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REPORT ON THE EVALUATION VISIT TO THE  
VETERINARY FACULTY OF LAS PALMAS, GRAN  
CANARIA

16 - 22 October 2000

Report from the EAEVE

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## **INTRODUCTION**

The Veterinary Faculty of Las Palmas (VFLP) was visited by the team of experts from 16 -22 October 2000. During this visit they met and had discussions with the Dean of the Faculty and his associates, teaching and support staff from the Departments responsible for veterinary teaching, and students. From outside the Faculty, the team met with the Rector and his colleagues, representatives from practitioners and industry in the area, and alumni.

The visit was based around a Self-Evaluation Report (SER), along with supporting documentation, sent to the experts two months prior to the visit. Prior to the visit, each expert was assigned specific chapters of the SER related to his/her particular area of expertise to study and evaluate in greater detail. Further Information relating to each of the chapters was obtained during the visit itself.

The Veterinary Faculty is part of the University of Las Palmas de Gran Canaria, which is supported by the regional government via the Ministry of Education, Culture and Sports. The VFLP started in 1985, with the first students graduating in 1991. It was originally located in Las Palmas itself, which was unsatisfactory working arrangement. In the course of the past several years, the Faculty has been relocated to the Arucas campus, outside the city, into premises that have been built for veterinary training. Most of the veterinary teaching is now provided on this site, although some facilities are still being completed. The organisation of teaching along departmental lines means that parts of the course are taught on other sites.

The studies at the VFLP follow the curriculum defined under national law. A revised curriculum is in the process of being phased in, starting in the 1999/2000 academic year.

In the future, the Faculty is likely to establish an agricultural and farming complex, in conjunction with the neighbouring Canary Island Council Agricultural Advisory Board and government of the Canaries.

Evaluation visits involve a great deal of work for all concerned - academic staff, support staff, and students. The team of experts is most grateful for the open and friendly way in which it was received throughout the visit. The experts are particularly grateful to the Dean, Prof. A. Gracia-Molina, and his close colleagues, Prof. P. Flores Mengual and Prof. Z. Rodríguez Lama, for the substantial help and kind hospitality that they gave before and during the evaluation visit. Thanks are also due to the Liaison Officer, Dr. F. Orozco, for all the work he put into the visit.

## 1. OBJECTIVES

### 1.1 Findings

The Veterinary Faculty of Las Palmas (VFLP) considers that its main objective is the provision of teaching leading to the attainment of the official qualification of Graduate in Veterinary Science and Medicine within the Royal Ordinance 1384/1991 of August 30, published in the Official Bulletin of the State no. 234 of September 30, 1991, which is stated as covering:

- a) Appropriate knowledge of those sciences on which veterinarians activities are based;
- b) Appropriate knowledge of the structure and functions of healthy animals, of their breeding and reproduction, of their general hygiene and of their feeding, including technology corresponding to the production and conservation of their feed;
- c) Knowledge adapted in the field of the behaviour and protection of animals;
- d) Appropriate knowledge of the causes, nature, development, effect, diagnosis and treatment of animal illnesses, considered individually or as a group, among them in particular those illnesses contagious to man;
- e) Appropriate knowledge of preventive medicine;
- f) Appropriate knowledge of corresponding hygiene and technology for obtaining, producing and marketing animal food products and of the origin of animal products destined for human consumption;
- g) Adequate knowledge of what concerns legislative, regulative and administrative requirements in relation to the matters enumerated above;
- h) Clinical experience and adequate practice under appropriate supervision.

As secondary objectives the Faculty mentions postgraduate education, continuing professional education, and participation in wider issues of interest to society.

Concerning the monitoring the objectives, the Faculty refers to the completion of record sheets for theoretical and practical teaching. It also mentions that staff can elect to have their research performance assessed every 6 years, and a confidential assessment of teaching performance can be performed every 5 years.

Among its strengths, the Faculty includes;

- A new Faculty that has new equipment, with young personnel;
- The fact it is the only veterinary faculty in the Canary Isles (it also has the only large animal hospital in the area) and the esteem in which the Faculty is held locally;
- The moderate number of students;
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As weaknesses, the following are mentioned;

- Lack of large animal clinicians, and facilities for keeping large animals;
- Lack of a pilot plant for food technology,
- Shortage of teaching and support staff relative to workload;
- The isolated location of the Faculty as regards supplies and staff and student mobility.

### 1.2 Comments

The objectives as stated, and their assessment in terms of class lists, are oriented solely towards providing teaching that complies with the legislation on veterinary training. The broad areas under which students must be taught are well defined, but little is said on the competence that a graduate should have when leaving the Veterinary Faculty to engage in professional activity.

The objectives should be redefined and made more precise so that they emphasise the skills and knowledge that a student requires on completion of the veterinary course and leaving the Faculty. To achieve such overall goals, the training at all stages of the course should be based on an 'end-user' approach (see Chapter 9). Rather than relying on the unidirectional transfer and memorisation of facts and figures, the studies should be predominantly based on case study and problems. The revised objectives need to be implemented in a time scale that allows them to be demonstrably achieved by the Faculty in a 3 - 4 year period.

The Faculty recognises the need for evaluation procedures in order to assess how well objectives are met. However, the systems presently in place to assess the teaching activities (of students and teachers) and the research activities do not seem to be efficient. A more 'externalised' means of evaluating (within the degree course, as well as on graduation) how well the training has equipped students for their subsequent work. For example, academic staff will know whether the teaching in preceding subjects provides an appropriate foundation for their own teaching, and practitioner working in the various fields will be in a position to gauge the competency of graduates.

As well as objectives that provide a better definition of undergraduate teaching, the VFLP should have clear objectives in areas of future development of the Faculty (such as aquaculture), and other activities in which the University must be involved such as community services, continuous education, postgraduate courses, etc.

The third cycle programmes that specifically envisage postgraduate students training as specialists seem to be a project for the future and not yet implemented. The same seems to be the case with "the professional continuous formation by means of graduate degree courses training courses in technical and specific methods of application in the professional exercise".

Regarding research work, there should be a definition of priorities according to local needs and the areas where the Faculty could establish itself as a centre of excellence, for example food safety, animal welfare, reduction of animal production effluents (pollution, water reprocessing), etc. Such research themes should be presented and quantified in terms of resources in order to find the necessary funding to achieve to the objectives.

The Faculty should also have the aim of providing a greater level of services to the community (analyses, clinical services, etc.).

All of this should be linked to evaluation procedures that provide an objective measure how well the Faculty is achieving its goals in the short and medium term. The team considers that in the future the Faculty should be judged by the extent to which it has achieved its objectives, and not by the effort it has made to achieve them.

The Evaluation procedures must be set for different levels, covering the different activities (classes, training; research, post graduate courses services etc.) and be a continuous process. It must also be an open system where everyone knows the mechanisms and the results/recommendations must be publicised. There should also be a follow up of those recommendations, either on the work of the Faculty, or as an "economic incentive"

Some of the strengths mentioned by the Faculty, such as its proximity to the Experimental Agricultural Farm, its Large Animal hospital and its orientation towards marine species require more development to make effective use of them (these issues are discussed in later sections of the report).

As additional strengths, the team considers that the Faculty should have mentioned:

- The establishment of the centre for stray animals adjacent to the Faculty;
- The effective integration of anatomical and pathological work.
- The team would agree that the weaknesses mentioned by the Faculty are genuine shortcomings.

As additional weaknesses, the team considers that the Faculty should have mentioned:

- A lack of coordination or integration in teaching, services and research (see Chapters 2 and 4).
- The limited extent of clinical services, and consequent shortcomings in the quantity and type of caseload for teaching (see Chapters 4 and 7);
- The dispersal of teaching and staff over different sites, giving problems of transport and communication.

Elsewhere in this report reference is made to poor coordination, both vertically and horizontally, in the teaching given at the Faculty. The team considers that setting and implementing

objectives at all levels in the Faculty is an essential tool in improving this situation.

### **1.3 Suggestions**

1.1. The objective must be a commitment between the Faculty, the University and Society, therefore they must be considered as a reference level. In addition, they must provide clear statements on the different components, viz;

- teaching of undergraduate veterinary students;
- postgraduate training;
- research priorities;
- continuing professional education;
- provision of services to the community.

1.2. Teaching objectives should be clearly defined, with the overall Faculty objective being that of producing a graduate who is equipped for professional veterinary activity. The course and its evaluation should be revised according to this principle (See Section 4.1 and Suggestion4.1).

1.3. In future, the Faculty should be objectively assessed on the degree to which it has attained its stated aims, using an "externalised" evaluation of how well an activity, service or teaching of a discipline meets the requirements of the users.

See also Suggestions 2.3 and 12.1.

## **2. ORGANISATION**

### **2.1 Findings**

The Faculty is part of University of Las Palmas de Gran Canaria (ULPGC), which is funded by the Regional Government. The University is comprised of 'centres', which include faculties and departments along with other central or administrative organs, which are supported directly by the University. Although they are generally associated with one or another faculty, departments are therefore not a sub-unit of a faculty, but are largely independent, 'parallel' structures.

Within Spanish University degrees, curricula are subdivided into 'knowledge areas', which are attributed to appropriate departments (NB, not to faculties). Within each University, there can only be one department teaching in a particular knowledge area. The departments provide teaching services in their field to the different faculties, and at the same time do independent research. Faculties at this University are entities that arrange and are responsible for the teaching of a particular course, such as the training of veterinary students.

In practical terms, this means that the Veterinary Faculty 'owns' one department, the Department of Animal Pathology, Animal Production, Bromatology and Food Technology (DAPAPBFT). A veterinary part of the Department of Morphology (covering the anatomical and pathological fields) is also based firmly at the Faculty. The other knowledge areas, amounting to about 30% of the teaching (mainly basic sciences) is provided by teachers from departments that are not part of the VFLP, but are centred on other faculties at other sites of the ULPGC.

Departments are generally divided into units, which typically comprise 1-5 people, with responsibility for teaching in a specific area. In many cases, such units appear to function as separate 'cells', with their own facilities, teaching, research and service activities.

The main governing body of the Faculty is the Faculty Management Board (Junta de Facultad), which has general responsibility for supervising and approving educational and administrative matters, as well as for electing the Dean. Its composition includes all the teaching staff featuring on the academic programme of the Faculty, who have 55% of the representation, 40% representation of the students (with at least one student from each year of the course), and 5% representation of the support staff.

The officers of the Faculty are: the Dean, who presides over the Faculty bodies, acts as the formal executive for administrative tasks, and is the representative of the Faculty with outside bodies; the Secretary, who takes care of the administrative and notarial functions; and Vicedeans, who are proposed by the Dean for the coordination and administration of particular tasks.

The Faculty has 21 committees covering many areas. By University statute, students have a 40% representation on all such committees. There are no outside persons, such as practitioners or local industry involved in any of these committees of the 'Junta'. The committees have no fixed meeting schedule.

The Faculty has contractual arrangements with outside bodies that support undergraduate teaching (see Chapter 4).

Within their knowledge areas, departments have the responsibility for; organising and developing the teaching on the degree courses; organising, developing and assessing postgraduate training and doctoral work; organising and developing research and scientific projects; stimulating scientific and pedagogic development among their staff, budgeting for their financial resources; developing and formulating proposal for hiring and assigning staff; dealing with internal functioning and administration of the department.

### **2.2 Comments**

The Faculty has very little financial autonomy (see Chapter 3), and this, along with the

structure of independent departments and autonomy of teaching., means that the Faculty presently has minimal authority to direct veterinary teaching, research or service provision at the VFLP. This makes it more difficult for the Faculty to effectively achieve what should be its overall objectives.

Under the present structure of course teaching, around one third of the veterinary course teaching is being provided by "trainers" (professor, assistant professors, etc.) who physically, organisationally and academically separated from the VFLP. Some major drawbacks follow as a consequence of this type of arrangement:

The "trainers" (professor, assistant professors, etc.) either come to the VFLP to give lectures and practical courses, or - more frequently in the case of practical work - require veterinary students to travel to other sites where the particular department has its own facilities and equipment. Students have the inconvenience and cost of shuttling between sites located in different parts of Las Palmas, thus losing a tremendous amount of time,

More importantly, the staff of outside departments that are 'hired' to teach on the VFLP course is not motivated to stress, emphasise and elaborate the veterinary aspects of its subject. Even if the Dean of the VFLP is formally entitled to order the "trainer" to change the scope of the course - to adapt it to veterinary science - the basic problem persists, since the person who is hired conducts research activity that is independent from the VFLP.

Also, staffs that come from a department that is not part of the Veterinary Faculty will not be present or motivated to participate in any discussion or planning of the course material as a whole. Their task is simply to provide a certain amount of teaching on a particular subject to veterinary students. It also means that staffs are not available on the campus, should students want to consult them.

The end result is 'teaching-oriented' type of Faculty. Staffs from outside the Faculty provide teaching for the required hours, but since their academic background and research is not in line with veterinary aspects, this is done without being any sense of affiliation towards veterinary research or activity in the particular field. The approach of subdividing the curriculum into a series of largely independent subject further reduces the opportunity for veterinary input. The consequences of this structure for the curriculum and teaching are discussed in Chapter 4.

The decision-taking process is very internalised at Faculty level as well. A serious weakness is that there are no outside participants (professionals, administrators, etc.) on the Faculty Management Board, and seemingly no means by which such individuals and bodies can provide any feedback on how the work of the VFLP relates to 'real' activity, such as whether graduates are matched to the demands of employment, the responsiveness and value of its clinical services, or the practical application of its research to current problems. In other words, the Faculty has no mechanism that informs it whether what it is doing in its main fields of activity (undergraduate education, postgraduate education, veterinary services, research) are effectively oriented towards meeting actual needs in these fields. The Faculty therefore needs an advisory body of organisations and individuals working in a range of veterinary activities that provides input and direction to its work.

There are at present a large number of committees, each having a large number of members. The timing of the committee sessions is not regulated, and sessions happen rather randomly. Although all the Committees have 40% student representation, interviews indicated that students are rarely actually present at, or are consulted about, committee sessions. The head of the committees cannot cope with the high number of committee members. The proportion of committee members that attend is often small.

The SER states that these committees help in the coordination and maintenance of a good level of teaching. Investigations contradict this statement, since in none of the areas examined were the committees functioning. This suggests that the Faculty committees do not function or play an effective role.

The large number of fragmented committees needs to be united into effective and pace setting bodies. A prominent example should be the area of teaching, where at the present time, three Committees exist;

- an educational advisory committee
- a committee to promote teaching quality
- a committee on programmes of exchange and recognition

All these could be put together into a committee with a small number of members, which then - a major task - should oversee the harmonisation and coordination teaching in a very much more detailed and regular manner.

In most fields, there is only a random cooperation and communication among teaching staff within departments, based primarily on personal contact and initiative. Communication between different units, even those working in closely related areas, is often lacking. The hospital is not working effectively due to poor relations between different units. Problems arise in other areas for similar reasons. These difficulties in communication and collaboration are largely a consequence of a very fragmented organisational and teaching structure that encourages the compartmentalisation of the veterinary course into a series of self-contained elements. To help improve coordination and communication within the staff responsible for teaching the veterinary course, a more logical functional grouping of disciplines is necessary, along the Ones of;

- Veterinary pre-clinical sciences;
- Veterinary clinical sciences,
- Animal production, and
- Food hygiene/veterinary public health.

The organisational format used to achieve such groupings will evidently be based on what is possible within the Faculty and University structure. However, the present single large Department of Animal Pathology, Animal Production, Bromatology and Food Technology covers too wide a range and unwieldy range of fields, has very poor internal communication, and should be split, probably by separating off the clinical elements.

From a practical viewpoint, the excellent and effective cooperation between the anatomy and pathology units could serve as a nucleus onto which other disciplines could be integrated. Certainly, care should be taken not to damage the present collaboration in this field.

The areas listed above need to have an authoritative teaching coordinator, who has the responsibility for ensuring an overview and good coordination in the material covered in the teaching given by different units. The teaching coordinator(s) should also aim to integrate the major fields of study, since these are not separate, but closely interrelated (see also Chapter 4 and Suggestion 4.2).

## **2.3 Suggestions**

2.1. The staff and/or units responsible for teaching the basic science subjects should be physically and organisationally far more integrated into the VFLLP, to enable coordination of the material taught, and to give this and the other activities of the units the required veterinary orientation.

2.2. The number and membership of the various committees should be radically reduced, and these bodies constituted so that they can effectively address areas where there are presently problems of communication and coordination that are adversely affecting the performance of the Faculty, principally;

- coordination and orientation of curriculum content,
- based on an 'end user' approach (see also Suggestions 1.2 and 4.1). The cooperation in the morphological sciences could serve as a model for this;
- coordination and development of clinical services;
- coordination and orientation of research resources and efforts (see also Suggestion 12.3);
- teaching evaluation.

There may also be a need for a committee to formulate proposals in relation to the Faculty budget.

2.3. A Faculty Advisory Council should be established, with a strong representation of bodies involved

in professional veterinary activities, in order to provide feedback and an external perspective of the Faculty's work, in particular in the definition and evaluation of overall objectives for its teaching, research and service activities.

2.4. The large number of separate units within Department of Animal Pathology, Animal Production, Bromatology and Food Technology should be reorganised into larger and more logical subject groupings covering the clinical, animal production, and food hygiene/veterinary public health areas, which should coordinate their efforts closely.

