

The Royal College of Veterinary Surgeons  
Specialisation and Further Education

## THE DIPLOMA IN PIG MEDICINE

### SPECIFIC GUIDANCE NOTES FOR CANDIDATES

[These notes must be read in conjunction with the B1 General Guidance Notes to Candidates]

### MEMBERSHIP OF THE ROYAL COLLEGE OF VETERINARY SURGEONS

1. It is a requirement of the Pig Medicine Board that ALL Candidates entering for the Diploma are Members of the Royal College of Veterinary Surgeons (MRCVS).

### SPECIFIC EXPERIENCE

2. Candidates must have spent a period of time, as defined in Para. 3 below, by the time of the examination, having substantial involvement in the field of pig medicine.
3. Substantial involvement is defined as at least 30 hours per week dealing with and advising on pig problems, visits to pig units for this purpose, diagnostic work, epidemiological investigations, research into pig diseases and problems, literature reviews, preparation of reports, papers and articles, and time spent in related activities. The Board would expect that a candidate would be involved in a variety of these activities, and would not accept involvement in any one or two to the exclusion of the others. It is important that candidates have a broad involvement in and knowledge of the pig industry. The syllabus, however, provides for a candidate to choose one subject for study in depth, and candidates are also required to submit a dissertation on a subject of their choice.
4. Candidates may gain experience for a Diploma:
  - (a) at an approved centre for their subject
  - or
  - (b) at an approved practice.

### Approved Centre

5. Candidates following an approved training programme at an approved centre will not be permitted to enter for the examination until they have been Members of the College or held an approved veterinary qualification for **at least four years** and are required to offer experience in the subject over **at least four years**.
6. Applications for approval of a Centre must be made directly by the Centre to the RCVS and not by the candidate. An application form can be obtained from the RCVS.

## Approved Practice

7. Candidates following the approved practice route will not be permitted to enter for the examination until they have been Members of the College or held an approved veterinary qualification for **at least five years** and are required to offer experience in the subject over either:
  - (a) **at least five years including 200 days spent at an approved centre,**
  - OR
  - (b) **at least six years** if gaining experience solely at an approved practice.
8. There is no separate application form for approving practices, other than the candidate applications forms included with this Information Pack. Practices are approved for each individual candidate.
9. **The Board has discretion to increase the requirements for experience for any candidate above the minimum specified if it is considered to benefit the candidate.**
10. Experience accepted for the Certificate will count towards the experience required for the Diploma, at the discretion of the Board, whether the candidate is at an approved centre or an approved practice.
11. It would be rare for the Diploma Examination to be taken four years after graduation. Rather, it would normally be taken some five or six years from the time when the candidate began to become involved full-time in pig medicine - and this would probably have been two or three years (or more) after graduation.

## THE EXAMINATION

12. The examination consists of three Sections:
  - (a) A Dissertation **AND** 1 Case Report
  - (b) TWO x 3 hour written papers, and
  - (c) a clinical, oral and practical examination.

## SUBMITTED WORK FOR EXAMINATION

### Dissertation

13. Section (a) of the examination consists of submitted work. Application Form **E.1A** must be made for approval of the proposed subject of the dissertation.
14. It is obviously of advantage to the candidate to have as much time as is available to write the dissertation, after having obtained approval of the subject. For this reason, application on Form **E.1A** must be made not later than **1 November** in the year prior to taking examination - or at any earlier time.

15. Candidates may base their dissertations on their own published papers, if they wish, if their proposed title is approved by the Board. The primary motive in asking for a dissertation as part of the examination is to show that the candidate can acquire, organise and present information and data in a satisfactory way. However, it would be helpful to the examiners if the dissertation, were primarily on field based material, and this should be borne in mind when proposing a title.
16. **Three copies** must be submitted by the prescribed date.
17. Candidates may submit supplementary illustrative material if they wish, provided that it is well produced.
18. In submitting dissertations, candidates are advised to ensure that these are primarily field based, and confined broadly to pig medicine. Because the examination is essentially related to practical aspects and orientated towards field experience, it is to the candidate's advantage to provide as much evidence as possible to this effect.
19. Candidates may not use all or part of the work prepared for another postgraduate qualification as all or part of their dissertation.

### **Word Count**

20. A word count must be shown on the front cover of the Dissertation.
21. A dissertation should be between 5,000 - 10,000 words in length (**excluding** references and appendices) and **should not exceed a maximum of 10,000 words** in total. Candidates who exceed the maximum word count will have their work returned to them unmarked.

