and 15 for food hygiene practitioners.

The events not included in a Master course are mostly based on the initiative of the departments. The team was impressed by the agreement between the FVMP, the Public Health Dept of Tuscany Government and the Experimental Zoo-prophylactic Institute of the Region Lazio and Tuscany which made the development of the CERERE possible. This body could be a powerful instrument for the CPE in the field of VPH.

11.2 Comments

- The team was also pleased to note, that new topics are proposed, in order to prepare the profession to the necessary changes and the future developments that it will have to face.

11.3 Suggestions

11.3.1 It appears to the team, that the Faculty could take advantage of the excellent quality of the teaching and the tradition of CPE not only in order to bring new and valuable information to the graduates and the practitioners of the area, but as a source of income, that can be used for research and / or teaching purposes. It might also be of interest to develop a leading position in Italy in certain CE topics based on the international networking of the Faculty.

12. POSTGRADUATE EDUCATION

12.1 Findings

The SER clearly describes the four types of post graduate course available on pages 212-230.

The Faculty offers 3 Postgraduate specialization degrees: In Small Animal Pathology and Clinic, in Animal Health, Breeding and Husbandry, and in Inspection of Food of Animal Origin.

There are also 3 PhD programs and 2 Residency Programmes to obtain specialist Diploma in Equine Reproduction and in Veterinary Pathology.

Finally the Faculty offers a total of 13 Master Courses with a minimum of 1 year duration.

Table 12.2.1.a of the SER, page 217 shows an important decrease in the total available posts and grants for PhD programmes from 2007 to 2008 as a consequence of budget restrictions to the University by the government.

PhD students are encouraged to participate in education of undergraduate students; they have a maximum of 90 contact hours in a year.

Publication of papers in journals is not a precondition to the awarding of a PhD degree.

12.2 Comments

- The PhD program is quite similar to that seen in several European countries.
- The number of postgraduate students is very low taking into consideration the size of the Faculty.
- Introduction of international publication activity as a prerequisite of gaining a PhD degree would increase the quality of the postgraduate education.
- The number of postdoctoral places available and grants for PhD graduates is very limited. Increasing the number of the postdoctoral places would help devoted graduates to start a research career.
- There are no intern/residency positions; these would normally be expected as an introduction for European Diplomate candidates. The Faculty has the opportunity with the development of the new hospital facility to increase the caseload and consider the creation of these posts which would also assist in addressing the need for additional veterinary surgeons to deal with the extra work.
- There is some concern about the scarcity of grants (only 1/year) to follow Erasmus exchange research projects. Graduates working in the clinics have no opportunities to follow Postgraduate specialisation studies to become European Diplomates outside the Faculty because the Hospital needs all the hands available.

12.3 Suggestions

12.3.1 It is important to improve the recognition of teachers participating on a postgraduate level.

12.3.2 The Faculty must encourage the students to prepare European diplomas especially in clinical sciences.

12.3.3 Introduction of publication activity as a prerequisite of gaining a PhD degree is highly recommended.

12.3.4 The team encouraged the Faculty to increase the number of postdoctoral places and PhD grants even supported with private funds.

13. RESEARCH

13.1 Findings

Research is listed amongst the important objectives declared by the FVMP. The freedom of research is formally acknowledged to all teachers. Research activities of the University of Pisa are organized within special units, different from teaching units, called University Departments and Interdepartmental Centres. The Departments operating within FVMP are: *Dept. of Animal Pathology, Prophylaxis and Food Hygiene, Dept. of Animal Production, and Dept. of Veterinary Clinics*. Further 4 Departments with one or more teaching staff members officially appointed to the FVMP are *Dept. of Agronomy and Management of Agro-Ecosystem, Dept. of Biology, Dept. of Physics, and Dept. of Physiological Sciences*. Research is self-evaluated by the department and evaluated by the Faculty in three-year intervals. Scientific performance of each teacher is monitored annually by the University of Pisa.

Students have access to research in the laboratories and/or clinics mainly when working on their related to their final degree theses. The theses are presented either as a review of literature, as retrospective clinical case studies, or as experimental studies supervised by an appointed teacher. It is in this case that students are actively involved in research activities. The theses are rather short, they are not made publicly available as theses, but sometimes they are published as papers, if they are of good quality.

Upon request, some students may be accepted as so called "internal students" and they can work under supervision from an appointed research staff member on a specific project. With this exception of a limited number of internal students, undergraduate students thus participate to research activities during their final year(s) when preparing their experimental theses. According to the faculty, students are more interested in activities related clinics rather than in basic research; consequently the majority of experimental theses are on clinical studies.