2.5. The Faculty should have more autonomy, in particular financial, so that it can focus its efforts on meeting its objectives as a cohesive unit. See also Suggestion 4.2.

### 3. FINANCES

#### 3.1 Findings

The income and expenditure of the VFLP are summarised in the tables below, expressed in Pesetas (Pta) and € (166 Pta =1 €), and relate to the 1999 calendar year.

The University is funded by the regional government, with the money it receives being partitioned into several budget lines, for example for capital and recurrent expenditure.

The income of the Faculty comes from the following sources;

Table 3,1: VFLP income from different sources

Source	Pta (OOO's)	€	%
Money for salaries	452531	2719765	91.97
Other funds from state or public authorities	29498	177287	5.99
Clinical and diagnostic income	8599	51680	1.75
Farm income	1430	8593	0.29
Total	492058	2957325	100

Note: For comparability the table includes several of the costs that are paid directly by the University, most notably all salaries and Utilities.

The Faculty and the Departments are administratively distinct (see Chapter 2), and receive separate budgets from the University. The teaching budget for faculties, from which the VFLP has to pay for general teaching equipment and materials, consumables, vehicle maintenance and running costs, and purchase of some administrative equipment, are based on several factors, as tabulated below.

Table 3.2: basis for Faculty teaching funding

Variable	Multiplying factor (Pta)	Pta (OOO's)	€	%
Fixed element	na	800	4819	13.7
Weekly teaching hours	2,500 (x 93 hours)	233	1401	3.98
No. of students enrolled	3700 (x 542) 3	2005	12081	34.34
No. of laboratories	75,000 (x 6)	2250	13554	38.52
No. of student lab. practices	170 (x 3,252)	553	3330	9.46
Total		5841	35185	100

The Faculty also has a budget of about 14 K€ (2.342.028 Ptas) for the cost of its buildings, which is scaled according to a formula based on its number of students, surface area, number of support staff, and number of bathrooms.

The departmental budgets are calculated on a similar basis to the Faculty teaching budget, with the addition of weighting factors based on the number of academic staff and the number of postgraduate students. The figures in Table 3.1 include the teaching budget from the Department of Pathology, Animal Production, Bromatology and Food Technology and the veterinary unit of the Department of Morphology. They do not include the budget allocated to the other departments (see Table 10.1) involved in veterinary teaching.

The Faculty has to apply to the University for money for capital expenditure, such as funding for building work or major equipping of premises. It has to compete with other faculties for such resources. Undergraduate students pay annual registration fees of around 500 € which go to the University. Research grants are administered within departments, or centrally by the University, and do not feature: in the figures presented. The University retains 10% of any revenue generated by the establishment (e.g. clinical work, analyses), except for research grants, from which it makes no deductions.

Table 3.3: VFL'P expenditure in different areas

Source	Ptas (000's)	€	%
Salaries			
- teaching staff	351277	2111216	67.45
- support staff	84494	507819	16.22
- research	17160	103134	3.29
Research	33985	204251	6.53
Equipment			
- research	9350	56192	1.80
- teaching & general	5417	32554	1.04
Utilities, maintenance & general operation	9850	59202	1.89
Teaching	9290	55837	1.78
Total	520823	3130205	100.00

Annual direct cost of training a student = 829,252 ptas = 4,995 €

Total direct cost of training a graduate = 5,804,764 Pta = 34,968€

### 3.2. Comments

In terms of capital expenditure for buildings and equipment, the Faculty has evidently received a lot of funding in the past few years.

In terms, of recurrent costs, the major item is staff salaries, which is a matter of whether the Faculty (or Department) is permitted to take on further employees to work in the field, Staff issues are discussed in Chapter 10.

The budget for covering teaching costs is low. In the calculation of the Faculty and Departmental budgets, the same scaling factors are used for all courses. This disadvantages teaching in areas such as veterinary medicine, where the practical nature of the training makes it unavoidably more expensive than all other courses, particularly those that have less applied intensive training. In this respect, basing a large proportion of the funding on student numbers is unfair on the VFLP; unlike other courses the Faculty is unable to increase its student intake. Increasing the intake would in any case be highly undesirable, as it would be harmful to the quality of education, and would further load an already crowded employment market.

Since the teaching budgets for specific subjects are departmental, there is no incentive for a department that is not based at the Arucas campus to invest in equipment for teaching in the rooms it could use on this site. Instead, students are put to the inconvenience of having to travel to the premises that are 'owned' and equipped by the particular department on the site where it is based.

The level of revenue that is generated by the Faculty itself, such as through clinical work, is very low. It would have been anticipated that a newly built and equipped animal hospital that aims to provide a specialised referral service would be producing a much greater level of income. Such income is needed for reinvestment and development of clinical services.

In a wider context, financial constraints do not at this time appear to be the principal factor limiting the effectiveness of teaching.

### 3.3 Suggestions

Suggestions relating to specific facilities and staff, which have financial implications, are made in the relevant sections.

3.1. The basis for the calculation of the funding for the teaching costs of the Faculty and Departments involved in veterinary training should be reviewed, to reflect the unavoidably higher unit teaching costs of this course, and its very limited capacity to increase its student intake.

3.2. The Faculty should aim to increase its revenue by increasing the provision of services (in particular clinical services) to the community. Such income should be reinvested to further improve the service that generated the revenue, and to improve the quality of teaching.

## 4. CURRICULUM

### 4.1 General Aspects

#### 4.1.1 Findings

Studies at the Veterinary Faculty of Las Palmas last 5½ years (11 semesters), with the average duration of attendance currently being around 7 years.

Spanish veterinary faculties have a defined national curriculum established by the Ministry of Education and published in the Official Bulletin of the State no 234, September 30, 1991. The national curriculum defines the structure and obligatory subjects for a curriculum leading to the degree of Graduate in Veterinary Science and Medicine. Changing the composition of obligatory subjects appears to be difficult since such changes have to be approved by the Ministry and subsequently published in the Official Bulletin of the State.

There is an agreement among Spanish Faculties that the curriculum should comprise about 4000 hours. It is possible for the Faculty to include optional subjects and electives according to guidelines given by the University of Las Palmas.

The time allocated to theoretical and practical teaching is summarised in Tables 4.1 to 4.4 on the following pages. A new curriculum is being phased in, and therefore the hours in the present course (old curriculum - 'oc'), and the new curriculum (nc) are indicated. The new curriculum is only outlined in terms of the theoretical and practical component, (see Table 4.3) with the latter comprising practical, supervised and clinical work. The present courses in particular subject areas are outlined in Sections 4.2 - 4.5.

Table 4.1: Teaching hours in EEC subjects

	Lectures		Practical work		Supervised work	Clinical work	Total	
	oc	nc	oc	nc			oc	nc
<b>A. BASIC SUBJECTS</b>								
Anatomy (including histology & embryology)	135	135	105	150			240	285
Biochemistry	120	60	68	40	8		196	100
Biology (incl. cell biology)	30	30	30	30			60	60
Biophysics	30	30	10	20	10		50	50
Biostatistics	30	30		20	20		50	50
Chemistry	30	30	10	20	10		50	50
Epidemiology		30		15			0	45
Genetics	45	45		30	10		55	75
Microbiology & immunology	120	90	35	45			155	135
Parasitology	90	75	16	85	5	9	120	160
Pathological anatomy (macroscopic and microscopic)	150	90	45	105			195	195
Pharmacology & pharmacy	90	75	19	35	1		110	110
Physiology	120	90	11	50	9		140	140
Physiopathology							0	0
Scientific and technical Information and documentation methods							0	0
Toxicology (inc. environmental pollution)	58	45		25	11		69	70

<b>B. Animal production</b>								
Agronomy	55	55	8		20		83	55
Animal behaviour (inc. behaviour disorders)	30	15	10		20		60	75
Animal husbandry (inc. livestock production systems)	90	150	10	60	10		110	210
Animal nutrition and feeding	60	60	18	40	2		80	100
Animal protection and welfare	30	15		10	20		50	25
Environmental protection	4		5				9	0
Preventive veterinary medicine (inc. health monitoring programmes)		45		15			0	60
Reproduction (inc. artificial breeding methods)	105		24		5		134	0
Rural economics	35		2		25		62	0
<b>C. Clinical subjects</b>								
Anaesthetics	30	30		30		15	45	60
Clinical examination and diagnosis and laboratory diagnostic methods	60	15		55		40	100	70
Clinical medicine	210	165	20	105	14	36	280	270
Diagnostic imaging	30	15		30		20	50	45
Obstetrics	30	75	1	65		15	46	140
Reproductive disorders (inc. in other courses)							0	0
State vet. medicine, zoonoses, public health and forensic medicine	13	15	1.5	7.5	1.5		16	22.5
Surgery	60	75		65		35	95	140
Therapeutics							0	0
<b>D. Food hygiene</b>	150	165	17	105	33	0	200	270
Certification of food production units							0	0
Food certification							0	0
Food hygiene and food quality (inc. legislation)	45	30	7.5	15	7.5		60	45
Food inspection, particularly food of animal origin	45	60	7.5	35	7.5		60	95
Food science and technology	60	75	2	55	18		80	130
<b>E. Professional knowledge</b>	15	15	0	7.5	6	0	21	22.5
Practice management							0	0
Professional ethics							0	0
Veterinary certification and report writing							0	0
Veterinary legislation (inc. deontology)	15	15		7.5	6		21	22.5

Notes:

- The SER did not provide a tabulation of hours as classified according to AGVT/EEC' subjects. The table above has been generated from the subject titles (see Tables 4.5.- 4.9) modulated by the indication of how some disciplines are subdivided.
- The hours assigned to 'animal behaviour' and 'animal protection and welfare' are those from two courses in 'ethnology, ethology and animal protection', and are likely to include hours covering the breeds and conformation of different production species.
- Parasitic diseases are covered in the course on Parasitology, which is where the hours have been assigned.

Table 4.2: Distribution of practical, and theoretical teaching in EEC, subjects

	Hours in course					percentage of total course hours	Ratio of lectures to other types of work
	Lectures	Practical work	Supervised work	Clinical work	Total		
Basic subjects	1048	349	84	9	1490	50.84	1:0.42
Animal production	409	77	102		588	20.06	1:0.44
Clinical subjects	433	22.5	15.5	161	632	21.56	1:0.46
Food hygiene and technology	150	17	33		200	6.82	1:0.33
Professional knowledge	15		6		21	0.72	1:0.4
Total	2055	465.5	240.5	170	2931	100	1:0.43

Table 4.3: Distribution of practical and theoretical teaching in new curriculum

	Hours in course			percentage of total course hours	Ratio of lectures to other types of work
	Lectures	Practical work	Total		
Basic subjects	855	670	1521	50.33	1:0.78
Animal production	340	125	465	15.35	1:0.37
Clinical subjects	390	357.5	747.5	24.67	1:0.92
Food hygiene and technology	165	105	270	8.91	1:0.64
Professional knowledge	15	7.5	22.5	0.74	1:0.5
Total	1765	1265	3030	100	1:0.72

Table 4.4: Summary of total hours in each year of the present course

Year	Course hours			Ratio of lectures to other types of work
	Lectures	Practical work	Total	
First	360	280	640	1: 0.78
Second	360	106	466	1: 0.29
Third	375	115	490	1: 0.31
Fourth	480	185	665	1: 0.39
Fifth	480	180	660	1: 0.38
Total	2055	866	2921	1: 0.42

The teaching schedule means that students in some years are expected to attend practical and theoretical courses from 09:00 to 18:30.

Attendance at lectures is not compulsory. Attendance at practical classes is obligatory, and checked through a practical book. Practical classes are not imparted every day of the week all year round, thus leaving students some free time, which is often used by students to attend departments as "interns" (alumnos internos).

A new curriculum, which attempts to increase the component of practical training, is being phased in, starting from the 2000/01 academic year. The amount of practical training has been increased by around 50% and the overall amount of teaching has been increased by 9%. In addition this course contains 415 hours of electives, 405 hours of optional subjects and 150 hours of "seeing practice" - extramural activities in private clinics, agricultural industries, zoos, farms and slaughterhouses. The Faculty plans to develop the extramural activities through agreements, which is required by the Regulation on External Practical Experiences of the University of Las Palmas de Gran Canaria approved in 1999. In the year 2000 four collaboration agreements have been signed with private clinics.

The Faculty realises that even with the new curriculum it will not be possible to increase the

amount of practical training to meet the requirements stated in the E.U. guidelines.

As is mentioned in Chapter 2, the curriculum is allocated between 'knowledge areas', which are attributed to the most appropriate department in the particular university. The department, more specifically the unit within it that is tasked with teaching a particular discipline on a particular course, determines the content, its teaching format, and its examination.

#### **4.1.2 Comments**

Specific areas of the veterinary curriculum and training that need improvement have been discussed in more detail in the next sections of this report, but the main areas include;

- Lack of structured clinical training;
- Lack of herd health management training;
- Concerns about food hygiene training;
- Absence of teaching on some specific subjects;
- Lack in some instances of a clear applied veterinary orientation in the material being taught.

Taking an overview of the existing curriculum, the relative distribution of hours between basic subjects (51%) clinical sciences (22%), animal production (20%) and veterinary public health (7%) mean that the course is overweight in basic subjects. In future curriculum planning, the teaching should be redistributed, to reinforce the clinical sciences and veterinary public health fields with a subsequent reallocation of resources.

The teaching timetable is very heavily loaded. The amount of teaching each day is totally unacceptable for higher education. Such a crowded curriculum leaves very limited time to the students for self-learning, and leads to low attendance in theoretical classes.

The ratio of theoretical: practical training is unsatisfactory through the whole curriculum. This serious shortcoming has been slightly relieved in the new curriculum which started to be phased in during the academic year 2000/01. It was said that resource calculations were performed prior to implementation of this new curriculum, but these were not seen. The Faculty is aware of the unsatisfactory amount of practical training in all subjects and in particular clinical training (see Section 4.4). In the view of the Faculty this problem is related to tradition, with the lack of practical clinical training being attributed to a limited number of qualified clinical staff and low caseload.

The organisational structure of the Faculty, which comprises many academically independent teaching sections, leads to weakness in terms of providing a cohesive veterinary course. Although the Faculty follows a prescriptive national list of disciplines that must be taught, there is no regular mechanism to ensure the relevance of the material taught to that presented in other disciplines, to ensure all topics are covered, and to avoid duplication within the course as a whole. Curriculum development on these issues depends almost entirely on initiatives from the departments or the units under the department, since these alone decide the content of the subjects taught. Since the communication between the units is very poor in most instances, the present system is a serious obstacle to achieving a vertically and horizontally integrated course. There is no clear assignation of responsibility for ensuring the teaching is comprehensive, and as a result there are substantial overlaps and gaps in the material being taught. The subdivided course structure does not allow the most effective use of resources and time, or the development of a curriculum based on the "end-user" principle, and prevents the Faculty from meeting its teaching objectives.

The team did see some examples of good coordination and pooling of resources, for example the closely integrated teaching in the anatomical and pathological areas. However, this was a result of the initiative, good relations and communication between the units involved, and the overall view was that nearly all of the individual subjects were taught in isolation, without the necessary interrelation with earlier, parallel and subsequent subjects, or the application of 'end-user' principle. For the applied sciences (clinical, animal production and veterinary public health), this shortcoming was further accentuated by the lack of influence of the profession and society in the various bodies of the Faculty (see also Chapter 2). The lack of coordination and proper orientation towards the applied sciences was noticeable in subjects such as mathematics, genetics, physiology and pharmacology, which are at

present taught by staff from other Faculties who are not based on the Arucas campus for their offices, research or teaching laboratories.

The approach to teaching the veterinary course therefore needs revising to introduce a great deal more coordination in both the content and the timing. There are two potential approaches to this. The first is to encourage a much greater degree of feedback, collaboration and integration of courses wherever this is feasible under the present structures.

The second approach is to provide a proper structure to adapting the curriculum to meet modern veterinary needs and practice. Starting from the eventual areas of employment of veterinarians, the knowledge and skills that a veterinarian will need on graduation should be reviewed. As well as examining the different areas of clinical and animal production work, this review of end-user needs should also include potential areas of employment in food hygiene/food processing, and in the scientific and biotechnology sectors. The review should involve wide consultation with the outside bodies that employ veterinarians, and also gather information from veterinarians working in different fields.

The later part of the course should be weighted according to the potential areas of employment for graduate veterinarians, and the coursework structured to provide the skills base that a veterinarian needs for professional work. There should be an emphasis on problem solving and on the development of applied skills, such as clinical ability, practice (clinic) management, population medicine, production/yield management, certification, etc. Earlier subjects should be realigned in provide an appropriate basis for the later teaching. There should be strong vertical and horizontal integration.

A combination of the two approaches is likely to be the most pragmatic way of realigning the course. A review of the end-user needs should be performed in order to determine how, in an ideal world, the course should be structured and the different disciplines inter-related. This would provide a model outline, and it should then become a goal for a restructured course, and of the departments at the VFLP, in progressively move towards this structure of teaching over a period of several years. Continuous and monitored improvement in collaboration at all levels of the course is needed, in particular to demonstrate the interrelationships between the pre- and paraclinical disciplines and the clinical, animal production and food hygiene subjects.

End user analysis is likely to confirm that the content of some courses needs to be revised to incorporate material that is more directly relevant to professional veterinary work.