### **Case Report**

22. **One case report – The maximum word count should not exceed 5,000 words excluding references and appendices** - is to be submitted by each candidate on one type of herd problem which the candidate has investigated, being major long-term investigation requiring a considerable effort from the candidate. Each report should include an account of, and a report on, the situation as seen by the veterinary surgeon/candidate - with background data, back-up material, and any references needed to support the statements made and submitted to the client (even if not included in the report made to the client). Reports submitted to clients should be re-processed before presentation as case reports, and it is essential that clients' names, etc., should be omitted. Candidates may find it helpful to prepare the case report using a format along the following lines, which may be shortened or expanded as appropriate -

Complaint/problem - (dates)

History/background/all relevant factors necessary for an understanding

Investigation -

On farm investigation  
Economic analysis/considerations  
Clinical examination  
Necropsy examination

Diagnosis/initial assessment

Laboratory investigation (lab report to be appended)

Treatment/control measures/epidemiological considerations

Alternative treatment/control measures

Progress

Discussion/conclusions

References (list)

23. Specimen case reports for the Diploma in Pig Medicine are available on request and these will give an indication of the standard, content, and layout expected.) The case report should be in a format suitable for publication, in journals such as the Veterinary Record.
24. The Board wishes to emphasise the importance of the case report as part of the examination. Candidates should seek advice from their adviser. **Candidates are asked to submit an electronic version of their submitted work together with their hard copy.** This will be retained at RCVS unless requested by the examiners for purposes such as checking the word count. The electronic version should be Microsoft Office 2000 or XP compatible and should be submitted on CD. Please ensure that the disks are easily identifiable by placing them in an envelope with your name, and 'Electronic version of submitted work for Diploma in Pig Medicine' marked clearly on the front.

### Word Count

25. A word count (**no more than 5,000 words per case**) must be shown on the front cover of the Case Report. Candidates who exceed the maximum word count will have their work returned to them unmarked.

### Grading Scheme

26. The submitted work will be graded "Good Pass"; "Pass" or "Fail":
- **Good Pass** - the work will be lodged in the RCVS Library as a suitable example for future candidates.
  - **Pass** – the work is adequate to enable the candidate to proceed to the remaining sections of the examination, but the submitted work may need to be revised by the date of the clinical, oral and practical for lodging in the Library if the candidate is successful in the examination as a whole.

- **Fail**– the work is not adequate to enable a candidate to proceed to the remaining sections of the examination for the year in question.

## WRITTEN EXAMINATION

27. Candidates are warned that answers should be given specifically and that illegible handwriting may result in examiners being unable to award marks for information which candidates intended to convey. In addition, the Examiners will take into consideration spelling and whether or not the question has been answered in the form requested.

### Format

28. This Section consists of 2 x three-hour written papers.

**Paper I** - will cover the syllabus generally. Consisting of three Sections as follows:

Section A - **10 compulsory** short answer questions.

Section B – **2** 'short notes' questions, asking for notes on **4 topics from a list of 5**.

Section C – **1 out of a choice of 3** essay questions.

Equal marks to be awarded to each Section.

Candidates will be excluded from answering any question set on their chosen subject under group 5 of the syllabus.

**Paper II** - will be an exhaustive examination in the subject chosen by the candidate in group 5 of the syllabus and will consist of five questions of which the candidate must answer three. If more than one candidate chooses the same subject the paper will be common to all such candidates.

### Marks Scheme

29. **Paper I** will be marked out of 50 marks

**Paper II** will be marked out of 50 marks

Total Mark for this Section (b) = 100 marks

## ORAL AND PRACTICAL EXAMINATION

### General Format

30. Section (c) of the examination consists of an oral examination, which may last up to a total of three hours for each candidate split up into three or more sections.

31. Questions may be asked in relation to the case reports and dissertation submitted, and on any part of the syllabus including the subject chosen for in-depth study and examination. The examiners may use slides or other visual material (e.g. slides of conditions) and background notes.
32. The Practical examination will be in three sections. Post-mortem and slaughterhouse specimens may be used.

### **Marks Scheme**

33. The various sections of the practical/oral examination will be marked equally, with the TOTAL Mark for this Section (c) = 100 marks.