There is no specific coordination of research activities within the University or Faculty. The structure of research is basically determined by personal activities of individual teachers, available resources and the success rate in fund raising. The faculty has not defined a clear research strategy and/or specific research priorities.

13.2 Comments

- The quality of research in general is very good. However, there is no general concept of research at the faculty level; research is thus rather fragmented. Support of large, strong and competitive teams focused on specific priorities and complex issues would increase the chance to get funding not only at the national but also European level.

- In contrast to teaching, research is not well coordinated at the faculty level.
- Due to abundant research activities throughout, there is a good potential to get undergraduate students involved in research in clinics as well as in research laboratories, which is well explored. However, the quality of theses is variable and only some of them are published.

13.3 Suggestions

13.3.1. A general research strategy discussed and defined by the Faculty would be very useful for further development of research activities.

13.3.2. A coordination of research activities at the Faculty level must be introduced. The appointment of a Coordinator for Research should be seriously considered.

13.3.3. All degree theses should be made publicly available in the Faculty library in their original format.

EXECUTIVE SUMMARY

The Self Evaluation Report has been thoroughly prepared and has been an excellent and useful base to explore the main aspects that EAEVE take into account to help Faculties that accept the visit to check their standards and possibly improve them through selected suggestions.

Several positive and, as expected, some negative aspects emerged during the visit. Dealing with the primary matters in the same sequence as the Chapters of the SER. initially, though, two general points stood out:

- The friendly atmosphere that is clearly evident in the establishment, mirroring the good relationship between the students and the teaching and support staff.
- The excellent standing of the Faculty within the Veterinary Profession in the area of Pisa and in the Region of Tuscany.

An outline has been given in considerable detail of the mission statements and objectives and it is clear that the primary aim is research-based teaching of the veterinary curriculum. The Team noticed, that the Faculty is on the borderline of adequacy in terms of academic teaching staff and that the teaching burden of individual teachers sometimes precludes any concentration on matters of research. In addition, it should perhaps be remembered and more emphasized that, although the primary regulating law on veterinary training is Directive EC/2005/36, the Veterinary Profession has also been assigned by Regulation EC/2004/854 on Food Hygiene via the Official Veterinarian the responsibility for controlling and monitoring the food chain from “Feed to Fork” or “Stable to Table”. It seemed to the Team, that this important concept should be included more specifically in the Objectives.

On the subject of Organization, it has been clear to the Team that the Faculty is an integral and important element of the University of Pisa. The Faculty seems to be treated fairly and the commitment is evident in the building of the new Campus at San Piero a Grado. Within the Faculty Management, it was noticed that there is a Coordinator for Teaching but not for Research and the Team suggests that the appointment of a Coordinator for Research be seriously considered.

Where Financing is concerned, there is never enough money available in most Faculties across the European Scene and Pisa is no exception to this rule. The University of Pisa has been adversely affected by the recent global economic woes as materially expressed by having to delay the building of Phase 3 of the San Piero Campus Project. The Team finds this, of course, regrettable and urges the Rector to try to find a rapid resolution to this bottleneck on progress. In addition on the subject of financing, it would seem advisable to develop a self-financing scenario for the new Veterinary Teaching Hospital. The other two important deficits are the inadequate number of Support Staff and the lack of funds for necessary equipment, whether new or for replacement of obsolete models.

Where the General Curriculum is concerned, the Team welcomed the increase of “hands-on” activity in the final year of the undergraduate course and recommends that specific teaching objectives should be formulated so that the course is structured in relation to the current needs of the profession by the introduction of “tracking” into the clinical years.

The level of knowledge of new students in Biology, Chemistry and Physics seems to be very variable and is not resolved by the admission procedures. The Team was impressed that the Faculty runs a “bridging course” in order to try to even out this knowledge level.

Basic Sciences seem to be well covered and the coordination is good. In general, though, it can be said that the groups are too large for the currently used facilities. Remodelling of the

current buildings to create more space, when units move out to San Piero, should be treated as urgent. There is an imbalance between Theoretical and Practical lessons. Particularly in Anatomy, more time should be spent in practical “hands-on” sessions. A shift from Theoretical to Practical work is necessary and this could well be assisted by greater use of E-learning.

Animal Production is well taught and the dedicated staff is very cooperative and approachable for the students. The balance between theory and practice appears to be rational, but there is a gap in Agricultural Economics, which must be corrected. The Faculty Farm is an essential element in veterinary teaching and the Team believes that with greater investment and more attention to farm maintenance, the usability for teaching purposes and productivity can be significantly increased. It is essential that an integrated herd-health concept be developed. It was noted that there is inadequate contact to the Clinics, a situation, which can easily be rectified.