#### **4.1.3 Suggestions**

Note: suggestions relating to the specific subject areas (as opposed to the overall curriculum or its balance) have been made in subsequent sections.

4.1. Each subject in the course should have a detailed syllabus and learning objectives. These should be based on an analysis of end-user needs, rather than solely upon the statement of the veterinary curriculum in national law. The learning objectives should be integrated to ensure a logical progression on the course, and that overall it provides a good basis for professional veterinary activity. This information should be available to all other staff members responsible for teaching other subjects.

4.2. The Faculty should as a priority seek to make major improvements in coordination and communication between staff teaching on the veterinary course, in particular as regards teaching content. One or more authoritative curriculum coordinators, and/or a strong Curriculum Committee (see also Suggestion 2.1) are mechanisms that could help achieve closer integration.

4.3. The proportion of basic sciences in the curriculum should be reduced in favour of a larger component of the applied clinical and food hygiene fields.

4.4. The Faculty should continue to aim to increase the proportion of practical work in the veterinary course, and make this as 'hands-on' as possible.

4.5. The Faculty should seek to reduce the overall number of course hours, principally through a reduction in the theoretical teaching, to allow students more time for self-learning.

## 4.2 Basic Subjects and Basic Sciences

### 4.2.1 Findings

The basic subjects and sciences are taught by all the departments listed in Table 10.1, several of which are not physically or organisationally situated within the WLP (e.g. mathematics, genetics, pharmacology, chemistry, etc.).

The curriculum hours in the basic subjects taught to veterinary students are shown in Table 4.4.

Table 4.4: Number of teaching hours in basic subjects

Department Subject	year	Hours in course				Ratio of lectures to other types of work
		Lectures	Practical work	Supervised work	Total	
<b>Physics*</b>						
Physics	1	30	10	10	50	1: 0.67
<b>Chemistry*</b>						
Chemistry	1	30	10	10	50	1: 0.67
<b>Biology*</b>						
Biology	1	30	30		60	1: 1
<b>Mathematics*</b>						
Mathematics	1	30	20		50	1: 0.67
<b>Biochemistry &amp; molecular biology, Physiology, Genetics &amp; Immunology</b>						
Immunology	1	30	15		45	1: 0.5
Biochemistry	1,2	120	68	8	196	1:0.63
Physiology	2	120	11	9	140	1:0.17
Genetics	3	45		10	55	1 : 0.22
<b>Morphology</b>						
Anatomy I	1	60	60		120	1 : 1
Veterinary cytology	1	15	30		45	1: 2
Cytology & histology	2	60	15		75	1: 0.25
pathological anatomy	3	90	30		120	1:0.33
<b>Clinical sciences (human medicine)*</b>						
Microbiología1 & immunology	2	90	20		110	1:0.22
Pharmacology, pharmacy & therapy	3	90	19	1	110	1: 0.22
Parasitology **	4	36	6	5	47	1:0.31
Toxicology, deontology, legislation	4	90	17.5	7.5	115	1:0.28
<b>DAPBFT</b>						
General pathology	3	60	15		75	1:0.25
<b>Total</b>			<b>376.5</b>	<b>60.5</b>	<b>1463</b>	<b>1:0.43</b>

\* Department and unit that is not part of the Veterinary Faculty

\*\*Part of course 'parasitology and parasitic diseases1'; split of hours written as in SER, with the remainder attributed to 'clinical sciences' in Section 4.4.

The subject areas taught are in line with acceptable basic veterinary training in these subject areas.

Students starting the veterinary course have large variations in the extent of their knowledge of the natural sciences, with average level being relatively low. As a result, the first courses that are

given (mathematics, physics and chemistry) have to offer introductory 'catch-up' courses (a typical example of this is chemistry). The way of teaching in most basic sciences is a traditional one (see also Chapter 5), with relatively large amounts of theoretical lectures (unidirectional flow from the lecturer towards the student), an appropriate number of practical sessions, and little directed self-education.

Most of the practical teaching in courses taught by departments or units that are not part of the VFLP is given at sites away from the Arucas site, such as the Tafira Campus (e.g. basic subjects, genetics, statistics) and the human medicine Teaching Hospital in Las Palmas (e.g. pharmacology, toxicology). These are about 1/2 - 3A hour drive away from Arucas. The teaching staffs covering these disciplines are also based in their 'home' department.

The hours in the course 'toxicology, deontology, legal medicine and veterinary legislation' include elements of disciplines that are classed under animal production (environmental and animal protection), clinical sciences (state veterinary medicine and forensic medicine), and professional knowledge (professional ethics, certification, veterinary legislation).

#### **4.2.2 Comments**

The workload of the students is high in the area of basic sciences (see also Section 4.1), and the overall amount of teaching in these subjects is too high in relation to para-clinical and applied disciplines, in particular as regards the theoretical teaching. Even taking into consideration that participation at lectures is not compulsory, the teaching timetable is very heavy and does not leave time for

- a) independent work;
- b) appropriate preparation of the student for oncoming laboratory work.
- c) group work

The balance therefore seems to be shifted: students in the first two years get a very high load of theory and a relatively low proportion of practical training

The objectives of the basic science subjects did not feature in the SER, or in the material delivered by the staff during the visit.

The organisation of the theoretical material is determined by the lecturer. Students rely mostly on printed handouts and in a lesser extent on standard textbooks. Hands-on laboratory practice is present in all basic subjects. Some elements of problem-based learning appear in genetics, otherwise both theory and practical work is delivered in the conventional way.

In chemistry, biology, biochemistry and genetics, a modern molecular biology approach is extensively used. This is a strong point of the training. Still one can see that the laboratories are organised in a manner that they follow the research line of the 'unit' rather than the real needs of the veterinary students.

In general, the fact that the majority of basic science subjects are taught by Departments that are physically and organisationally located in other parts of the University of Las Palmas means that it is hard for the Faculty to ensure that these subjects have the appropriate veterinary aspects. This has the added disadvantage that students have to spend a lot of time travelling to laboratory sessions in facilities outside the Arucas Campus.

It was also not clear at which levels and by what means the different basic science subjects harmonise the content of the material with one another, or how the basic subjects are adjusted to the needs of later subjects (paraclinical disciplines, clinical teaching. etc.; see also Section 4,1). Parts of the teaching of the basic sciences appear to be duplicated or overlapping. For example, elements of statistics appear in many different subjects, as well as in mathematics.

A positive example in this respect may be the rather paraclinical approach that is taken to pharmacology in the frame of which already at the beginning veterinary examples and view are intensively introduced, both in the theoretical and in the practical work of the students.

A further positive example is the teaching in the morphological subjects. Histology, histopathology and pathology seem to be well integrated in their teaching and use of facilities, and work together in a much better way than the other basic sciences. The teaching also links morphological work to its clinical application, for example by the use of diagnostic imaging material. Here it should be emphasised that the physical proximity of these cooperating units is of considerable benefit. This kind of collaboration could be used as an example for other fields.

#### **4.2.3 Suggestions**

4.6. Efforts should be made to shift the physical location of the practical teaching in basic sciences to the Arucas Campus. Priority should be given to relocating the units of individuals for which veterinary education, particular laboratory teaching, constitutes all or a substantial proportion of their teaching activity should relocate.

4.7. Staff of the basic science disciplines should build up a communication with the later subjects and revise in a detailed manner the main body of the subject in order to adapt it much better to the needs of the oncoming applied fields of clinical sciences, animal production, and food hygiene. The basic subjects should incorporate more veterinary-oriented topics, both in the theoretical and in the practical work.

4.8. The teaching methodology should be changed to introduce more independent, problem-based tasks. Students should be encouraged more to take part in group work on topics relevant to their future professional activity.

4.9. The overall contact-hour workload in the basic sciences should be decreased, to release time for problem-based and group work type of teaching for the students.

See also the suggestions in Section 4,1.3, in particular Suggestion 4.3.

## 4.3 Animal Production

### 4.3.1 Findings

The hours and courses taught in the animal production subjects are shown in table 4.5. All subjects are taught by pedagogic units of the DAPAPBFT

Table 4,5: Compulsory animal production subjects for all students

Subject	year	Hours in course				Ratio of lectures to other types of work
		Lectures	Practical work	Supervised work	Total	
Agronomy and agrarian economy	1	45	5	20	70	1: 0.56
Ethnology, Ethology and animal protection	1,3	60		40	100	1: 0,67
Agronomy	2	30	5	10	45	1: 0,5
Nutrition	3	60	18	2	80	1: 0.33
Animal production and vet. hygiene	5	90	10	10	110	1: 0.22
Agrarian economy	5	15		15	30	1: 1
Animal breeding and improvement	5	45	20	5	70	1: 0.56
<b>Total</b>		<b>345</b>	<b>58</b>	<b>102</b>	<b>505</b>	<b>1: 0.46</b>

The syllabus also contains the course 'Toxicology, deontology, legal medicine and veterinary legislation' (see Section 4.2) which has some elements of the animal production subjects.

Practical training in the subjects 'animal production and veterinary hygiene' and 'animal breeding' take place in the Faculty Farm (see Chapter 6) with goats and rabbits. In addition visits are arranged to poultry, swine, goat, cattle and fish production units.

### 4.3.2 Comments

Some subjects, such as molecular biology, seem to be taught in both 'animal breeding' and 'animal improvement' and attention should be paid to closer collaboration between different disciplines to remove unnecessary duplication and overlapping in the course as a whole.

The teaching does not establish a clear relation between animal (or meat) identification and the traceability of food products, which is mostly taught in food hygiene. This traceability problem crosses several disciplines, and should be taught in an integrated way. It is a key aspect of food safety, and if the Faculty wants to create a group or centre of excellence in this area, it must coordinate all of the participating subjects.

Another important area of integrated teaching is animal herd health management, where all animal production subjects should participate. For example, good feeding management is one of the first effective practical means of disease prevention and improvement of the health status of the herd. Reproduction studies are currently based mainly on the goat as the model. This teaching needs to also include cattle, pigs and horses.

The nutrition and feeding unit is doing a lot of good work but, the programme needs to be updated and balanced regarding the present priorities, fish nutrition; dietetics; nutrition of dogs, etc;

The quality and content of the web page produced by nutrition unit, which is very useful for the students, should be highlighted.

A better balance and orientation is needed within some of the animal production teaching. A large amount of time is presently spent on teaching agronomy and agrarian economics, and this teaching is not sufficiently oriented towards animal production systems. In contrast, the course 'ethnology, Ethology and animal protection' covers a very wide subject area with relatively few hours. This means that animal behaviour and welfare requires more emphasis in the curriculum.

The teaching on forensic and state veterinary medicine does not clearly show that it covers

the principles of certification as related to animal transport, which is essential information for veterinary practitioners (and others)

### **4.3.3 Suggestions**

4.10. There should be adequate coordination between curriculum content, practical classes and visits in two major fields (traceability and animal herd health management) where the teaching of animal production subjects and related disciplines (e.g. epidemiology) has to be integrated.

4.11. New or more balanced subjects should be included in the different curriculum, namely in nutrition (fish nutrition, dietetics, small animal nutrition), agrarian economics (which should be oriented towards animal production systems) and animal ethology (animal welfare). Nutrition also needs to be presented more independently, to give it the required emphasis. Care should be taken regarding administrative requirements for the certification in practical veterinary activities.

4.12. A greater proportion of time should be allocated to covering animal behaviour and welfare, reducing the hours spent on agronomy and agrarian economics.

4.13. Reproduction studies should also cover cattle., pigs and horses.

## 4.4 Clinical Sciences

### 4.4.1 Findings Clinical Teaching

Teaching of clinical sciences is carried out by the following pedagogic units of the Department of Pathology, Animal production, Bromatology and Food Technology (DAPBFT);

- Animal Medicine
- Animal Surgery
- Reproduction
- Infectious Diseases
- Parasitology and Parasitic Diseases

The courses and teaching hours in the clinical subjects are presented in Table 4.6.

Table 4.6: Clinical subjects taught

Subject	year	Hours in course					Ratio of lectures to other types of work
		Lectures	Practical work	Supervised work	Clinical work	Total	
Preparatory clinical studies	4	60			40	100	1: 0.67
Surgical pathology & anaesthesiology	4	60			30	90	1: 0.5
Infectious diseases and epizootiology, preventive medicine and sanitary police	4	120	20	14	6	160	1: 0.33
Parasitic diseases *	4	54	10		9	73	1: 0.35
Surgical pathology and radiology	5	60			40	100	1: 0.67
Reproduction and obstetrics	5	90	5		15	110	1: 0.22
Medical and nutritional pathology	5	90			30	120	1: 0.33
<b>Total</b>		<b>534</b>	<b>35</b>	<b>14</b>	<b>170</b>	<b>753</b>	<b>1: 0.41</b>

\* Part of course 'parasitology and parasitic diseases'; split of hours written as in SER, with the remainder attributed to 'basic sciences' in Section 4,2.

General aspects of the course as a whole are outlined in Section 4.1.

The theoretical part of the course is given as *ex cathedra* lectures.

Practical clinical teaching is carried out in small groups of students assisting a clinician in the Animal Hospital (the hospital facilities are outlined in Section 6.4, and the clinical organisation is discussed later in this section).

The practical training in small animal medicine, and surgery and reproduction depends principally on the cases referred to the out-patient clinic. The animal material sent to the Faculty and seen by the mobile clinic is detailed in Chapter 7, and was the order of a few hundred small animal consultations and a few dozen production animal cases (almost entirely goats).

Practical training in reproduction (primarily castrations and ovariectomies) in small animals is also performed on dogs from the adjacent animal shelter. This establishment receives about 2000 dogs and 250 cats a year. A new building has been constructed, where there are reasonable facilities for performing basic clinical work.

Since the Large Animal Hospital for equines, swine and cattle is presently not functioning, there is no hospital-based training in medicine, surgery and reproduction in horses and production animals (swine, cattle and sheep).

Students participate in the work of the mobile clinic as part of their coursework the (outlined later in this section) in groups of 3 during their clinical training in surgery, internal medicine and reproduction.

There is no practical training in population medicine (herd health management), laboratory animal management, poultry medicine, and exotics.

A system of 'seeing practice' for 150 hours during the course has recently been introduced (see also Section 4.1).

### **Clinical Organisation**

The clinics are divided into a Small Animal Hospital and a Large Animal Hospital. The hospitals are at present managed by a director connected to the surgery unit. The director reports to the Dean and is supported by a hospital committee. The large animal clinic, for equines, swine and cattle, is in practice not functioning. The lack of qualified staff is cited as the reason.

The hospitals accept referral cases only. Consultations in the small animal clinic are based around different areas of specialisation, and follow the schedule in the figure below. The separate clinics work all year round, except during August, when only oncology and ophthalmology remain.

The hospital provides evening and night treatment/care of hospitalised patients for 24 hours a day when required. The number of hospitalised patients is shown in figure 7.1 (about 20 small animals annually). There is no emergency service, but students participate on a voluntary basis in the overnight care of hospitalised patients when present.

Some undergraduate intern student (alumnos internos) spend their free time assisting in the hospital improving their skills on a voluntary basis.

A mobile clinic, which deals with horses and production animals functions 20 hours a week, alternating between the disciplines of medicine, surgery and reproduction. The caseload is indicated in Table 7.1. The call out has to come via a practitioner, and there is no emergency mobile service.

#### **4.4.2 Comments**

##### **Clinical teaching**

The clinical subjects constitute about one fifth of the total curriculum hours (see Table 4.2), which would be considered too low in many other European countries. The number of hours allocated to clinical work, which is supposed to be 'hands-on' activity, constitutes about 5% of the curriculum hours. This is insufficient for students to transform the knowledge obtained in the preclinical and theoretical clinical subjects for practical application in proper single-animal or population patient management.

Clinical teaching is mainly carried out as theoretical teaching in the form of lectures. To improve the training, these didactic lectures should be as much as possible replaced by clinical seminars carefully selected for disease problems taught in the hospital and by self-learning.

However, it is the quantity and quality of practical clinical teaching, and the range and quantity of animal material used that it is most important to augment. A proper rotational program for clinical training, which takes place in the fourth and fifth year has not been established. The practical clinical teaching appears to predominantly rely upon a series of sessions in the outpatient clinics.

The hospital-based training is totally inadequate. It is the impression of the team that most of the clinical practices consist of tutorial-type observation of consultations only, instead of active 'hands-on' procedures with patients. This sort of clinical training is a good supplement to but cannot substitute for hospital-based clinical training, the development of which should therefore be made a Faculty priority. In order to increase students exposure to practical clinical training, and to involve them fully in cases, this basic clinical training should be carried out in lecture-free semesters.

The present organisation and functioning of the clinical activities (discussed later in this section) presents the Faculty with serious difficulties in training students.

In the large animal area, there appears to be no Faculty-based activity. The large animal clinic is hardly functioning, and there is practically no basic clinical training on hospitalised cases in horses and production animals (cattle, swine, and sheep). There is some activity on goats, but this seems to be principally concerned with production aspects, such as reproduction.

The team understands the use of goats as a standard animal in the clinical teaching of large animals, for instance in reproduction, since the goat plays a major role in Canarian husbandry practice. The inclusion of cattle, swine, sheep and poultry in clinical teaching is, however, of paramount importance, since graduates may move to the continent or overseas, where these domestic animal species play a major role.