### **SYLLABUS AND READING LIST**

#### **Syllabus and standard of examination**

34. The detailed syllabus indicates the range and depth of knowledge and understanding required - and the examination will be set at a level appropriate to a veterinary surgeon who has been engaged in pig medicine to the extent indicated above.
35. By the time of entry to the examination, a candidate should be in the position of being acknowledged as someone who is able to work with confidence in a variety of different situations involving, for example, problems in nutrition, reproduction and husbandry, and to talk on equal terms with senior members of other interested disciplines as well as with Veterinary Investigation Officers, and to discuss, inter alia, research problems currently under investigation.
36. The standard of the Diploma is high and demands a wealth of practical experience and a wide ability in problem solving. Candidates will need to engage in extensive private studies. Anyone contemplating enrolment should realise that it will entail organising their personal workload so that they can take time off to study, either on a regular basis each week, or for short periods throughout the year. This applies particularly to candidates in general practice.
37. The Board wishes to draw particular attention to the indications given in the syllabus of the breadth of knowledge required. In group 1 (diseases and disease control) a detailed knowledge and thorough understanding is called for. In group 2 (diagnostic methods) a basic understanding of the usage and interpretation is required. In group 3, a general knowledge of the several subjects listed is specified, whereas under group 4, a candidate is required to select one of these subjects, or any other subject in the field of pig medicine in which to be examined in depth. **Under group 4, the candidate should state the subject heading, and give sub-headings indicating the content of the proposed subject area.**

38. It is important for all candidates to realise that the examiners are advised by the Board that, in assessing candidates, practical experience must be predominant and that a reasonable minimum level of basic theoretical knowledge over the whole syllabus must be present - while the reverse situation of very good theoretical knowledge but poor practical experience would not be acceptable. The examination will emphasise a practical approach to pig problems and on-farm experience.

## **READING LIST**

39. The reading list for the Diploma was frozen as at November 2002. Candidates at this level are expected to be familiar with all literature and most particularly so in the topic of their dissertation and do their own research by access to the website and the RCVS Library Information Services.

## **ADVISERS**

40. Candidates are urged to seek advice from their advisers and should seek someone listed as a Diploma holder or on the List of Recognised Specialists published in the RCVS Register of Members.

41. Candidates will need to take advice from their adviser on the requirements of the syllabus, and on any experience a candidate might need to obtain in respect of aspects of the syllabus. Such experience might be gained by spending time in a veterinary school or other appropriate institute or laboratory, perhaps even attending some undergraduate lectures in subjects such as bacteriology - coupled with work in the field.

42. Advisers may also oversee candidates' private studies, and the writing of dissertations, and the use of literature and data and the preparation of reports. It is for the candidate to make contact with his/her adviser, and travel to meet him/her if appropriate.

## **ATTENDANCE AT SHORT COURSES**

43. The Board is not making attendance at any course or courses compulsory in terms of the byelaws.

## **MEMBERSHIP OF VETERINARY ASSOCIATIONS/SOCIETIES**

44. Enrolled candidates are encouraged to become a Member of the Pig Veterinary Society and attend meetings.

## **ABBREVIATION FOR QUALIFICATION**

45. Successful candidates are permitted to use the abbreviation **DPM** after their names in the RCVS Register of Members, and on practice plate, stationery, etc. Certificate holders who obtain the Diploma in the same subject cease to use the Certificate abbreviation.

Originated May 1995, Revised October 1996, Further revised after Council February 1997, June 1998, Nov. 1998, June 1999, November 2001, November 2002, November 2003, Updated November 2004

**GENERAL GUIDANCE NOTES FOR DIPLOMA CANDIDATES  
ON THE PREPARATION OF A DISSERTATION**

*The dissertation should be presented in the normal format for a scientific article unless there are strong reasons why this is not appropriate: any different format should be approved by the supervisor before the first draft is produced.*

**The normal sections are:**

**Introduction**

This should include a brief review of the literature on the subject giving appropriate references. References may be cited in one of two ways e.g. 'Smith and Brown (1993) found that parasites increased in July' or 'Previous studies have shown that parasites increased in July (Smith and Brown, 1993)'.

It should be a critical review to indicate what is already known and where the gaps are in our knowledge which you have set out to remove. At the end of the introduction, it should be possible to say ' In the light of the literature I have reviewed, the aims of this study are to plug the following gaps by carrying out the following work' or something to the same effect!

**Materials and methods**

This should include an account of the animals or flocks or specimens used and the experimental methods and techniques you have used in order to obtain your results. There is no need to give details of well-known techniques but it is important that a reader should be able to repeat the work and certainly be able to decide on the reliability of your techniques, which obviously affect the value of your results. If you use techniques developed by other people, you should refer to a book or journal where the details are published.

**Results**

There should be a logical description of what you have found by the techniques you have described. This section may benefit by the inclusion of tables, graphs, figures or photographs which should have captions which are sufficiently self-explanatory to stand alone, though they should also be referred to in the appropriate part of the text. This section should not contain any comments on the significance of the results or to any inconsistencies or problems encountered.

**Discussion**

This section should contain a critical discussion of the significance of the results and of the extent to which the aims described in the introduction have been achieved. It should also relate the new findings to previous work and it may therefore be necessary to quote again some of the papers cited in the introduction but for a different purpose. In the introduction, it was to show where the gaps were, here it is to show how your results agree, disagree or add to the previous work. Any conclusions or new ways of tackling the problem should be indicated here.