Where the Clinical Sciences are concerned, there is the need to formulate objectives clearly and to introduce “tracking”. There is a clear insufficiency of Teaching, Support Staff and Equipment (MRI /CT Scanner for example). There is also a limited Diagnostic Imaging Service, which needs to be upgraded. In the Large Animal scene, there is no Bovine Clinic, no Bovine Hospitalization, no true Mobile Clinic and Bovine Medicine is inadequately covered. In the opinion of the Team, this is a potential Category 1 Deficiency.

In the area of Food Hygiene, there seemed to be a good relationship between Faculty staff, the Sanitary and Plant Personnel and the subject is adequately covered.

The Team compliments the University on the development of the IT systems such as the Clara and Unimap in the University Website, but feels that there is a need for training programmes on the use thereof, so that E-learning becomes a more significant factor. Problem-based learning does not appear to be really applied.

The Safety Systems are existent, but the maintenance thereof is rather neglected. The whole aspect of “Safety” should be coordinated and revised to cover the whole new Campus at San Piero a Grado.

The Team recommended that new facilities should be planned as units including new basic devices and personnel.

Buildings were seen which are designed as Isolation Facilities, but a Standard Operating Procedure needs to be developed as a matter of urgency to ensure correct usage for all animal species.

The Library has very limited quarters, but has enthusiastic staff and offers all essential services, despite the space limitation. The planned move to Stage 3 in San Piero would be a welcome relief.

Continuing Education is fairly well developed, but should be expanded.

In the Post-Graduate field, Internships and European Diploma Residencies should be increased.

Although out of place, the Team noticed that there is little student mobility via the ERASMUS system. The Team suggests that the ECTS should be fully implemented.

Finally, whilst much good research is undertaken, it is somewhat fragmented and coordination must be introduced.

The Team believes that, in general, the Veterinary Faculty at Pisa offers good education of veterinary undergraduates, but this is qualified by the specific fact that it found a Category 1 Deficiency in Bovine Medicine linked with the Lack of an Ambulatory Clinic.

The Team indicated that it could not emphasize enough how urgent the recommencement and realization of the Stage 3 Project at San Piero a Grado is for maintaining the critical mass and development of the Veterinary Faculty at the University of Pisa.

ECOVE decided that there are two unrelated Category 1 Deficiencies which may endanger the achievement of the educational goal according to the EC Directive 2005/36, Article 38, sentence d:

- 1. Deficiencies in facilities for ruminants and teaching in bovine medicine**
- 2. Lack of mobile clinic for farm animals**

Owing to the circumstances, ECOVE does not perceive these as rectifiable within 2 years. For this reason, it was decided that the Faculty of Pisa could not be given even a conditional approval.

DECISION: Non-approval.

Annex 1 Indicators

| Ratio | Numerator/Denominator raw | 1/Denominator | Established range of denominators | Notes |
|--------------|--------------------------------------|----------------------|--|--------------|
| R1 | 59.51/502 | 1/8.44 | 8.85-10.42 | |
| R2 | 87/1029 | 1/11.82 | 8.75/12.54 | |
| R3 | 41.82/502 | 1/12.00 | 10.62-12.62 | |
| R4 | 41.82/87.80 | 1/2.10 | 4.91-7.21 | |
| R5 | 59.51/32 | 1/0.54 | 0.53-2.20 | |
| R6 | 2728/1156 | 1/0.42 | 0.51-0.36 | |
| R7 | 320/836 | 1/2.61 | 1.88-2.21 | |
| R8 | 2971/6750 | 1/2.27 | 0.51-7.87 | |
| R9 | 309/3884 | 1/12.57 | Still open | |
| R10 | 309/63 | 1/0.20 | Still open | |
| R11 | 87.8/33.7 | 1/0.38 | 2.47-1.73 | |
| R12 | 87.8/101.0 | 1/1.15 | 0.51-7.87 | |
| R13 | 87.8/9 | 1/0.10 | 0.20-0.09 | |
| R14 | 87.8/248.7 | 1/2.83 | 1.78-0.92 | |
| R15 | 87.8/580 | 1/6.61 | 0.58-0.37 | |
| R16 | 87.8/4529 | 1/51.58 | 48.74-37.94 | |
| R17 | 87.8/2.7 | 1/0.03 | 0.07-0.02 | |

FINAL REPORT AS DECIDED BY ECOVE

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|------------|------------|--------|-----------|--|
| R18 | 87.8/50 | 1/0.57 | 0.75-0.46 | |
| R19 | 87.8/165.3 | 1/1.88 | 0.26-0.12 | |
| R20 | 87.8/273.7 | 1/3.12 | 1.26-0.89 | |