It is of urgent importance, one way or another, to provide the undergraduates with a sound hospital-based training in large animal (horses, cattle, swine, and small ruminants) medicine, surgery and reproduction. Some training in equine work at present takes place in the mobile clinic, but this sort of training can be considered as complimentary to, but not a substitute for, basic structured clinical training "in house" (hospital). This should be characterised by systematic clinical examination with laboratory and diagnostic imaging back-up, and case follow-up and monitoring. Hospital-based clinical experience is a prerequisite for a proper training, the establishment of diagnostic and treatment strategies, and the ability to take clinical decisions. Basic clinical training in the hospital requires continuity of care, small groups teaching, and active participation by the students in the clinical process.

In the small animal field, training is based mainly on a small number of referral consultations (see Table 7.1). Adequate clinical training requires a broad range of case material. The hospital-based clinical training in small animals (cats, dogs) appears totally inadequate. In the view of the team it is not acceptable that graduates with so little clinical exposure are allowed to enter private practice as in currently the case (i. e. there is no requirement for pre-registration practice in Spain). Therefore in the small animal area, hospital based clinical training in medicine, surgery and reproduction needs to be established as a priority. This training should meet the requirements discussed above in the context of basic clinical training in the large animal's area. A prerequisite for sound training is that the hospital is functioning properly as a treatment centre, with an adequate and varied caseload, as discussed later.

The instruction of a outside (external) practice' system, where students can visit private clinics, farms and other veterinary institutions is commended. These extramural activities may serve as a good supplement to, but should not substitute for, the basic clinical training at the Faculty hospitals, provided that a quality selection of practices is performed by the Faculty in collaboration with the Veterinary Association of the Canary Islands and the attendance of students, and the tasks they undertake, is monitored. The extramural clinical teaching should be monitored by checklists where various procedures students have performed should be itemised.

The team was pleased to note the 'house for abandoned animals' which is located close to the Faculty. It is commendable that the Reproduction Unit uses this facility and that students perform castrations and ovariectomies on some of the animals there. This excellent animal material should be used by the other clinical units (internal medicine, surgery, parasitic diseases) for basic clinical teaching at the site. Animals needing further examination (diagnostic imaging, endoscopy, etc.) could be transported to the Hospital for this purpose. Cadavers produced in this structure could be used for a course providing initial practical training in surgical techniques, since the live caseload is limited.

The fragmented nature of the teaching (e.g. see Section 4,1) leads to a loss of overview. One consequence of this in the clinical field is that there is no practical training in population medicine (herd health management), a subject which requires the close integration of several disciplines, and a foundation of hospital-based training in production animal medicine, surgery and reproduction. There is also no teaching in laboratory animal management.

In modern farm animal husbandry, the demand from the farmer on the veterinarian is increasingly towards health monitoring and preventive health measures. The emphasis of the training in production animals should reflect these demands, including communicating with farmers and taking the 'from stable to table' approach.

The animal production subjects need to be closely integrated and combined with large animal clinical teaching as a coordinated teaching programme focusing on herd health management. Population medicine, combining animal hygiene, animal nutrition, clinical sciences, ethology, epidemiology and statistics, are a key element in the development of herd health programmes. Herd health programmes also play an important role in national or regional certification programmes and other mechanisms of quality control. The Faculty should therefore develop teaching objectives dealing with the methodology of studying the occurrence, distribution and risk factors of disease in animal populations, and train students to perform and analyse herd health measurements and preventive action programmes.

Preventive measures (for non-infectious as well as contagious diseases) become increasingly important where animal populations are large, and there is inter-communication between intensively-farmed herds. Both preventative and treatment measures need to be investigated, evaluated and analysed for cost effectiveness by means of epidemiological methods. The computerised creation and analyses of databases are important elements of such work.

The teaching in herd health management should be imparted in close collaboration with the existing Farmers Association for Animal Health (ADS).

### **Clinical Organisation**

The hospital appeared to the team to be well equipped (see Chapter 7), and thus provide the potential basis for a thriving clinic within its present premises. The problems with achieving this appear too rooted in the organisation and use of resources within the hospital.

There are some evident difficulties with the availability of human resources for running the hospital. Firstly, there is a noticeable lack of personnel in some key areas; the lack of large animal surgeons is a major shortcoming, particularly for equine work. For smoother functioning, there should be a receptionist to register patients and deal with administration, such as reports, and at least one properly trained nurse is needed. Secondly, the team also heard that there are problems in communication among the persons working in the hospital, including physical availability when needed in the afternoon.

The team heard that since the conditions of service of academic staff make reference only to teaching commitments, and service provision is not mentioned. Some staff apparently considers themselves under no obligation to perform clinical work once they have fulfilled their teaching responsibilities. Such an attitude is disappointing; it would be completely unacceptable in most veterinary faculties in other European countries, or in a commercial practice.

The problems of availability of staff have an important bearing on a key aspect of the hospital's function, the access and utilisation are far too limited at present. The clinic limits its activities to referral cases only. It is not appropriate for a veterinary training establishment in this way, since students never get to see 'normal' cases and treatment in their structured clinical teaching. It also severely restricts the caseload (see Section 7.3), which is currently far too low.

Furthermore, the present opening and consultation hours are far too limited. Most of the

facilities are completely unused for most of the time, which represents a great loss of much-needed potential teaching material, as well as an inefficient use of the premises and equipment. Students need to have training in practice management, and this can only be provided within a clinic that is functioning consistently and effectively. From the point of view of their function as treatment clinics, the limited opening hours means there is no continuity of care. The sporadic and rather inaccessible service offered is not an attractive one for clients.

The team was disappointed to see the lack of a 24 hour intake of patients including emergency service for acute cases at the hospitals. In the view of the team, this lack constitutes a serious obstacle to attracting patients. The team considers that the absence of an emergency service sets an unsatisfactory ethical precedent and example for undergraduate students, a service more oriented to the needs of the community would be desirable.

The fragmented nature of the teaching and organisation has been discussed elsewhere (e.g, Chapter 2, Section 4.1), and the clinic structure appears to mirror these problems. The subdivision of the limited resources between many discipline-oriented specialist areas is not a good model for efficacious teaching or treatment. It means that students will see a 'snapshot' of a particular referred patient, rather than following a case through the different clinical stages.

The Hospital will not work effectively as long as it is compartmentalised between many different areas with narrowly defined responsibilities. The available resources therefore need to be combined and reorganised, so that there is a clear focus on making the Hospital into an integrated treatment centre. This needs to be considered independently from the University organisation, with a new, non-academic Hospital Manager organising and directing clinical activities, with the objectives and roles that have been outlined in Suggestion 4.3.2.

To be able to run the hospital as an effective treatment centre, the Manager must be able to define staff working patterns that ensure continuity and quality of care. He or she should therefore be empowered to set up hospital rules, timetables, role responsibilities and duties for each staff member participating in the hospitals' functioning, and thus have the authority to:

- organise the hospital duties, including out of hours work, of the staff from the pedagogic units that teach in the clinical sciences;
- 'hire and fire' a number of hospital clinicians without University career obligations;
- hire trained nurses.

In addition to being in a position to marshal and optimise the use of the existing clinical expertise within the Faculty and departments, the Hospital Manager should have a proper support staff, including an administrator working at reception

The Hospital Manager post should be independent from the departments of the University, and be answerable to the Rector. The Manager should on a preset and regular basis present progress reports to the Rectorate, covering the objectives outlined in Suggestion 4,34, for evaluation and appropriate action.

The Manager would could either be a veterinarian, or a non-veterinarian with experience in managing veterinary clinics. Employing a practising clinician would have the obvious benefit of increasing the clinical manpower and expertise; however the primary consideration should be to appoint an individual with a proven track record of running an effective mixed clinic.

In the near future the Hospital is already expected to have to support extra expenses in regard to increasing the intake of production animal patients, for which free or heavily subsidised treatment will have to be offered in order to attract material for teaching purposes.

Managing a veterinary faculty hospital as an administratively distinct entity, organised as a good treatment clinic, is a model that has been successfully used in other Universities. In some other establishments, a similar structure has not worked well, due primarily to tensions between the staff involved. Therefore, what is needed above all at the VFLP is a commitment from the clinical staff to making the Faculty Hospital work as a responsive, accessible and client-oriented treatment clinic. Until

its functioning and caseload is improved, the Hospital will not fulfil its intended role as a teaching clinic, and the Faculty will not be able provide a level of training that is acceptable, either professionally or legally.

#### **4.4.3 Suggestions**

##### **Clinical Teaching**

4.14. Intensive clinical training, based on hospitalised patients and covering all major species and disciplines (e.g. medicine, surgery and reproduction) in a balanced way, must be included in the structured curriculum that is taken by all veterinary students. (Potential category I deficiency)

4.15. Considerably more curriculum hours should be devoted to practical clinical training, which should be organised as clinical rotations during lecture free semesters and be based on small groups of students in the two hospital»,

4.16. The large number of didactic theoretical lectures should be partially replaced by problem-oriented clinical seminars, carefully selected to cover clinical problems currently taught in the teaching hospital, and by self-learning.

4.17. A collaboration in preventive medicine should be developed,, and training in production animal husbandry, animal production, and clinical sciences should be coordinated and integrated within a teaching programme on herd health management in production animal herds (swine, cattle, poultry, goats). In addition to diagnosis and treatment, this programme should include a strong component of risk analysis and disease prevention and control, with epidemiology and preventive medicine therefore being a component of an integrated teaching programme in herd health management.

4.18. As part of the work towards an integrated herd health approach, the teaching in epidemiology and preventive medicine should be substantially increased and include a certain amount of clinical epidemiology.

4.19. A compulsory course in surgical techniques using cadavers should be established.

4. 20. Compulsory courses in practice management, poultry medicine, and laboratory animal management should be established.

##### **Large Animal Hospital**

4.21. The Faculty must have competent large animal clinicians (particularly equine surgery and medicine), either by appointing suitably qualified and experienced staff, or by existing staff spending an extended study period abroad to acquire the necessary competency.

4.22. It is essential that the number of horses and production animals (cattle and swine) hospitalised is increased, and means such as improving transportation of animals to the clinics and housing them there (e.g. free pick up service, donation of sick animals, subsidised treatment, free housing of privately-owned production animals prior to their slaughter) should be used as incentives, (see also Suggestion 7.7).

##### **Small Animal Hospital**

4.23. The number of basic clinical cases should be increased, such as by using the animals from the abandoned animal shelter, This can be done in the good premises recently built in the shelter, relying on the possibility of transporting some of the animals to the hospital when special diagnostic or therapeutic procedures are needed (e.g. ultrasound, RX, endoscopy, etc.)  
For both small and large animal hospitals, including mobile clinic

4.24. The number of (second opinion) cases should be increased, by offering a 24-hours intake service, including emergency services and intensive care.

4.25. The access to the hospital for owners should be facilitated by putting clear signposts to the clinic from the highway (see also Chapter 6).

4.26. The efficiency of veterinary staff members should be increased, relieving their workload by supporting them with a receptionist, who could also write reports, and one or more trained veterinary nurses.

4.27. The collaboration and service quality offered to outside veterinarians should be improved by offering a rapid and efficient laboratory diagnostic service, particularly where advance diagnostic techniques are required (e.g. endocrinological determinations, electrophoresis, immunoserology).

4.28. Proper transportation (lorries, trailers, transport of small animals) should be provided.

### **Clinical Organisation**

The functioning and organisation of the clinical activities at the VFLP needs to be reviewed:

4.29. The Hospital should combine all the available clinical resources to provide a more accessible and integrated service, with 24-hour cover, and treatment of first opinion and emergency cases. This should be structured around a species-oriented 'trunk' of shared basic clinical services, supporting the specialist branches, rather than the current mosaic of specialist referrals only.

4.30. The Hospital, including the mobile clinic and the clinical laboratory, should be run as responsive, client-oriented services, with the aim of maximising the caseload and patient-student contact teaching opportunities in all species and fields. To do this effectively this, the hospital services should be treated independently from any organisation of the University.

4.31. The Hospital should be run by an independent authoritative manager, empowered to organise the use of resources (physical, staff and financial) to optimise the teaching and treatment activity in the hospital.

4.32. The primary objectives and roles of the Hospital Manager should be:

- to ensure that the hospital runs for 24 hours a day, including emergency services;
- to increase the patient load in all species;
- to maximise the patient contact hours for the students;
- to administer the budget, including optimising the hospital service income;
- to communicate the importance and excellent potential of the hospital not only to the Faculty and the veterinary profession, but also to the Canarian government;
- to deal with external relations, such as defining a list of the services the hospital should provide, and the prices.

4.33. Since clinical ability and activity is essential for meaningful teaching, clinical service duties should be considered as an integral part of employment in an academic position in a clinical field.

## 4.5 Food Hygiene and Technology

### 4.5.1 Findings

Food Hygiene and Food Technology are taught by two separate pedagogic units in the 4th and 5th years of the veterinary course. The teaching hours are shown in Table 4.7.

Table 4.7: Food hygiene subjects taught

Subject	year	Hours in course				Ratio of lectures to practical work
		Lectures	Practical work	Supervised work	Total	
Food technology	4	60	2	18	80	1:0.33
Hygiene, inspection and control of food	5	90	15	15	120	1:0.33
<b>Total</b>		<b>150</b>	<b>17</b>	<b>33</b>	<b>200</b>	<b>1:0.11</b>

### Food Hygiene

Teaching in the subject is given by the Food Hygiene unit of the DPAPBFT, which has 1 associate professor and 2 part time assistant professors.

The contents of the lessons in food hygiene are classical, and cover meat, animal products and vegetables.

- The practical training consists of;
- Two sessions of 7h each in the Faculty premises to explain the physico-chemical control of foods and identification of foods at commercial stages, with slides and videos used as pedagogic aids.
  - 3 sessions outside the Faculty, viz. ;
    - 1 session of 6 hours in a slaughterhouse (see also Section 7.4).
    - 1 session of 4 hours in the kitchen of a catering establishment to explain the implementation of HACCP.
    - 1 session of 5 hours in the Bromatology laboratory of the hospital in Las Palmas.

Some visits are organised to evaluate fish at the market.

There are usually 4-6 students in a group, although for the sessions on identification of foods a group size of 25 is used.

The work on carcase and meat inspection is performed in the island abattoir, about 15 km away (see Section 7.3). Students organise their own transport to these sessions.

To have a proportion of practice in food hygiene of around 40% in the new plan of studies, the unit states that it needs more teachers

### Food technology

Teaching in this field is given the unit of Food Technology unit of the DPAPABFT which is comprised of 2 full time associated professors and 1 part-time assistant professor.

The teaching is for the most part theoretical. The students have two hours of practical training in the laboratory with some measurement of physical parameters (activity, pH) on the meat or meat products.

Around 18 hours of field trips are organised to food plants, mainly dealing with the processing of fish.

The pedagogic unit of Animal Production includes work on slaughtering and meat quality, and milk and dairy production in goats within its teaching programme 'animal production and veterinary hygiene' (see also Table 4.5 and Section 6.3). There are no links between this unit and those of Food Hygiene and Food Technology.

#### **4.5.2 Comments**

There is a lack of coordination between the units doing work in the food hygiene area, with the two units function independently (see also Chapter 2 and Section 4.1).

#### **Food hygiene**

The theoretical teaching programme has a very traditional content based around food inspection alone. The theoretical teaching on HACCP, for example, is given in only four hours, which is insufficient, since this field is the basis of monitoring the safety of food products. It is important that the wider role of slaughterhouses in the surveillance of notifiable diseases within the food chain should be highlighted.

There is insufficient training in slaughterhouse work, partly because there are not arrangements in place to use the abattoir effectively for teaching. Students do not handle material, but simply observe the procedures. The number of carcasses and quantity of organs that are available for practical teaching is variable and generally low (see also Section 7.4). Students are not systematically exposed to every species. The training in inspection work is therefore insufficiently hands-on to provide an adequate basis for practical veterinary activity in this domain.

Assuming that work on fish is one of the main areas to be expanded within the VFLP, the programme should be adapted to take this into account.

#### **Food technology**

The teaching of food technology is separated from that of food hygiene and inspection which is given in the following year. It is important that the teaching in the earlier subject provides a sound basis for the hazard analysis and implementation of measures of control which should be covered in the teaching on food safety.

#### **4.5.3 Suggestions**

4.34. To provide students with adequate training in the practical aspects of animal, carcass and organ inspection for food safety control, students should be required to spend an extended training period (50h) in an abattoir of sufficient capacity,

4.35. There should be close coordination between the teaching of food hygiene and that on food technology, establishing clear overall objectives in this field.

4.36. The visits to the slaughterhouse and food processing plants should be organised more along the lines of a case study that is developed by students.

4.37. The teaching on HACCP should be expanded, including demonstrating the implementation of relevant programmes using documents, software and actual case studies.

4.38. The work on milk and meat processing and quality that is currently being performed in the animal production unit should be integrated into the teaching in food hygiene and technology.

4.39. More emphasis should place on teaching the food hygiene and technology of fish.

## **5. TEACHING: QUALITY AND EVALUATION**

### **5.1 Teaching Methodology**

#### **5.1.1 Findings**

Along with the content, the format of the teaching is decided by the Department responsible for providing the particular subject. Teaching follows the traditional methods of theoretical ex-cathedra lectures along with a series of practical sessions, supervised work and field trips where appropriate. The format and group size used in different fields has been outlined in the preceding chapter.