## **References**

Unfortunately, there are a number of different ways used by different journals to list references in this list, so it isn't possible to lay down the one correct way! Since you might also wish to write your work as a paper for a journal, however, it is best to use a style which can be adapted to any journal, which means that the reference should be cited in full as follows:

Smith, M. J. and Jones, W. B. (1993). The seasonal fluctuations in parasite numbers in sheep in Britain. *Veterinary Record*, 134, 123 - 134.

A very careful check should be made to ensure that the references in the text are exactly the same as those in the list. (Trying this out on articles in any journal will give you a good idea as to the care with which the articles are edited by the authors or the journal).

## **Acknowledgements**

This section gives you the opportunity to thank anyone who has helped with the work or the dissertation.

## **Appendices**

If there is a great deal of detailed data such as laboratory findings, it may be helpful to place most of it in appendices with only summaries such as mean values in the results section.

Specialisation And Further Education

**BOARD FOR PIG MEDICINE**

**DIPLOMA IN PIG MEDICINE - SYLLABUS**

1. The candidate will be required to have a detailed knowledge and thorough understanding of:-
  1. A. (a) Diseases of pigs that occur in the EU or which might be introduced, including their prevalence, aetiology, epidemiology, pathogenesis, pathology, immunology, treatment, prevention and control.
  - (b) Diagnosis of disease:  
Clinical diagnosis including physical and chemical restraint.  
Gross post mortem diagnosis.  
Sample collection and specific diagnosis.  
Differential diagnosis.
  - (c) Zoonoses and their implications.
  1. B. Methods of disease control, including -
    - (a) National and international control programmes for specific diseases
    - (b) Multiple-herd health programmes; public sector and private control programmes; breeding organisations and testing stations; marketing groups; exports; split site and multi site production.
    - (c) SPF repopulation, MEW, ISOWEAN, partial depopulation and other methods of pathogen elimination.
    - (d) Methods applicable to individual herds; husbandry and management practices; routine inspections; laboratory involvement; recording and monitoring; vaccination and medication.
    - (e) Medication and immunisation.
    - (f) Individual pig care.
    - (g) Decision analysis: economics and priorities.
    - (h) Use of slaughterhouse specimens and other materials.
  1. C. Legislation in the UK and the EU relating to pig diseases. Export certification.
  1. D. Anatomy and physiology of the pig.
  1. E. Welfare, Welfare legislation. Normal behaviour patterns, 'vices' including abnormal behaviour patterns and aggressive behaviour.

2. The candidate will be required to have a general understanding of the usage and interpretation of:

Diagnostic methods, including:-

- (a) Data, methods of collecting and handling, monitoring techniques.
- (b) Instrumentation for clinical examination, haematology, urine analysis, faecal examination, biopsy techniques, clinical biochemistry, radiography, serology and immunology.
- (c) Histology/cytology, biochemistry, microbiology, parasitology, toxicology.
- (d) Application of pathological techniques to special systems including respiratory system, alimentary system, female reproductive system, urinary system, locomotor system, foetal pathology, neonatal pathology, nervous system.
- (e) Autogenous and emergency vaccine production.

3. The candidate will be required to have a general knowledge of the following:

3. A. Exotic Diseases which occur in other countries but which rarely or never occur here.

3. B. Structure and economics of the pig industry, including:-

- (a) Pig populations, feed supplies and pig and other meat markets.
- (b) Production costings, etc. Methods of recording and assessment of data in different management systems.
- (c) Production systems. Measurement of efficiency of different systems with particular reference to disease costs.
- (d) Slaughtering methods. Ante-mortem and post-mortem inspections. Meat and offal processing. Utilisation of data.
- (e) Marketing.
- (f) Carcase quality and classification.
- (g) Economics of health control, disease treatment/prevention and overall veterinary expenditure.
- (h) Quality control, as applied to pigs and pig products.

3. C. Husbandry and management systems, including:-

- (a) Normal pig requirements. Climatic and physiological requirements of pigs at various ages, and practical measures to satisfy them.

- (b) Management of the individual categories of pig:-  
The farrowing sow, the piglet, early and normal weaning management, finishing accommodation, sow management, isolation housing, feeding arrangements and equipment, boards, dung disposal systems, hygiene and disinfection, 'vices' abnormal behaviour patterns and aggressive behaviour, welfare aspects.
- (c) Management systems:- eg. outdoor management system. Closed, self-contained intensively managed herds. Breeding herds, weaner producers, finishing herds, three site and multi site systems. Welfare implications.
- (d) Man management, methods of communication, type of approach.
- (e) Design, application and assessment of field trials.
- (f) Health and safety at work, and the law. COSHH.
- (g) Welfare aspects and Legislation.
- (h) Microbiological assessments of the environment.

### 3. D. Nutrition and nutritional disorders:-

- (a) Basic nutritional requirements and utilisation of dietary fat, protein and carbohydrate; energy requirements, assessment and variations; acid-base balance/water metabolism.
- (b) Appetite and other factors regulating food intake; palatability, feeding habits, method and time of feeding, behavioural effects. Presentation of feed.
- (c) Factors controlling growth and types, tissue laid down, concept of fat free body mass and attainment of mature size.
- (d) Qualitative changes in diet and their effects on growth rate, carcase quality and development of immunity patterns.
- (e) Sow feeding; mature body size and whole life concept; frequency of feeding. Response to nutrient intake of different pig categories and requirement of pregnant and lactating sows.  
Special requirements of maiden and pregnant gilt.  
Young pig, physio-pathology, nutritional responses, special situations, weaning, etc.  
Feeding pig, nutritional responses, physical form, presentation method, dietary density, feeding method, by-product feeding.  
Formulation and manufacture, raw materials (including toxicity), best cost formulation, diet formulations, interpretation of dietary constituent analysis.

- (f) Feed supplements and additives, medication and the Law. Codes of Practice. On-farm feed manufacture.
- (g) Effect of disease and immune mechanism on intake and usage of nutrients and on growth and carcass quality.

### 3. E. Reproduction

- (a) Anatomy, physiology.
- (b) Normal and abnormal reproduction behaviour, vices.
- (c) Criteria and parameters of normal fertility and economic considerations.
- (d) Factors involved in reproductive loss - maternal, male, foetal.
- (e) Husbandry and disease factors.
- (f) Monitoring and regulating the herd reproductive programme.
- (g) Sow and gilt management and feeding prior to service, during pregnancy, lactation and at weaning.
- (h) Boar handling, management and use.
- (i) Problem herd studies, examination of records, special investigation, diagnosis, treatment and corrective management procedures.

### 3. F. Artificial breeding

- (a) Advantages and disadvantages of A.I. On farm collection.
- (b) Legislation, health control, organisation and types of A.I.; A.I. services; pattern of national development.
- (c) Detailed semen examination, sperm morphology and survival test.
- (d) Semen storage, fresh and deep frozen.
- (e) Oestrus detection and insemination timing.
- (f) Recording and monitoring A.I. efficiency on farms and on A.I. centres.
- (g) Investigations of A.I. problems, including piglet abnormalities.
- (h) Other developments, oestrus and/or ovulation control, international exchange of semen, conceptus transfer.

### 3. G. Genetic improvement and hereditary diseases:

- (a) Principles
  - Elementary biometrics
  - Basic concepts and application of population genetics
  - Breeding stock selection and genetic basis of improvement programmes, involvement of nucleus, multiplier, commercial herds and A.I.
  - In-breeding, cross-breeding, development of lines
  - Economic assessment of genetic gain on national and herd basis
  - Basic aims of programmes, i.e. type of pigs to be produced.
  - Genetic markers, gene probes and their role in selection. Gene transfer.
- (b) Application
  - Testing methods, their assessment and limitation.
  - Hereditary and congenital and other developmental diseases.

Health control in relation to breed improvement on a herd, breeding pyramid, national and international basis.  
Methods of gene introduction, including AI, conceptus transfer, hysterectomy and fostering, segregated early weaning and genetic manipulation.

4. On - Farm Trials

Setting up, running and monitoring of on-farm trials for pharmaceutical products including standards of Good Clinical Practice (GCP).

5. The candidate must offer a subject in which to be examined in depth. This subject may be one of the subjects listed in group 3 above, or any other subject in the field of pig medicine, and must have been approved by the Board.

6. Interaction between the environment, welfare and production with particular respect to:

- medicine control
- water systems
- feed systems
- ventilation systems
- flooring/structure design

7. Care of the compromised pig

- hospital pen design
- use of and maintenance of a humane killer. Disposal techniques for fallen carcasses
- fitness to travel/fitness for human consumption/the role of the OVS and meat hygiene service.