It appears that students at present rely too heavily on written class notes instead of international standard veterinary textbooks. Computer use is mainly for simulations, or specific software in areas such as feed formulation and statistics, during practical sessions. There is some use of computers for self-testing, but little apparent substitution of theoretical lessons with computer-based learning modules. However, students are encouraged to use information technology, such as internet searches, for project work in several subjects.

Computerised clinical case solving is offered when live animals are lacking in the hospital.

There is a process of evaluation of teachers by student questionnaires. After statistical processing by the University central services, the results are sent in confidence to the teacher concerned

At a national level, staff members can have a voluntary assessment of teaching skills at 5 years intervals, which together with student evaluations may lead to supplementary salary. A similar system exists at a regional level.

Students have no counselling or study guidance.

#### **5.1.2 Comments**

The teaching format and use of resources has a very traditional and compartmentalised format. The content and objectives of the course are defined for each subject in terms of the teaching that should be provided, at a national level (in terms of a national curriculum subdivided into knowledge areas) and at the level of each pedagogic unit. There is no structure in the teaching at a Faculty level, and a lack of clear learning objectives at all levels (see also Chapter 2 and Section 4.1).

The curriculum structure and teaching format means that much of the teaching is content-based. Since most pedagogic units and their teaching are self contained, content is often centred on the lecture notes from teaching staff, rather than on resources such as books, periodicals, computer-based material, etc.

Much of the practical work, particularly in the applied fields (clinical, animal production and food hygiene) seems to be of a tutorial nature, as opposed to actively engaging the students, such as by giving them responsibility for analysing and tackling a real or simulated problem. This is in part another disadvantage of the fragmented course structure, as no-one has the responsibility for showing the synthesis and application of knowledge beyond a narrow domain.

Much of the practical work, especially in the applied fields, consists primarily or solely of observation only. There is little case responsibility. In this context, the low caseload and short clinical hours are inevitably a limiting factor, as is the lack of access to farms and slaughterhouses.

The process for evaluating teaching does not provide a systematic or effective method for improving teaching quality at the Faculty.

### **5.1.3 Suggestions**

See Suggestion 4.1

The Faculty should encourage veterinary students to be more actively involved in learning during the course, viz;

5.1. a reduction in content-based teaching (and shift away from content-based examinations) and the inclusion of problem-oriented learning;

5.2. more self-study by students, using international textbooks, journals, the internet and other classical and information technology resources;

5.3. adopting a problem-oriented approach to the practical teaching, rather than the tutorial type of practical

5.4. In clinical work the students themselves should perform more clinical procedures on animals (history taking, examination, performing basic diagnostic techniques, have responsibility for case care and treatment).

5.5. There should be systematic evaluation of the teaching, combined with monitored feedback, with the aim of ensuring effort is effectively directed towards meeting learning objectives.

5.6. A permanent committee or scheme should be implemented to evaluate how the objectives of each discipline have been reached, the methodologies of teaching, the integration and coordination of the different subjects, and the quality of teaching.

## **5.2 Examinations**

### **5.2.1 Findings**

Examinations take place during 3 weeks without teaching in February, 5-6 weeks in June-July (when there is no teaching), 2 weeks in September, and 3 weeks in December. They are prepared and implemented by the Department or member of staff responsible for the teaching of a specific subject. External examiners are not used.

Assessment of student performance is based primarily on written examinations, with a variety of formats (multiple choice, short answer, long answer). Some subjects, such as anatomy and histopathology, also have a practical examination. In several subjects, there are partial examinations during the term, which (if passed) exempt student from part of the final examination. In some subjects Students can elect to prepare a dissertation which counts for 30% of their final examination mark.

Examinations can be passed in a piecemeal fashion over several years. There are no subjects that have to be passed before continuing with subsequent subjects in the course. Students can take each examination six times. A 'no-show' is not considered as a failure.

### **5.2.2 Comments**

The lack of prerequisites, and allowing students to retake each examination many times, means that there is a lack of academic rigour to the students' passage through the study programme. Even if she or he is aware of the teaching programme of her/his colleagues, a staff member cannot know whether a student has acquired a satisfactory level of competency in a related discipline, upon which they can base their own teaching programme. This reinforces the impression, for both students and staff, that each subject is a self-contained unit that is independent from all others.

Since the examinations are set by the same academic staff that decide upon the content of a course, and impart this material to the student, they do not provide an objective check of the level the student has achieved, or that topics are covered in a balanced way. Each subject is in effect a closed cycle, and does not enable any feedback as to whether the material is relevant, being appropriately taught, or being effectively assimilated by the student.

The team is aware that some of the issues mentioned above may be based on national law, or other regulations or customs.

### **5.2.3 Suggestions**

5.6. A greater degree of academic rigour (e.g. making attendance at examinations compulsory) should be applied to the examination process, so that students have to successfully complete a subject within a reasonable time.

5.7. There should be defined limits to the extent to which student can continue with subjects in the later part of the course before they have successfully completed the preceding subjects, for example by a clear system of prerequisites, or only allowing students to 'carry' a limited number of subjects or credits.

5.8. There should be a system of external examiners, to enable some objective feedback on whether the material being taught, and the level attained by the student, is appropriate in the context of the overall objectives of veterinary training. For the applied subjects (clinical, animal production and veterinary public health), practitioners should be included in this process.

The observations made in Chapter 2 regarding external input and evaluation of the veterinary course is also relevant to examinations.

## **6. PHYSICAL FACILITIES AND EQUIPMENT**

### **6.1 General**

#### **6.1.1 Findings**

The Faculty is located in the region of the town of Arucas on Gran Canaria, about 8 km from Las Palmas, the main town of the island. The campus is located on a compact site on a slope above the motorway to Las Palmas (which is also the bus route), from which a small road leads up through the school of agriculture to the Faculty buildings. The site and clinics are not well signposted.

Several subjects which are the responsibility of units that are not part of the VFLP (see Chapters 2 and 4) are taught at the Tafira Campus of the University, about 12 km outside Las Palmas, and at the Teaching Hospital (human medicine) in the town. The journey time to either of these sites is usually in excess of half an hour.

Access by foot after using public transport is via a very rough and rocky path from the highway to the Faculty. This passes through an unlit tunnel to reach the other side of the motorway, to get to buses travelling in one direction.

The Faculty has several separate buildings of one or two stories, which are all of recent construction viz.;

- main building, with lecture halls, cafeteria and student facilities,
- departmental building, comprising offices, research and teaching laboratories,
- computer room, and temporarily housing the library;
- a new central services building (approaching completion), with administrative offices, 2 lecture theatres and the future library
- the anatomy and pathology unit
- a large animal hospital
- a small animal hospital
- a goat farm (see Section 6.3)
- a student block with a canteen and offices

There are a total of 8 lecture theatres/large teaching rooms with a capacity of between 30 and 200 (880 places in total). There are 24 laboratories described as being available for practical work by students, with typically 15 places. Many are also research laboratories. The 'official' number of teaching laboratories (for funded purposes - see Chapter 3) is 6.

The laboratories in the departmental building are generally of a standard size (about 100 m<sup>2</sup>). Some are shared teaching facilities (computer room, microscope laboratory, basic sciences laboratory, preclinical laboratory), whilst others are attributed to different pedagogic units (e.g. agricultural economics, food technology, nutrition, parasitology, food hygiene), and serve for both teaching and other activities.

There are several architectonic barriers (stairs, slopes, uneven or loose floors, no lifts, no ramps), which make the access to the buildings impossible for handicapped persons.

There is a council run centre for stray animals adjacent to the Faculty, which receives around 2000 stray dogs and houses around 300 hundred cats annually.

The facilities available to the different teaching units have been outlined in more detail in the subsequent sections of this report.

### **Health and Safety**

It is not the purpose of an evaluation visit to audit the provision for health and safety at an establishment; however, during the course of the visit some points that should be addressed by the Faculty were noted:

- In several places there was insufficient protection against falling from staircases;
- Gas bottles were being used unchained. Bottles with explosive gas were being stocked and used indoors without monitoring equipment;
- Hazardous chemicals, such as acids, alkalis and harmful organic solvents were stocked on open shelves, and not separated;
- Smoking was ubiquitous, even in laboratories which contained flammable material.

### **6.1.2 Comments**

Although the site is relatively close to Las Palmas, access by road is not easy, since the road is narrow and steep. The site is crowded, with limited provision for parking. Lack of designated parking for clients of the clinic is a particular problem in this respect. The lack of signposts to the clinics is an avoidable shortcoming. In summary, getting an animal to the clinic, particularly in a large vehicle or one with a trailer, must be frustrating for a client.

Being new, the buildings are generally in good condition, although building work means the site is untidy and unfinished.

In general, there appears to be sufficient space within the buildings and laboratories. Unless the space has been designated for some specific purpose, there is a huge volume of unused capacity in the entrance hall of the new central services building. However, the number of practical lessons that have to be scheduled to accommodate an entire year mean that the shared laboratories are heavily used, causing difficulties in timetabling.

The provision of equipment in the Faculty is generally good. In several disciplines, much of the practical teaching seems to be based around research equipment, which may mean that specific teaching equipment is lacking, and reduce the 'hands-on' component of practices.

No account at all has been taken in the design and construction of the buildings of provisions necessary for handicapped persons, whether staff, students, clients or visitors.

For persons without cars, the access between the Faculty and the bus stops on the nearby motorway is not merely bad; it is dangerous. The path from the Faculty to the viaduct that carries the motorway is inadequate, in parts nothing more than a track. Access at the viaduct to the bus stops is via a steep bank on one side, and through an unlit tunnel to get to the other. Having such an unsatisfactory and unsafe route to the Faculty by foot is also unnecessary, since the adjacent University Experimental Farm already has a pedestrian bridge that crosses the motorway, but the FVLP is prevented from using this. The team most strongly urges the University and public authorities concerned to provide much better pedestrian access, as a matter of urgency.

Animal welfare in the goat farm, rabbit farm and laboratory animal housing seems suitable.

### **6.1.3 Suggestions**

6.1. More space for practical teaching should be provided, so that the demand and usage of the existing laboratories is not so high as present.

6.2. More equipment should be provided for students to use in practical classes.

6.3. A means of free or low cost transport to and from the town centre to the Campus should be provided.

6.4. Safe provision for staff and students to reach the public transport on the highway should be provided.

6.5. The provision for clients to reach the Faculty clinics should be improved by proper signposting and controlled parking.

6.6. In the longer term, the vehicular access to the Faculty, parking, and access from the Faculty to the Animal Shelter should be improved.

6.7. Provision needs to be made for the access and use of the Faculty premises by handicapped people.

## **6.2 Basic Subjects and Sciences**

### **6.2.1 Findings**

There are a limited number of basic science teaching laboratories at the Arucas campus. Several of these disciplines are taught by Departments based on other Campuses of the ULPGC, and students have to travel to their laboratories at these sites (see also Chapter 4). The basic science teaching laboratories that there are at the Arucas Campus are well equipped.

The Faculty has a laboratory with 20 binocular light microscopes for use for histology, histopathology and parasitology teaching. The histopathology/histology section also has a microscope room with a 5-station instrument and a good range of teaching material. There is no projection/video microscope.

Several of the basic science disciplines use the computer room (see Chapter 8) for part of their practical teaching.

The Anatomy unit has a large dissection hall (about 400m<sup>2</sup>) with several section tables and a stainless steel side bench with storage. There are freezing and chilling facilities, an anatomical museum, technical room, and a room for viewing radiographic, photographic and MRI images for practical anatomy teaching. A good range of teaching material was available.

There is a large well-kept room for necropsy work, equipped with one large, two médium and two small section tables. The technical infrastructure, such as rail hoist, storage and chilling facilities, and wash rooms are present.

### **6.2.2 Comments**

The facilities and equipment for the basic sciences were satisfactory, and the standard of the teaching material in the Anatomy/Pathology sections were notably good and well-organised.

The only shortcomings noted in this respect were that;

- students have to travel to other parts of the town to get to some basic science laboratories;
- and the number of practical sessions means the shared teaching facilities are heavily used, and sometimes not available.

The former is an organisational issue (see Chapter 2), rather than purely one of premises. The latter is a reflection of the fact that there are not enough shared laboratories to accommodate the number of parallel sessions that are scheduled.

### **6.2.3 Suggestions**

See Suggestion 2.1.

See Suggestion 8.3.

6.8. An additional shared teaching laboratory should be established, for instance using the space vacated when the present library/reading room is re-housed.

6.9. The Faculty should consider acquiring a projection microscope for installation and use in the microscope laboratory.

## **6.3 Animal Production**

### **6.3.1 Findings**

The pedagogic units (nutrition, agronomy, etc.) providing the teaching in the animal production disciplines each have laboratories (typically of about 100 m<sup>2</sup>) for their teaching and research.

The units of Animal Production and Animal Reproduction between them 'own' the Faculty Farm. This has pens accommodating about 100 goats, along with an area for slaughtering kids, a milking parlour for goats, and a cheese making unit. There is also a rabbit breeding unit, run primarily by the students.

Access to animal material is outlined in Section 7.2.

### **6.3.2 Comments**

Although it is termed "Farm", the facility is in fact a number of pens, mainly for goats, on the Faculty Campus.

### **6.3.3 Suggestions**

See Sections 4.3.3 and 7.2.3.

## 6.4 Clinical Subjects

### 6.4.1 Findings

The Faculty has a hospital for small and large animals at the Arucas site. The premises include well-equipped consultation rooms, operating theatres, (two for small animals, one for large animals) hospitalisation areas, a reception and a waiting room. A dispensary, intensive care unit, and isolation facilities for contagious animals are lacking.

There is a separate facility for experimental clinical work on goats in the lower floor of the small animal clinic.

The equipment present at the hospital included a small and large animal radiographic machine, a developer, two ultrasound machines, an optic fibre endoscope, several gaseous anaesthesia machines, monitoring equipment including a pulsoxymeter, special ophthalmologic equipment, dentistry equipment, electrocardiographs, etc.

By way of vehicles for the mobile clinic and collecting material, the Faculty has a four-wheel drive vehicle, a trailer that can be used for horses or livestock, and a truck equipped with a hoist.

A clinical diagnostic laboratory with sufficient laboratory equipment is available for hospital service, external services and student practices. The infectious disease unit, the pathology unit and the parasitology unit offer outside services to veterinarians. The numbers of analyses performed for outside service by the diagnostic laboratory, by the microbiology service of the infectious diseases unit, and by the parasitology unit are between 200 and 1000 for each of them per year.

Analysis	approximate number/year
bacteriological/urological/mycological	200
Haematological/serological	1000
Parasitological	200
Necropsies	700
Biopsies Histological/cytological	1000

### 6.4.2 Comments

The Large Animal Hospital and the Small Animal Hospital seem to be well equipped. However, some equipment was out of order and had been awaiting repair for a long period of time, for reasons that were unclear. The floor in the large animal operating theatre needed refurbishment.

The premises are large enough to provide good working and have the capacity to cope with adequate teaching material for the students, with the exception of the large animal hospitalisation area, which only has four places. This is insufficient if the large animal's caseload is going to increase to the levels that are necessary for properly training the students,

The hospital seems to be working in the morning only, with the possibility of hospitalising sick animal during the night. The small animal hospital appeared under-used. The lack of intensive care facilities limits the level of care the Faculty clinics can offer. Such a facility could be located in the rooms before the general hospitalisation room in the small animal clinic. Isolation facilities are also needed, and could be fitted into the existing premises.

The facilities of the hospital and of the clinical laboratories could, and should, support a much higher caseload. Issues related to the organisation of the clinics and the caseload has been discussed in other sections of this report.

The team would consider that there is still capacity for increasing the external diagnostic services offered, which would increase the income to the departments/units. The service needs to be more responsive, as outside bodies currently find it easier in some instances to send samples to the

mainland.

### **6.4.3 Suggestions**

6.10. The number of hospitalisation places for large animals should be increased.

6.11. The clinical equipment that is presently out of order should be repaired or replaced.

6.12. An intensive care unit should be established in the small animal clinic, close to the hospitalisation area.

6.13. a facility for isolating potentially contagious cases should be established in the small animal clinic.

6.14. The Faculty should consider establishing a central dispensary/pharmacy at the clinic.

6.15. The Faculty should ensure that the diagnostic services it offers to outside bodies, such as practitioners, are responsive in terms of the speed and quality of analysis and feedback.

## **6.5 Food Hygiene**

### **6.5.1 Findings**

The slaughterhouse work in the veterinary teaching programme (see Section 4.5) is performed at a multi-species abattoir in 15 km from the Faculty. This is now the only slaughterhouse in the Islands.

Both the Food Hygiene and Food Technology units have a general teaching/research laboratory available for practical training (physical and chemical analysis). Neither unit has any facilities for handling carcasses or organs.

The laboratory of food hygiene performs a few traditional microbiological analyses (about 6/week) on samples. It does not perform residue work (pharmacological, toxicological, hormonal, etc.).

There is no food technology pilot plant.

Independently of the units dealing with food hygiene and technology, there is a small installation for slaughtering small ruminants in the unit of Animal Production ('Faculty Farm' - see Section 6.3), with some materials to test the quality of meat. There is also a small milking parlour and cheese-making room, also used for work on goat and their products.

Students have little access to facilities for processing fish, to see fish inspection work.

### **6.5.2 Comments**

Within the slaughterhouse management, there appear to be differences of opinions over meat inspection working practices that is making it difficult to maintain access to this facility for teaching purposes.

Meat inspection cannot be performed on the Arucas site.