Revised November 1988  
Revised November 1992  
Revised May 1995  
Revised Nov 1995  
Revised Aug 1999

## THE ROYAL COLLEGE OF VETERINARY SURGEONS

### Diploma in Pig Medicine

#### READING/REFERENCE LIST

*Candidates should note that the reading list for the SUBJECT was frozen in 2002 and will eventually be withdrawn. Candidates are expected to research the literature for themselves and are recommended to make use of the RCVS Library and Information Service for this purpose (<http://www.rcvslibrary.org.uk> , e-mail - [library@rcvs.org.uk](mailto:library@rcvs.org.uk) or telephone 020 7222 2021). Candidates should also seek advice on suitable reading matter from their advisers.*

#### GENERAL READING AND REFERENCE

##### **Journals**

Advances on Veterinary Science and Comparative Medicine - pig reviews  
 Commercial Pig Production Yearbooks (MLC)  
 International Pig Veterinary Society Congress Proceedings  
 In Practice  
 Pig Industry (British Pig Association)  
 Pig International  
 Pig News and Information, Commonwealth Agricultural Bureau, Quarterly Abstracts, Wallingford, Oxon OX10 8DE.  
 The Pig Journal, PVG publication  
 Pig Progress (Elsevier)  
 Pigworld ([sam@pigworld.org](mailto:sam@pigworld.org))  
 Proceedings of the American Association of Swine Practitioners (AASP), 5921 Fleath Drive, Desmaine, IA 50321, USA.  
 Swine Health and Production. Official Journal of the AASP. As above.  
 Veterinary Annual - pig reviews (recent issues)  
 Veterinary Investigation Centre Reports  
 Veterinary Record

##### **Books**

CARR J (1998) 'Garth Pig Stockmanship Standards'

ENGLISH et al (1998) Stockmanship: Improving the care of the pig and other livestock. Farming Press.

HILL, J and SAINSBURY, D W B (ed) (1995) The Health of Pigs Longman Veterinary Health Services.

LEMAN, A D et al (eds) (1992) Diseases of swine 7th ed. Iowa State University Press. (The 8th ed. is being prepared and should be out by 1998.)

MUIRHEAD, M R and Alexander T J L (1997) managing Pig Health and treatment of Disease SM Enterprises, Sheffield

PIC Pig Management Year Book: Easy Care Pig Management Year Book and Pig Tales Year Book (combined) Available from 01262 488181 £12.50.

RADOSTITS, O M et al (1994) A textbook of the diseases of Cattle, Sheep, Pigs, Goats and Horses London, Bailliere Tindall.

Smith W J, Taylor D J, Penny R H C, "the Colour Atlas of Diseases and Disorders of the Pig". (1990), Wolfe publishing Ltd.

STARK A B, MACHIN D H and WILKINSON J M (Eds) (1995) Outdoor Pigs - Principles and Practice. Chalcombe Publ. Canterbury U.K.

TAYLOR, D J (1995) Pig diseases 7th ed. Glasgow, published and obtainable from the Author.

## **IMMUNITY**

BOURNE, J and NEWBY 1 (1981) Mucosal immunity In Practice 3,(No.5), 5-1 1.

## **ECONOMICS**

RIDGEON, B (1993) The Economics of Pig Production: Records and Performance of Pig Production as Monitored by the Cambridge Pig Management Scheme Ipswich, Farming Press.

## **HOUSING**

BAXTER, S H (1984) Intensive Pig Production: Environmental Management and Design London, Granada Technical.

BRENT, G (1986) Housing the Pig Ipswich, Farming Press.

WATHES, C M and CHARLES, D R (1994) Livestock Housing CAB International. Cambridge University Press.

## **HUSBANDRY, MANAGEMENT, PRODUCTION**

AUSTRALIAN PIG SCIENCE ASSOCIATION Manipulating Pig Production Volume 1 (1989) to Volume IV (1993) Animal Research Institute, Altwood, Victoria 3049, Australia.

BEYNON, N (1993) Pigs: A guide to management Marlborough, Crowood Press.

BRENT, G (1987) The Pigmans Handbook Ipswich, Farming Press.

COLE, WISEMAN and PARLEY (1994) Principles of Pig Science Nottingham University Press.

ENGLISH, P R, FOWLER, V R, BAXTER, S H, and SMITH, W J (1988) The Growing and Finishing Pig Ipswich, Farming Press.

ENGLISH, P R, SMITH, W J and MACLEAN, A (eds) (1982) The Sow: Improving her efficiency 2<sup>nd</sup> Ed. Ipswich, Farming Press.

HOLLIS, G R (ed) (1993) Growth of the Pig Wallingford, CAB International.

WHITEMORE, C T (1993) The Science and Practice of Pig Production Blackwell Science.

## **NUTRITION**

ARC Working Party (1981) Nutrient Requirements of Pigs - a little out of date.

COLE, D J A and HARESIGN, W (ed) (1985) Recent developments in Pig Nutrition London, Butterworths.

NATIONAL RESEARCH COUNCIL (1988) Nutrient Requirements of Swine 9th Ed. Washington DC, National Academy Press.

PATIENCE, J F, THACKER, P A and de LANGE, C F M (1995) Swine Nutrition Guide 2nd Ed. Prairie Swine Centre Inc., PO Box 21057, 2105 8th St East, Saskatoon, Saskatchewan, Canada S7J 5N9.