The laboratory facilities allow the demonstration of microbiological techniques, but not hands-on work by the students.

The facilities for meat and dairy work in the Unit of Animal Production should be used to teach milk technology and perhaps some techniques of meat inspection. Access is also needed to facilities for work with fish, if the Faculty aims to develop this area of work.

### **6.5.3 Suggestions**

6.16 A formal contract of cooperation should be established with the slaughterhouse, in order to adequately demonstrate ante- and post mortem inspection. Students should be able to handle and closely examine condemned material.

6.17. A laboratory for bacteriological and chemical analyses of food by students should be established.

6.18. If the Faculty wants to raise work on fish as an objective and a priority for the future, then more attention needs to be paid towards gaining access to facilities that can support such activities.

## **7. ANIMALS AND TEACHING MATERIAL OF ANIMAL ORIGIN**

### **7.1 Basic subjects**

#### **7.1.1 Findings**

As discussed in Chapters 2, 4 and 6, the anatomy and pathology units work closely together, and acquire a significant quantity of material for hands-on teaching in these fields.

There are small animal cadavers (dogs and cats) coming every week from the adjacent abandoned Animal Shelter in a sufficient number to cover the needs of student teaching. However, with large animals the situation is different, since it depends on the availability of suitable transport and personal relationships with veterinary practitioners. Regarding pigs and poultry, it seems that there is no material coming into the Faculty at present.

For anatomy teaching, preparation, specimens and fresh material are complimented by a range of images (high-quality photographic plates, radiographs and MRI scans). The animal material available for necropsy is detailed in Table 7.1 below. Students assist the academic staff in the preparation and cleaning up of material. Animal material is collected for disposal by the municipal authorities once a week.

#### **7.1.2 Comments**

The Anatomy and Pathology units (which collaborate closely) are commendably active in obtaining sufficient material for teaching activities. The units are also actively seeking to build up relations overcome difficulties (for example concerns about disease control on pig farms) in areas where they would like additional specimens.

It is necessary to establish an agreement with local practitioners and farmers to collect dead large animals, such as cattle, horses and goats. To respond to this type of service, the Faculty need to have a specific means of transport available any time of day and adequate cold storage to handle this material.

The plan of cooperation with the local and central government includes a proposal to create a reference pathological laboratory at the Faculty, where all Canarian official analyses would be performed. This would provide the Faculty with a lot of material that could be used for teaching purposes.

The participation of the students in the processing of animal material for teaching purposes overcomes some of the problems of a lack of support staff (see Chapter 10)

The weekly collection of waste presents a problem for the Faculty in storing material for disposal, particularly with respect to large animals.

#### **7.1.3 Suggestions**

7.1. The Faculty and the units of Anatomy and Pathology should continue to work towards agreements with practitioners, farmers and other bodies to increase the diagnostic and teaching caseload.

7.2. The Faculty should ensure that appropriate transport is available any time of day for collecting carcasses for necropsy work, and that there is adequate cold storage in handle this material.

7.3. The proposal to establish a reference pathological laboratory at the Faculty should be actively supported by the University and Faculty.

7.4. The University and public authorities should act to solve the problem of the build up of animal cadavers and organs at the Arucas site. The frequency of collection could be increased, or an accessible drop-off point designated, or the construction of an incinerator could be considered.

## **7.2 Animal Production**

### **7.2.1 Findings**

At the present time the Faculty has a herd of goats and a rabbit production unit at the 'Faculty Farm' at the Arucas site (see Section 6.3), there is no general Faculty or University Farm as such, where the students can have practice and contact with animal management.

Access to species other than goats and rabbits, namely horses, cattle, pigs and poultry, is missing, and students have little hands-on involvement with these production animals on the farm visits.

There is an animal laboratory (bioterium) unit mainly for research and some practical classes.

### **7.2.2 Comments**

The animals presently available on the Farm are helpful to the students to handle, and can also be used to support some practical classes. However, if the Faculty wants to offer all competencies for veterinary students, students must have access to production species, namely cattle, pigs, horses and poultry, at the Faculty or on a Faculty/University farm where students can learn to handle and manage the animals.

Besides, there should be a well-planned visit scheme to allow the students to have contact with the different production systems, both intensive (i.e. poultry and pigs) and extensive (i.e. ruminants).

A good collaboration must be established between pathological classes and animal production teaching together with the farmers, the veterinary practitioners and official veterinarians in order to teach the student herd health management. This should take advantage of the ADS (Health Defence Association) system already implemented, and is a question of emphasising all preventive measures leading to improve health status of the commercial herd, reducing the need for clinical and veterinary medicine intervention.

### **7.2.3 Suggestions**

7.5. Access should be provided to facilities (e.g. a general Faculty Farm) for the students to learn how to handle and to manage all production animals, including pigs, poultry, cattle and horses.

7.6. The Faculty should maximise the use of any animals on production farms to which it has access, using these in practical classes within animal production as well as for clinical teaching.

7.7. Cooperation with practitioners and producers associations or individual farmers should be intensified in order to involve the students in herd health management, as well as with the different commercial production systems.

## 7.3. Clinical Sciences

### 7.3.1 Findings

The animal material handled by the Faculty clinics is detailed in Table 7.1.

Table 7.1: Number of animals seen at VFLP (1997 - 2000)

		Consultations			Hospitalisations			Autopsies			mobile clinic
		2000	1999	1998	2000	1999	1998	1999	1998	1997	2000
Farm animals	Cattle					3	2	9	4	6	1
	Horses							5	4	4	45
	Small ruminants				33	42	9	140	53	61	614
	Pigs							6	8	17	
	Other farm animals							117	193	159	
Pets	Dogs	280	380	486	15			92	95	130	
	Cats	19	59	46	3			28	37	30	J
	Other pets*		6	9				108	86	34	
Other	Cetaceans							23	10	11	

\*Autopsies are principally on reptiles

The animals kept at the 'Faculty Farm' (goats and rabbits) have been mentioned in previous sections. Some experimental clinical work is also performed on goats, and it is to these animals that the hospitalisation figures for small ruminants appear to refer.

The clinics see referral cases only. Remarks on the clinical organisation have been made elsewhere.

The caseload received as clients is supplemented by animals from the adjacent Animal Shelter, for which the Faculty provides sterilisation treatment.

The Faculty does not offer a service for collecting animals for treatment. 7.3.2 Comments

There are very few small animal consultations and hospitalisations. The quantity of animal material seen in the Faculty is too low to provide adequate clinical experience to students, or to enable staff to develop, or even maintain, their level of skill. The level of caseload is therefore insufficient to support a credible treatment or teaching clinic

Students do not receive any clinical practice training in first opinion caseload at the Faculty. This is dependent on students spending time in private clinics outside.

The Animal Shelter receives a large number of companion animals that could be used for giving the students with experience in handling, examination and some kinds of treatment.

A major disadvantage is the isolation and the restricted access to large animals. The Faculty currently has no meaningful access to any production animals apart from goats, this may cause problems in attracting students from other parts of Spain and at the same time in maintaining balanced training in those fields of veterinary science.

### 7.3.3 Suggestions

7.8. The caseload available for the clinical teaching of students must be increased in all species, (potential Category 1 deficiency)

7.9. A service for collecting patients, in particular large animals, should be organised, to improve the caseload of these species seen in the clinics. Treatment of farm animals should subsidise so that it is

free or low cost to increase the number of cases.

7.10. The increased use of cats and dogs of the shelter for basic clinical training, and for practice on cadavers, should be pursued.

## **7.4 Food Hygiene**

### **7.4.1 Findings**

The students go to the slaughterhouse to have access to animal material. This is now the only such facility in the Islands. It works with all species, and has two parts, one for cattle, pigs and small ruminants, and one for rabbits and poultry. The level of production is very low (less than 2,000 tons per year), and there are few cattle slaughtered.

The training on fish and fish products is restricted to a visit to a processing plant.

### **7.4.2 Comments**

The availability of material at the slaughterhouse is very variable. There is in general insufficient material of animal origin for supporting training in food hygiene.

The slaughterhouse is not accustomed or set up for training students to perform food inspection or study the implementation of food certification practices.

### **7.4.3 Suggestions**

7.11. The access students have to animal material of different species for structured and controlled work on animal, carcasses and organ inspection techniques for food safety must be increased. (Possible category 1 suggestion)

Suggestion 4.35 is concerned with providing students with adequate access to animal material for food hygiene work.

7.12. The Faculty should buy carcasses to demonstrate techniques of inspection, and to enable students to be given hands-on experience of this kind of work.

## **8. LIBRARY AND EDUCATIONAL RESOURCES**

### **8.1 Library**

#### **8.1.1 Findings**

The library is temporarily housed in a room of 100 m<sup>2</sup> in the 'Departmental Building'. There is an adjacent reading/working room of a similar size, with about 30 places. A new library will be installed in the new central services building.

The Library has three staff members, and is open from 09:00 to 20:00 on working days. During July and August, the opening hours are 09:00 to 14:00. There are no departmental libraries.

The Library had a budget of around 46.000 Euros in 2000.

The library has around 8,000 books, with several copies of the texts most useful to students being available. Books are kept for both consultation and lending. There is a computerised system for book research within the library, which is accessible to both staff and students.

There are 71 active subscriptions to journals and 50 donations. Many other subscriptions have been stopped, and only issues that are several years old are available. International journals seem to be well represented. Articles in journals that are not present within the Library can be obtained from other sources through the library secretary.

There is access to on-line database reference services (such as Medline) as well as to CD-databases (Beast CD, Vet CD and FSTA CD).

Teachers provide the students with some practical training in use of the library. Information retrieval and on-line computer based reference searches, usually in the context of a specific topic (e.g. nutrition). There does not seem to be a general course that specifically covers such topics.

#### **8.1.2 Comments**

Under normal circumstances, the staffing of the library is sufficient, and the opening hours are good. However, one drawback is that with limited personnel the library has to reduce its opening hours if one staff member is ill or on vacation.

The library has a good and well balanced collection of books. However, it seems that the money allocated for books and journals is decreased from year to year.

The collection of journals is inadequate. Among the journals that are missing are very important publications such as Science and Nature, and there is a lack of any immunology Journal.

The current Library premises are not attractive, as they are cramped, and have insufficient natural light. The move to the new facility will solve this drawback, as it will provide a much more spacious and pleasant room, with better storage, display and reading areas,

As noted in Chapter 5 (teaching methodology), much of the teaching seems to be based around course notes, rather than bibliographic material.

#### **8.1.3 Suggestions**

8.1. The collection of journals available in the library should be improved.

8.2. An extra person should be added to the library staff, particularly if moving into the new premises, which will be much larger.

## **8.2. Computers and other teaching resources**

### **8.2.1 Findings**

The Faculty has a computer room with about 24 new machines for use in teaching.

This is a general teaching facility used for practical/supervised work in various subjects (e.g. genetics, nutrition), chiefly the basic sciences. However, the course in statistics apparently requires particular software, and is therefore given in the facilities of that pedagogic unit on the Tafira Campus, about 1/2 - 3/4 hour drive away.

### **8.2.2 Comments**

The computer room is heavily used, since quite a substantial number of subjects have a computer-based component. Also, each class has to be repeated several times, due to the number of groups (typically 8 groups/year). The present computing facilities are therefore not sufficient in quantity, and an additional computer room is needed. This should not only be used for teaching purposes, but also to provide students with more opportunity to work privately. The room that will be vacated when the library relocates to its new premises could be used for such purposes. It would also be appropriate, for convenience of access and security, to have several computers installed in the library for information retrieval and general use.

The current computer room lacks air conditioning, and the climate and the heat generated by the people and computers in the room make it disagreeably uncomfortable, even for a short period of time. This is unnecessary, and will reduce teaching and learning efficiency.

### **8.2.3 Suggestions**

8.3. An additional computer room should be provided in the future.

8.4. Adequate facilities and appropriate software should be available at the Arucas campus of the VFLP for teaching all the disciplines that have a computer-based component.

8-5. Air conditioning, or some other effective cooling system, should be installed in the computer room.

## 9. ADMISSION AND ENROLMENT

### 9.1 Findings

Year	1999/00	1998/99	1997/98	1996/97	1995/96	1994/95
Number admitted	82	77	75	81	86	85
Number graduated		72	61	44	31	15

The number of students in specific years ranges from 73 to 187, with the highest number in the fifth year. A total of 542 students were enrolled on the veterinary course in 1999/00, with approximately equal numbers of male and female students.

Around 400 students apply for admission each year, Admissions have been approximately constant for the past decade. A *numerus clausus* (currently 70) is decided by the regional government, In addition to this standard intake, several students are admitted from other Spanish universities each year under 'official procedure of transfer'.

After secondary education, no specificity is required but it is suggested to have chosen biosanitary specificity or health science. After passing their end of school diploma, students have to pass a general university entrance exam for the ULPGC. For veterinary studies, it is necessary to have a "basic mark" (currently 6.5/10). After human medicine, this is the highest figure for any faculty of the University.

### 9.2. Comments

The number of students in the final year (187) is high since there is a backlog of students who have continued with their studies before having passed all the subjects in the preceding years (see Chapter 5). These then have to be completed at the end of the course.

The academic level of the students entering the Faculty is variable, and accordingly it is necessary to homogenise the standard in the basic subjects (mainly physics, chemistry and mathematics), are allow for such differences in the first year subjects.

The high number of students who drop out (22%) is due in part to the necessity to work in order to obtain money, and in part to students who have failed examinations.

It is difficult for a student to change to another veterinary school because; differences in the courses from one faculty to another; the preference given to accepting students from the specific region.

It is not appropriate or efficient for a veterinary course to have to incorporate secondary school material. Since there is a single entrance examination, this problem must also arise in other courses.

From discussions with practitioners, students and staff, it would appear that there are too many veterinary graduates seeking work in Las Palmas, particularly as private practitioners. There is less overcrowding in other areas, such as the southern part of Gran Canaria and the other islands, and mobility is low.

### 9.3. Suggestions

9.1. Students should be required to reach an adequate level of knowledge in the basic subjects before starting the veterinary course, either through their secondary school education, or by attending preliminary courses at the University. Alternatively, a greater specificity in the entrance examination should be used to select students.

9.2. The number of places should be set according to the teaching capacity of the Faculty in terms of the availability of materials and caseload available, and to the availability of appropriate employment.

The latter point should be determined in consultation with outside veterinary bodies such as the College of Veterinary Practitioners or representatives of government veterinarians (see also Suggestion 2.3).

## 10. ACADEMIC AND SUPPORT STAFF

### 10.1 Findings

Table 10.1: Academic and support posts in Departments

Department	Academic staff			Support staff				Total
	Prof.	Assist. Prof.	Assoc. Prof.	Tech./ animal carers		Admin/ General	others	
				teaching	research			
Animal Pathology	2	20	14.5	4	1	2		43.5
Morphology	1	6	4.5	2		1		14.5
Clinical Sciences*	1.5	2	3.5		0.5			7.5
Biochemistry	0.5	1	2					3.5
Mathematics	0.5							0.5
Physics		0.5						0.5
Biology		1						1
Chemistry		0.5						0.5
Faculty				6	1	15	7	29
TOTAL	5.5	31	24.5	6	1.5	3	7	71.5

\*Human medicine faculty

There is a single department (animal pathology etc.) in the Faculty, along with one section (morphology) that is part of another department of the University that is permanently located in the Faculty (see also Chapters 2 and 4). The other staff tabulated above belong to other Departments, and are sort of Visiting lecturers', even though their only teaching may on the veterinary course.

#### Academic staff

There are three categories of academic staff, 2 with permanent positions (full time professor and assistant professor, and one with a temporary renewable contract (associate professors). Associate professors are chosen by a panel comprised of 4 persons namely the Dean, the Head of the Department, the Head of Unit involved. The post is advertised in the press.

The ratio of teaching staff: students are 1:8.9 (61:542).

Teaching obligations are 8 hours/week for a full-time permanent staff, 6 hours/week for part time staff and associated professors. There is no obligation in staff contracts to provide services (e.g. clinical duties).

Staff are appointed and paid directly by the University, although the department concerned is involved in the recruitment process. New positions are allocated by putting in a request to the University, justifying the need for another post, although the outcome depends on the finance being available.

#### Support staff

The ratio of teaching staff: support staff is 1:0.6 (61:36.5).

The support staff has a career structure which has five levels. Most of the support staff working at the Faculty are from level 3, but the clinic nurse is level 2.

There is no formal evaluation of personnel. Promotion is through an examination at University level.

There is no formal training of personnel. There is some general training at University level, but training in areas related to the veterinary sector is not available.

Personnel receive direct work instructions from the teacher(s) from the department to which they are assigned,

## **10.2 Comments**

The number of academic staff is considerably below the recommended level of 80 full-time positions that is the minimum required to cover a full veterinary curriculum. Furthermore, the high degree of fragmentation and lack of coordination in the teaching (see Chapters 2 and 4) means that staff utilisation will not be as efficient or effective as would be the case in an integrated course. The ratio of teaching staff:students is not ideal, but is within an acceptable range.

With the introduction of the new curriculum, the number of teaching hours will increase, in particular for the practical training. Whilst this is good from the point of view of the training, the necessary extra resources for the increased teaching load do not appear to have been allocated. This means staff will either have more teaching duties, or that the group size will have to increase, which is not a desirable situation.

The ratio of teaching staff: support staff is poor. In several areas, students (alumnos iníereros) appear to be doing work normally undertaken by support staff.

There is a need for a much greater degree of communication and collaboration between staff in different pedagogic units if the teaching, research and service work are to make the most effective use of the resources and time available (see also Chapter 2 and 4).

Staff, in particular the clinicians, need to recognise that providing a responsive and comprehensive service to the community is an integral part of working in a veterinary faculty. If the level of service does not meet the needs of animal owners, the caseload received will be inadequate, as at present (see Sections 7.3 and 4.4).

Evaluation and feedback on the teaching provided by staff needs to be more systematic and open (see Chapter 5)

At present, postgraduate clinical training receives no encouragement or recognition. In the clinical field, and several of the paraclinical areas, attaining Diplomist status from a recognised European or American college of specialisation should be considered at least as important as a Ph.D, and would add considerably to the standing of service and teaching in that field (see also Chapter 12). There needs therefore to be recognition of the value of such extra training in the appointment, promotion and pay structure of the departments, Faculty and University.

## **10.3 Suggestions**

10.1. The number of academic staff needs to be increased to enable full coverage of the fields of veterinary science, with a particular emphasis on augmenting the personnel in the clinical and food hygiene fields.

10.2 The teaching load and allocation of staff resources to different areas should be reappraised in relation to the teaching objectives (see Suggestion 4.1), to the new curriculum, and the need to further emphasise some fields (see Suggestion 4.3).

10.3 There should be a wider and more systematic evaluation of the teaching staff for promotion and staff development. This should take into account teaching performance (see Suggestion 5.5),

additional training or qualifications undertaken, and service provision, as well as research output.

10-4 The achievement of Diplomate status from a recognised European or American College of specialisation should be recognised and acknowledged when considering the appointment, promotion or salary of a clinical or paraclinical position. Preference should be given to Diplomate in the appointment of new staff members, and such a qualification should be a prerequisite for promotion to higher clinical positions.

10.5 Any necessary changes should be made to the terms and conditions of employment to ensure that consistency and continuity of clinical service at the Faculty is not being constrained by a too legalistic view of the obligations of academic staff employed to work at the Veterinary Faculty.

Suggestion 4.2 concerns the need for a greater level of coordination and collaboration in teaching.

Suggestion 12.4 concerns support for staff development through postgraduate clinical training towards a recognised qualification.

## **11. CONTINUING EDUCATION**

### **11.1 Findings and Comments**

Continuing education courses are given by the units of internal medicine and of surgery, and courses on laboratory procedures are also run. Other courses are organised in cooperation with veterinary associations, or the University facilities are offered to associations (such as the Spanish Association of Small Animal Veterinary Practitioners (AVEPA)) who wish to run continuing education courses for their members. There seems to be good cooperation with external associations and bodies. Some or all of the lectures are generally given by ULPGC professors.

The courses are mainly oriented towards practising veterinarians, mainly small animal practitioners, with relative lack in other areas, such as equine and farm animal work. Students are admitted to follow these courses on a voluntary basis.

Providing continuing education courses, in consultation with practitioner's organisations, is a good way of strengthening relationships between the Faculty and the profession. This adds services to the community and improves the standing of the Faculty and University by the veterinarians. These courses can also generally be self-supporting.

Apart from the doctoral courses, which are also open to veterinarians who pay a fee to participate, it does not appear that any other structured continuing education programme is offered by the University.

### **11.2 Suggestions**

11.1. The University and Faculty should aim to increase the continuing education courses they offer in veterinary medicine, working in cooperation with the organisations of veterinary practitioners (AVEPA, Collegio, etc.) to target areas of particular interest, such as large animal medicine, herd health management, etc.

Suggestion 2.3, which concerns the wider involvement of outside bodies in the functioning of the Faculty, may also be relevant in this context.

## **12. POSTGRADUATE EDUCATION**

### **12.1 Findings**

There are no postgraduate clinical training positions (internships or residencies) at the Faculty. Some undergraduate students who are affiliated to particular units have the title "alumnos internos", but these are not 'interns' as the term is generally understood.

The Faculty does not run any Masters Degree courses.

The only postgraduate education offered is a doctoral programme of two years duration, leading to the award of a Ph.D. This is made up of two stages, the first (called "sufficiency") involving attendance at doctoral courses. This is followed by the development of a research project and preparation of the thesis, along with involvement in the teaching and organisation of practical work for undergraduate students.

Approximately half of the students presently completing the undergraduate veterinary course enrol in the doctoral programme.

There is an alternative system, termed 'free election<sup>1</sup>', which is just for part-time students.

### **12.2. Comments**

Masters degree courses in specific fields would provide students with a means of specialising in particular areas after a veterinary degree. Such courses would also provide an opportunity for practising veterinarians to become more professionally orientated.

The postgraduate doctoral teaching programme seems to be dependent on the number of students applying, and on the teaching that is prepared within each unit, such as Food Hygiene and Food Technology or Animal Medicine and Surgery, for example. This means that, like the undergraduate teaching, the training and research project will be principally or solely oriented to the interests and priorities of a narrow field, and not interlinked with other disciplines, or directed towards a wider Faculty objective. The Faculty should consult the professional associations and other institutions (official departments of the Ministry of Agriculture or Ministry of Health) in order to define priorities and even the content of the postgraduate courses. Commenting on or defining the orientation of postgraduate courses, to provide an external professional input, is one of the roles that the Advisory Council (see Chapter 2 and Suggestion 2.3) could undertake.

The lack of European or American Diplomates is probably the main reason for the lack of internship and residency programmes offered at the Faculty. Some of the staffs are undertaking efforts to achieve such a specialist diploma, but this is based exclusively on personal interest, as such a title is not a prerequisite (as is a Ph.D. degree) for obtaining a permanent position at the Faculty. On the contrary, these efforts to obtain the diploma may only be started after the individual has obtained a permanent position, and after the effort this has required, are viewed as a considerable extra workload.

The presence of Diplomate specialists would greatly improve the standing of the staff on the eyes of local practitioners, thus improving the referral caseload. Establishing residency positions would greatly benefit students' practical training and reduce the workload of existing staff members.

### **12.3 Suggestions**

12.1. The Faculty should offer at least one MSc. course in each of the main applied areas of veterinary science (animal production, veterinary public health, and clinical science).

12.2. The priorities and teaching programme for the doctoral courses offered in the different areas of the Faculty, and future masters degrees, should be defined in close consultation with relevant external

bodies, such as the Advisory Council to be formed (See Suggestion 2.3).

12.3. The research projects undertaken by doctoral students as work towards their theses should reflect the overall research programme defined by the Faculty according to its priorities (see Suggestion 13.1).

12.4 Staff members who wish to work towards specialised Diplomate status should be supported, such as through funding externships at 'centres of excellence' that are recognised as able to provide the training required by the specialist Colleges.

12.5 The establishment of internships and residencies should be supported wherever such positions are viable, for example, where there is presently a Diplomate, such as in the Pathology unit.

## **13. RESEARCH**

### **13.1 Findings**

The SER gave little information about the research activity of the staff at the VFLP. During the visit, the staff presented adequate oral and written information, covering the previous five years, on research topics, factual achievements in research (publications in international and national peer-reviewed journals, conference attendance, etc.). The link between research activity with the undergraduate and Ph.D. training was also clarified.

The research by the units teaching the applied knowledge areas (e.g. pathology, clinical sciences, animal production, epidemiology, etc.) covers fields that are in line with veterinary aspects. In the majority of the basic sciences, the research areas of the staff are in medical fields, rather than on veterinary aspects.

Within the course, undergraduate students are exposed to the various research fields in which staff is working in two main ways:

- During the first few years (i.e. in the basic sciences), the obligatory practical work (laboratory work) of the veterinary students is conducted in premises that are also used for the units' research. Students perform experiments and learn laboratory techniques closely related to the research field of the particular staff member responsible for the subject in question. In later years (in the paraclinical and applied fields) the research areas of the staff do not feature as prominently.
- Students are exposed to research and methodology during independent project work, in most instances as "alumnos internos" affiliated to particular unit. In many cases, a prerequisite for the final examination is the preparation of a study paper closely related to the research field of the subject area they have covered.

### **13.2 Comments**

All pedagogic units (a sub-section of a Department with 1-5 staff; see Chapter 2) perform research in their own field at an acceptable international level, with an average annual production of around 1-3 papers per staff member.

Little effort was seen to harmonise or direct research activities towards common themes. The fragmented nature of the unit-based organisational structure is probably the reason for this. The Faculty could achieve a greater impact by channelling research efforts towards particular fields, so that work could be coordinated and mutually supporting. In this way it could also select fields (e.g. marine biology and salt-water aquaculture) where it can draw on existing resources that give it a natural advantage.

The students welcomed their involvement in research project work, where there are opportunities in almost all field. In so me areas at least (such as anatomy/pathology), 'alumnos internos' are very actively and usefully involved in all the day-to-day work of unit.

Within the basic sciences, particularly those subjects that are taught by Departments that are not part of the Veterinary Faculty, a greater orientation towards research in veterinary areas would be more interesting and relevant to VFLP students.

In a similar vein, basic science subjects should consider that students of veterinary medicine expect a more veterinary-oriented basic training, i.e. it is not enough to expose students to laboratory work based on presently accessible research of the team. Objectives should be worked out in this field also: one has to determine the inventory of most important research methods and fields to which the students should be exposed.

### **13.3. Suggestions**

13.1. The Faculty should define areas or themes on which research efforts should be focussed and coordinated, rather than having a large number of independent and unconnected research activities in the various units.

13.2. The units teaching the basic sciences should consider having a greater veterinary orientation and involvement in veterinary research efforts. The regrouping of the veterinary subjects at the Arucas Campus (see Suggestion 2.1) would stimulate such an orientation.

13.3. The research techniques and methodologies on which the laboratory sessions and project work of veterinary students is based, and the objectives of this work, need to be based on the most important veterinary research methods and fields to which the students should be exposed.

## CONCLUSIONS

As it has only recently been established, the Veterinary Faculty of Las Palmas has some considerable advantages. It is completing a programme that will provide it with new buildings and equipment on a site that allows further expansion and development. Most of the staff teaching on the veterinary course are young and enthusiastic, and have good relationships with the students. This is helped by the fact that the Faculty and University have commendably set the student intake at the level appropriate for the facilities and resources that are available. There are also some good examples of team work at the Faculty.

However, the purpose of the evaluation visit was to look constructively at areas where the functioning of the Faculty, and the training provides, could be improved. A logical starting point is the objectives, which define the main roles and aims of the Faculty. The training objectives of the VFLP need to be more clearly focussed towards equipping students for the professional activities that they will be undertaking once they have graduated. To assist this process, the Faculty should seek to establish better communication with external bodies and groupings, such as private practitioners, veterinarians working in the agro-food industry, the College of Veterinarians, farmers and scientific establishments (for example the Oceanographic Institute). As 'end-users' of graduates, such groups would not only provide valuable opinions and feedback on the aims and role of the Faculty as regards educational goals, but are also in a position to facilitate and provide essential practical support to achieve such aims. Close contact with such groups could also be of mutual benefit in defining and implementing objectives for the Faculty in the provision of services to the community, research, postgraduate training, and continuing professional development, which are all important roles for the Faculty to undertake and build up.

A clear view of the overall objectives is needed within the Faculty and its teaching programmes, along with improved communication and coordination. The separation of the national curriculum into knowledge areas, and the organisational structure of small independent academic units have led to a course that is a mosaic of distinct subjects. Some of these are taught by Departments or units that are not physically part of the Faculty, at other locations, further weakening the links between different disciplines. Although much of the teaching is of good quality, this dispersal results in duplication and omission of material, a lack of veterinary orientation in some subjects, and loss of overall direction or purpose within the course as a whole. There is therefore a strong need to regroup organisationally and educationally the different subjects and mould them into a closely-integrated curriculum, with each discipline having clear objectives directed towards the overall aim of producing a veterinary graduate equipped to follow a career in a range of fields. A practical example of such integration and focus can be seen in Anatomy/Pathology group of the VFLP, where the teaching is closely coordinated and incorporates 'clinical' elements such as diagnostic imaging.

The fragmented nature of the teaching, coupled with difficulty of getting access to farm animals and horses, means that large animal work is under-emphasised, to the extent that there is virtually no practical or clinical work on most of these species. This is the most serious shortcoming of the Faculty, and one that must be corrected. The VFLP has clinical premises for large animal work, but needs now to engage personnel with experience in this field in order to start clinical work on horses and farm animals.

Alongside the "classical" single-animal work on commercial species, the Faculty has to develop a strong herd-health activity. This is not solely an issue to be addressed by the clinical staff. At present a substantial part of the teaching in animal production and veterinary public health disciplines, although thorough in the areas they cover, are oriented quite narrowly, and need to emphasise more how their field relates to applied veterinary work. The herd-health activity therefore needs to encompass clinical, paraclinical, animal production and food hygiene topics within an integrated methodology aimed at ensuring the health, well-being, and productivity of animal population, and the quality and safety of the resultant products - the 'stable to table' approach. The clinical activity in companion animals is also at present too limited. Only referral patients are accepted during restricted opening hours, and this low caseload does not provide a sound basis for training students. The clinics, and the staff employed to teach clinical sciences, need to function as a service activity that works in a similar way to a private practice. The University should find a means of

establishing positions that fulfil specific roles at the Faculty, in particular posts that enable the Hospital to function properly, that are not constrained by the terms and conditions that apply to academic appointments. If the clinic is not providing an effective and responsive service to society, it will not attract the caseload needed for teaching. The number and range of animals treated and hospitalised must be significantly increased from the present level. In addition to addressing issues of clinical organisation (to make the clinics and effective a responsive service), an obvious first step is to provide veterinary services to the adjacent animal shelter, which has a large throughput of dogs and cats, and offers the teaching opportunities in routine primary care which are missing at present at the VFLP. The Faculty, University and municipal authorities also need to improve the physical accessibility and public awareness of the clinics and their services by improving the access road and signposting to the veterinary clinics, and by advertising.

Although geography and climate limit the potential for Faculty activities in some fields, such as large animal medicine, this is not the case in the area of marine biology and aquaculture. Here the Faculty could make use of a resource that probably no other veterinary Faculty has, namely the Oceanographic Institute, to develop as a centre of excellence. In this respect, the fragmented academic structure weakens the VFLP performance, as it impedes the development of a focussed and coherent Faculty research effort in areas where it could excel.

It is evident from the evaluation that individually staff is putting a lot of effort into their work at this new Faculty, giving teaching programmes of a high standard in specific fields. Where these efforts have been combined, such as the morphological disciplines, the result is a very impressive teaching programme that mutually supports research and the development of the subject. With a clearer overview and better coordination of the teaching programmes, and a focus on how the Faculty can impart the knowledge and skills that students must have on graduation, there is no reason why the training at the VFLP should not further enhance its standing and value to the Canary Islands.

## SUMMARY OF SUGGESTIONS

### 1.- Suggestions which, if not implemented, could prevent the teaching given by the University conforming to that set out within Directive 78/1027/EC and its appendix.

4.14. Intensive clinical training, based on hospitalised patients and covering all major species and disciplines (e.g. medicine, surgery and reproduction) in a balanced way, must be included in the structured curriculum that is taken by all veterinary students. (Potential category 1 deficiency)

7.8. The caseload available for the clinical teaching of students must be increased in all species. (Potential Category 1 deficiency)

7.11. The access students have to animal material of different species for structured and controlled work on animal, carcasses and organ inspection techniques for food safety must be increased. (Possible category 1 suggestion)

### 2.- Suggestions whose implementation does not affect the conformity of the teaching at the University with Directive 78/1027/EC and its appendix.

#### I. OBJECTIVES

1.1. The objective must be a commitment between the Faculty, the University and Society, therefore they must be considered as a reference level. In addition, they must provide clear statements on the different components, viz.;

- teaching of undergraduate veterinary students;
- postgraduate training;
- research priorities;
- continuing professional education;
- provision of services to the community.

1.2. Teaching objectives should be clearly defined, with the overall Faculty objective being that of producing a graduate who is equipped for professional veterinary activity. The course and its evaluation should be revised according to this principle (See Section 4.1 and Suggestion 4.1).

1.3. In future, the Faculty should be objectively assessed on the degree to which it has attained its stated aims, using an 'externalised' evaluation of how well an activity, service or teaching of a discipline meets the requirements of the users.

#### 2. ORGANISATION

2.1. The staff and/or units responsible for teaching the basic science subjects should be physically and organisationally far more integrated into the VFLP, to enable coordination of the material taught, and to give this and the other activities of the units the required veterinary orientation.

2.2. The number and membership of the various committees should be radically reduced, and these bodies constituted so that they can effectively address areas where there are presently problems of communication and coordination that are adversely affecting the performance of the Faculty, principally;

- coordination and orientation of curriculum content, based on an 'end user' approach (see also Suggestions 1,2 and 4.1). The cooperation in the morphological sciences could serve as a model for this,
- coordination and development of clinical services;
- coordination and orientation of research resources and efforts (see also Suggestion 13.1);
- teaching evaluation.

There may also be a need for a committee to formulate proposals in relation to the Faculty budget.

2.3. A Faculty Advisory Council should be established, with a strong representation of bodies involved in professional veterinary activities, in order to provide feedback and an external perspective of the Faculty's work, in particular in the definition and evaluation of overall objectives for its teaching, research and service activities.