## **LABORATORY DIAGNOSIS**

DEFRA (1984) Manual of Veterinary Investigation Laboratory Techniques 3rd Ed. 2 Vols. London, HMSO.

QUINN, P J, CARTER, M E, MANKEY, B and CARTER, G R (1994) Clinical Veterinary Microbiology Wolf Publishing.

## **REPRODUCTION**

COLE, D J A, FOXCROFT, G R and WEIR, B J (eds) (1989) Control of Pig Reproduction - III: Proceedings of the Third International Conference of Pig Reproduction held at University of Nottingham School of Agriculture, Sutton Bonington, UK, April 1989. Cambridge, Journals of Reproduction and Fertility.

FOXCROFT, G R, HUNTER, M G, and DOBERSKA, C (eds) (1993) Control of Pig Reproduction - IV: Proceedings of the Fourth International Conference of Pig Reproduction held at University of Missouri - Columbia, USA, May 1993. Cambridge, Journals of Reproduction and Fertility.

HUGHES, P E and VARLEY, M A (1980) Reproduction in the Pig London, Butterworths.

INTERVET PUBLICATION (1996) Compendium of Animal Reproduction Cambridge.

JONES, A S, FOWLER, V R and YEATS, J C R (eds) (1973) The improvement of sow productivity Proceedings of a symposium held by the Rowett Research Institute in Aberdeen. Aberdeen Rowett Research Institute.

MEREDITH, M J (ed) (1995) Animal Breeding and Infertility Blackwell Science.

## **THERAPEUTICS**

BISHOP, Y (ed) (1996) The Veterinary Formulary. Handbook of Medicine used in Veterinary Practice 3rd Ed. London, Pharmaceutical Press.

BOGAN, J A, LEES, P and YOXALL, A I (eds) (1983) Pharmacological basis of large animal medicine Oxford, Blackwell Scientific.

BRANDER, G C et al (eds) (1991) Veterinary applied pharmacology and therapeutics 5th Ed. London, Bailliere Tindall.

HOWARD, J L (ed) (1993) Current Veterinary Therapy: Food Animal Practice 3 3rd Ed. Philadelphia, London, Saunders.

MOUNSEY, A D (ed) (1994/95) Handbook of medicinal feed additives 1 994/1995 13th Ed. Badewell, HGM Publications.

NOAH Compendium of data sheets for veterinary products, Medication. Published annually by Datapharm Publications Ltd., London.

## **WELFARE**

BLACKBURN, P W (1993) The Casualty Pig Malmesbury, Pig Veterinary Society.

FAWC (1993) Report on the Welfare of Outdoor Pigs

HILL, J R (1990) The Culling of Pig Breeding Stock: Welfare and Economic Aspects Potters Bar, Humane Slaughter Association.

DEFRA (1993) Codes of Recommendations for the Welfare of Livestock - Pigs (1999)

DEFRA - PIG WELFARE ADVISORY GROUP (1993) - series including:  
Cubicles and free access stalls

### ***Electronic Sow feeders***

Muck handling for Saws

Non straw or low straw system for housing dry sows

### ***Outdoor sows***

Yards and individual feeders

Yards or kennels with floor feeding

Yards or kennels with short stall feeders

Trickle feeding or wet feed systems

MARX, D (1987) Welfare Aspects of Pig Rearing Luxembourg, Office for Official Publications of the European Communities.

## **LEGISLATION**

WATSON W A (1980) Large livestock units and notifiable diseases British Veterinary Journal, 136, 1

### **Legislation relating to pigs**

Copies obtainable from HMSO and Government Bookshops. Some are held in the RCVS Library.

The Animal Health Act 1981

## **The important Orders relating to pigs**

Anthrax Order 1991 and Amendment Order 1996  
Aujeszky's Disease Order 1983  
Aujeszky's Disease (Compensation for Swine) Order 1983  
Foot and Mouth Disease Orders and Amendments  
Swine Fever Orders  
Swine Fever (Amendment) Orders 1991  
African Swine Fever Orders  
Swine Vesicular Disease Orders  
Specified Diseases (Notification & Slaughter) Order 1992  
Animals Sea Transport Orders  
Transit of Animals Orders 1927-73 (and Transit of Animals (Road and Rail) Orders)  
Export of Animals (Protection) Order 1981  
Diseases of Animals (Export Health Certificates) Order 1985  
Importation of Animals Orders  
Diseases of Animals (Waste Food) Order 1973  
The Diseases of Animals (Approved Disinfectants) Order 1999 **(as amended)**  
Replaced by Animal By Products Order 1999 **(as amended)**  
Welfare of Animals at Markets Order 1992 **(as amended)**  
Pigs (Records, Identification & Movement) Order 1995  
The Docking of Pigs (Use of Anesthetics) Order 1974  
The Animals, Meat and Meat Products (Examination for Residues and Maximum Residue Limits) Regulations 1997.