2.4. The large number of separate units within Department of Animal Pathology, Animal Production, Bromatology and Food Technology should be reorganised into larger and more logical subject groupings covering the clinical, animal production, and food hygiene/veterinary public health areas, which should coordinate their efforts closely.

2.5. The Faculty should have more autonomy, in particular financial, so that it can focus its efforts on meeting its objectives as a cohesive unit.

### 3. FINANCES

Suggestions relating to specific facilities and staff, which have financial implications, are made in the relevant sections.

3.1. The basis for the calculation of the funding for the teaching costs of the Faculty and Departments involved in veterinary training should be reviewed, to reflect the unavoidably higher unit teaching costs of this course, and its very limited capacity to increase its student intake.

3.2. The Faculty should aim to increase its revenue by increasing the provision of services (in particular clinical services) to the community. Such income should be reinvested to further improve the service that generated the revenue, and to improve the quality of teaching.

### 4. CURRICULUM

#### 4.1 GENERAL

4.1. Each subject in the course should have a detailed syllabus and learning objectives. These should be based on an analysis of end-user needs, rather than solely upon the statement of the veterinary curriculum in national law. The learning objectives should be integrated to ensure a logical progression on the course, and that overall it provides a good basis for professional veterinary activity. This information should be available to all other staff members responsible for teaching other subjects,

4.2. The Faculty should as a priority seek to make major improvements in coordination and communication between staff teaching on the veterinary course, in particular as regards teaching content. One or more authoritative curriculum coordinators, and/or a strong Curriculum Committee (see also Suggestion 2.1) are mechanisms that could help achieve closer integration.

4.3. The proportion of basic sciences in the curriculum should be reduced in favour of a larger component of the applied clinical and food hygiene fields.

4.4. The Faculty should continue to aim to increase the proportion of practical work in the veterinary course, and make this as 'hands-on' as possible.

4.5. The Faculty should seek to reduce the overall number of course hours, principally through a reduction in the theoretical teaching, to allow students more time for self-learning.

#### 4.2 BASIC SUBJECTS AND BASIC SCIENCES

4.6. Efforts should be made to shift the physical location of the practical teaching in basic sciences to the Arucas Campus. Priority should be given to relocating the units of individuals for which veterinary education, particular laboratory teaching, constitutes all or a substantial proportion of their teaching activity should relocate.

4.7. Staff of the basic science disciplines should build up a communication with the later subjects and revise in a detailed manner the main body of the subject in order to adapt it much better to the needs of the oncoming applied fields of clinical sciences, animal production, and food hygiene. The basic subjects should incorporate more veterinary-oriented topics, both in the theoretical and in the practical work.

4.8. The teaching methodology should be changed to introduce more independent, problem-based tasks. Students should be encouraged more to take part in group work on topics relevant to their future professional activity.

4.9. The overall contact-hour workload in the basic sciences should be decreased, to release time for problem-based and group work type of teaching for the students.

#### 4.3 ANIMAL PRODUCTION

4.10. There should be adequate coordination between curriculum content, practical classes and visits in two major fields (traceability and animal herd health management) where the teaching of animal production subjects and related disciplines (e.g. epidemiology) has to be integrated.

4.11. New or more balanced subjects should be included in the different curriculum, namely in nutrition (fish nutrition, dietetics, small animal nutrition), agrarian economics (which should be oriented towards animal production systems) and animal ethology (animal welfare). Nutrition also needs to be presented more independently, to give it the required emphasis. Care should be taken regarding administrative requirements for the certification in practical veterinary activities.

4.12. A greater proportion of time should be allocated to covering animal behaviour and welfare, reducing the hours spent on agronomy and agrarian economics.

4.13. Reproduction studies should also cover cattle, pigs and horses.

#### 4.4 CLINICAL SCIENCES

##### Clinical Teaching

4.14. (Potential Category I deficiency)

4.15. Considerably more curriculum hours should be devoted to practical clinical training, which should be organised as clinical rotations during lecture free semesters and be based on small groups of students in the two hospitals.

4.16. The large number of didactic theoretical lectures should be partially replaced by problem-oriented clinical seminars, carefully selected to cover clinical problems currently taught in the teaching hospital, and by self-learning.

4.17. A collaboration in preventive medicine should be developed, and training in production animal husbandry, animal production, and clinical sciences should be coordinated and integrated within a teaching programme on herd health management in production animal herds (swine, cattle, poultry, goats). In addition to diagnosis and treatment, this programme should include a strong component of risk analysis and disease prevention and control, with epidemiology and preventive medicine therefore being a component of an integrated teaching programme in herd health management.

4.18. As part of the work towards an integrated herd health approach, the teaching in epidemiology and preventive medicine should be substantially increased and include a certain amount of clinical epidemiology.

4.19. A compulsory course in surgical techniques using cadavers should be established.

4.20. Compulsory courses in practice management, poultry medicine, and laboratory animal management should be established.

##### Large Animal Hospital

4.21. The Faculty must have competent large animal clinicians (particularly equine surgery and medicine), either by appointing suitably qualified and experienced staff, or by existing staff spending an extended study period abroad to acquire the necessary competency.

4.22. It is essential that the number of horses and production animals (cattle and swine) hospitalised is increased, and means such as improving transportation of animals to the clinics and housing them there (e.g. free pick up service, donation of sick animals, subsidised treatment, free housing of privately-owned production animals prior to their slaughter) should be used as incentives, (see also Suggestion 7,8).

##### Small Animal Hospital

4.23. The number of basic clinical cases should be increased, such as by using the animals from the abandoned animal shelter. This can be done in the good premises recently built in the shelter, relying on the possibility of transporting some of the animals to the hospital when special diagnostic or therapeutic procedures are needed (e.g. ultrasound, RX, endoscopy, etc.)

For both small and large animal hospitals, including mobile clinic

4.24. The number of (second opinion) cases should be increased, by offering a 24-hours intake service, including emergency services and intensive care.

4.25. The access to the hospital for owners should be facilitated by putting clear signposts to

the clinic from the highway (see also Chapter 6).

4.26. The efficiency of veterinary staff members should be increased, relieving their workload by supporting them with a receptionist, who could also write reports, and one or more trained veterinary nurses.

4.27. The collaboration and service quality offered to outside veterinarians should be improved by offering a rapid and efficient laboratory diagnostic service, particularly where advance diagnostic techniques are required (e.g. endocrinological determinations, electrophoresis, immunoserology),

4.28. Proper transportation (lorries, trailers, transport of small animals) should be provided.

#### Clinical Organisation

The functioning and organisation of the clinical activities at the VFLP needs to be reviewed:

4.29. The Hospital should combine all the available clinical resources to provide a more accessible and integrated service, with 24-hour cover, and treatment of first opinion and emergency cases. This should be structured around a species-oriented 'trunk' of shared basic clinical services, supporting the specialist branches, rather than the current mosaic of specialist referrals only.

4.30. The Hospital, including the mobile clinic and the clinical laboratory, should be run as responsive, client-oriented services, with the aim of maximising the caseload and patient-student contact teaching opportunities in all species and fields. To do this effectively this, the hospital services should be treated independently from any organisation of the University.

4.31. The Hospital should be run by an independent authoritative manager, empowered to organise the use of resources (physical, staff and financial) to optimise the teaching and treatment activity in the hospital.

4.32. The primary objectives and roles of the Hospital Manager should be:

- to ensure that the hospital runs for 24 hours a day, including emergency services,
- to increase the patient load in all species;
- to maximise the patient contact hours for the students;
- to administer the budget, including optimising the hospital service income;
- to communicate the importance and excellent potential of the hospital not only to the Faculty and the veterinary profession, but also to the Canarian government;
- to deal with external relations, such as defining a list of the services the hospital should provide, and the prices.

4.33. Since clinical ability and activity is essential for meaningful teaching, clinical service duties should be considered as an integral part of employment in an academic position in a clinical field.

#### 4.5 FOOD HYGIENE

4.34. To provide students with adequate training in the practical aspects of animal, carcase and organ inspection for food safety control, students should be required to spend an extended training period (50h) in an abattoir of sufficient capacity.

4.35. There should be close coordination between the teaching of food hygiene and that on food technology, establishing clear overall objectives in this field.

4.36. The visits to the slaughterhouse and food processing plants should be organised more along the lines of a case study that is developed by students.

4.37. The teaching on HACCP should be expanded, including demonstrating the implementation of relevant programmes using documents, software and actual case studies.

4.38. The work on milk and meat processing and quality that is currently being performed in the animal production unit should be integrated into the teaching in food hygiene and technology.

4.39. More emphasis should be placed on teaching the food hygiene and technology of fish.

#### 5. TEACHING: QUALITY AND EVALUATION

The Faculty should encourage veterinary students to be more actively involved in learning during the course, viz;

- 5.1. a reduction in content-based teaching (and shift away from content-based examinations) and the inclusion of problem-oriented learning;

- 5.2. more self-study by students, using international textbooks, journals, the internet and other classical and information technology resources;
- 5.3 - adopting a problem-oriented approach to the practical teaching, rather than the tutorial type of practices.

5.4. In clinical work the students themselves should perform more clinical procedures on animals (history taking, examination, performing basic diagnostic techniques, have responsibility for case care and treatment).

5.5. There should be systematic evaluation of the teaching, combined with monitored feedback, with the aim of ensuring effort is effectively directed towards meeting learning objectives.

5.6. A permanent committee or scheme should be implemented to evaluate how the objectives of each discipline have been reached, the methodologies of teaching, the integration and coordination of the different subjects, and the quality of teaching.

5.6. A greater degree of academic rigour (e.g. making attendance at examinations compulsory) should be applied to the examination process, so that students have to successfully complete a subject within a reasonable time.

5.7. There should be defined limits to the extent to which student can continue with subjects in the later part of the course before they have successfully completed the preceding subjects, for example by a clear system of prerequisites, or only allowing students to 'carry' a limited number of subjects or credits.

5.8. There should be a system of external examiners, to enable some objective feedback on whether the material being taught, and the level attained by the student, is appropriate in the context of the overall objectives of veterinary training. For the applied subjects (clinical, animal production and veterinary public health), practitioners should be included in this process.

## 6. PHYSICAL FACILITIES AND EQUIPMENT

6.1. More space for practical teaching should be provided, so that the demand and usage of the existing laboratories is not as high as present.

6.2. More equipment should be provided for students to use in practical classes.

6.3. A means of free or low cost transport to and from the town centre to the Campus should be provided.

6.4. Safe provision for staff and students to reach the public transport on the highway should be provided.

6.5. The provision for clients to reach the Faculty clinics should be improved by proper signposting and controlled parking.

6.6. in the longer term, the vehicular access to the Faculty, parking, and access from the Faculty to the Animal Shelter should be improved.

6.7. Provision needs to be made for the access and use of the Faculty premises by handicapped people.

6.8. An additional shared teaching laboratory should be established, for instance using the space vacated when the present library/reading room is re-housed.

6.9. The Faculty should consider acquiring a projection microscope for installation and use in the microscope laboratory.

6.10. The number of hospitalisation places for large animals should be increased.

6.11. The clinical equipment that is presently out of order should be repaired or replaced.

6.12. An intensive care unit should be established in the small animal clinic, close to the hospitalisation area.

6.13. A facility for isolating potentially contagious cases should be established in the small animal clinic.

6.14. The Faculty should consider establishing a central dispensary/pharmacy at the clinic.

6.15. The Faculty should ensure that the diagnostic services it offers to outside bodies, such as practitioners, are responsive in terms of the speed and quality of analysis and feedback.

6.15. A formal contract of cooperation should be established with the slaughterhouse, in order to adequately demonstrate ante- and post mortem inspection. Students should be able to handle and closely examine condemned material.

6.16. A laboratory for bacteriological and chemical analyses of food by students should be established.

6.17 if the Faculty wants to raise work on fish as an objective and a priority for the future,

then more attention needs to be paid towards gaining access to facilities that can support such activities.

## 7. ANIMALS AND TEACHING MATERIAL OF ANIMAL ORIGIN

7.1. The Faculty and the units of Anatomy and Pathology should continue to work towards agreements with practitioners, farmers and other bodies to increase the diagnostic and teaching caseload.

7.2. The Faculty should ensure that appropriate transport is available any time of day for collecting carcasses for necropsy work, and that there is adequate cold storage to handle this material.

7.3. The proposal to establish a reference pathological laboratory at the Faculty should be actively supported by the University and Faculty.

7.4. The University and public authorities should act to solve the problem of the build up of animal cadavers and organs at the Arucas site. The frequency of collection could be increased, or an accessible drop-off point designated, or the construction of an incinerator could be considered.

7.5. Access should be provided to facilities (e.g. a general Faculty Farm) for the students to learn how to handle and to manage all production animals, including pigs, poultry, cattle and horses.

7.6. The Faculty should maximise the use of any animals on production farms to which it has access, using these in practical classes within animal production as well as for clinical teaching.

7.7. Cooperation with practitioners and producers associations or individual farmers should be intensified in order to involve the students in herd health management, as well as with the different commercial production systems.

7.8. (Potential Category 1 deficiency)

7.9. A service for collecting patients, in particular large animals, should be organised, to improve the caseload of these species seen in the clinics. Treatment of farm animals should subsidise so that it is free or low cost to increase the number of cases.

7.10. The increased use of cats and dogs of the shelter for basic clinical training, and for practice on cadavers, should be pursued.

7.11. (Potential Category 1 suggestion)

7.12. The Faculty should buy carcasses to demonstrate techniques of inspection, and to enable students to be given hands-on experience of this kind of work.

## 8. LIBRARY AND EDUCATIONAL RESOURCES

8.1. The collection of journals available in the library should be improved,

8.2. An extra person should be added to the library staff, particularly if moving into the new premises, which will be much larger.

8.3. An additional computer room should be provided in the future.

8.4. Adequate facilities and appropriate software should be available at the Arucas campus of the VFLP for teaching all the disciplines that have a computer-based component.

8.5. Air conditioning, or some other effective cooling system, should be installed in the computer room.

## 9. ENROLMENT AND ADMISSION REQUIREMENTS

9.1. Students should be required to reach an adequate level of knowledge in the basic subjects before starting the veterinary course, either through their secondary school education, or by attending preliminary courses at the University. Alternatively, a greater specificity in the entrance examination should be used to select students.

9.2. The number of places should be set according to the teaching capacity of the Faculty in terms of the availability of materials and caseload available, and to the availability of appropriate employment. The latter point should be determined in consultation with outside veterinary bodies such as the College of Veterinary Practitioners or representatives of government veterinarians (see also Suggestion 2.3).

## 10. ACADEMIC AND SUPPORT STAFF

10.1. The number of academic staff needs to be increased to enable full coverage of the fields of veterinary science, with a particular emphasis on augmenting the personnel in the clinical and food hygiene fields.

10.2. The teaching load and allocation of staff resources to different areas should be reappraised in relation to the teaching objectives (see Suggestion 4.1), to the new curriculum, and the need to further emphasise some fields (see Suggestion 4.3).

10.3. There should be a wider and more systematic evaluation of the teaching staff for promotion and staff development. This should take into account teaching performance (see Suggestion 5.5), additional training or qualifications undertaken, and service provision, as well as research output.

10.4. The achievement of Diplomate status from a recognised European or American College of specialisation should be recognised and acknowledged when considering the appointment, promotion or salary of a clinical or paraclinical position. Preference should be given to Diplomate in the appointment of new staff members, and such a qualification should be a prerequisite for promotion to higher clinical positions.

10.5. Any necessary changes should be made to the terms and conditions of employment to ensure that consistency and continuity of clinical service at the Faculty is not being constrained by a too legalistic view of the obligations of academic staff employed to work at the Veterinary Faculty.

## 11. CONTINUING EDUCATION

11.1. The University and Faculty should aim to increase the continuing education courses they offer in veterinary medicine, working in cooperation with the organisations of veterinary practitioners (AVEPA, Collegio, etc.) to target areas of particular interest, such as large animal medicine, herd health management, etc.

## 12. POSTGRADUATE EDUCATION

12.1. The Faculty should offer at least one MSc. course in each of the main applied areas of veterinary science (animal production, veterinary public health, and clinical science).

12.2. The priorities and teaching programme for the doctoral courses offered in the different areas of the Faculty, and future masters degrees, should be defined in close consultation with relevant external bodies, such as the Advisory Council to be formed (See Suggestion 2.3).

12.3. The research projects undertaken by doctoral students as work towards their theses should reflect the overall research programme defined by the Faculty according to its priorities (see Suggestion 13.1).

12.4. Staff members who wish to work towards specialised Diplomate status should be supported, such as through funding externships at 'centres of excellence' that are recognised as able to provide the training required by the specialist Colleges.

12.5. The establishment of internships and residencies should be supported wherever such positions are viable, for example, where there is presently a Diplomate, such as in the Pathology unit.

## 13. RESEARCH

13.1. The Faculty should define areas or themes on which research efforts should be focussed and coordinated, rather than having a large number of independent and unconnected research activities in the various units.

13.2. The units teaching the basic sciences should consider having a greater veterinary orientation and involvement in veterinary research efforts. The regrouping of the veterinary subjects at the Arucas Campus (see Suggestion 2.1) would stimulate such an orientation.

13.3. The research techniques and methodologies on which the laboratory sessions and project work of veterinary students is based, and the objectives of this work, need to be based on the most important veterinary research methods and fields to which the students should be exposed.