*EU Directive 91/628/EEC on the protection of animals during transport, is implemented by The Welfare of Animals during Transport Order 1997. Directive 95/29/EEC on the same subject remains to be implemented.*

The Animals and Animal Products (Import and Export) Regulations 1995, and amendments  
Revoked by The Animals Regulations 1998  
The Pigs (Records, Identification and Movement) Order 1995  
The Processed Animal Protein (...) Regulations 2001

Code of Practice for Category A registered manufacturers of medicated animal feedingstuffs  
Code of Practice for Category B registered manufacturers of medicated animal feedingstuffs  
(Both produced by the Veterinary Medicine Directorate and available from DEFRA Publications  
London SE99 7TP Te. 0181 694 8862.

### Less specific orders with relevance to Pigs

Animals By-Products Order 1999  
The Rabies Orders  
Zoonoses Order 1975  
Export Quarantine Stations Regulations Order 1973  
Importation of Animal Pathogens Order 1980  
Importation of Embryos, Ova and Semen Order 1980  
Animals (Miscellaneous Provisions) Orders  
Diseases of Animals (Protein Processing) Order  
Approved Disinfectants Orders  
Diseases of Animals (Ascertainment of Compensation) Order 1959  
Diseases of Animals (Seizure of Carcasses etc) (Amendment) Order 1983

## **Welfare Regulations**

Extract from Agriculture (Miscellaneous Provisions) Act 1968, Chapter 34, Part 1, Welfare of Livestock

*EU Directive 91/630/EEC lay down minimum standards for the protection of pigs, and they are implemented and exceeded by The Welfare of Livestock Regulations 1994. Welfare of Farmed Animals(..)Regs 2000 These regulations revoke the Welfare of Livestock (Intensive Units) Regulations 1978, the Welfare of Livestock Regulations 1990 and the Welfare of Pigs Regulations 1991.*

The Specified Diseases (Notification) Order 1996.

The Movements of Animal (Restrictions) Order 1990.

Welfare of Livestock (Prohibited Operations) Regulations 1982

The Welfare of Animals (Slaughter or Killing) Regulations 1995 (as **amended**)

A.I. of Pigs (England and Wales) Regulations 1964 and (Scotland) 1964

Artificial Insemination (Cattle and Pigs) (Fees) (Amendment) Regulations 1992  
90/429/EEC regarding intro-community trade in porcine semen and implemented by the Artificial Insemination of Pigs (EEC) Regulations 1992.

## **MISCELLANEOUS**

### **Books**

BODEN, E (ed) (1991) Swine Practice London, BailliereTindall.

WALTON, J R, CARR, J and DURAN, O (1992) Pet Pigs: Advice on Management, Training and Health Care Liverpool University Press.

VARLEY, M A (ed) (1995) The Neonatal Pig: Development and Survival Wallingford, CAB International.

### **Magazines and trade publications**

Easicare Pig Management Yearbook, Upton House, Beeford, Driffield, East Yorks YO25 8AF

MLC Pig Production Yearbook

Pig Industry and Journal of the British Pig Association

Pig International

Pig Farming - Trade magazine.

Pig Topics - Regular publication by PVC, obtainable from Pig tales, Upton Office, Beeford, Driffield, Yorks YO2S 8AF.

### **Scientific Journals**

Animal Science

Australian Journal of Animal Science

Canadian Journal of Animal Science  
International Pig Letter

### **Audio Visual programmes**

Audio visual programmes are available from The Unit for Veterinary Continuing Education, Royal Veterinary College, Royal College Street, London NW1 OTU (tel. 0171 468 5000) - including "Detection of Pregnancy in Pigs" M J Meredith (Vet 18 and 19, August 1981); and from the Allan White Memorial Video Library, c/a Marjorie Taylor, 101 Higher Lane, Rainford, nr. St Helens, WA]] 8BQ.

### **Videos and Slides held at State Veterinary Service Divisional Offices**

Foot and Mouth Disease 1993 made by the Institute of Animal Health, Pirbright

Lesions of Foot and Mouth  
African Swine Fever (1991)

Classical Swine Fever (Hog cholera) made by the Commission of the European Communities

Sets of slides on foot and mouth disease and classical swine fever.

### **Pig Medicine Diploma dissertations and case reports are held in RCVS Library**

SMITH, W J (1990)

A study of the Iron Requirements of the Intensively Reared Baby Piglet *Dissertation*

High Piglet Mortality in a 600-Sow Breeder/Weaner Unit *Case Study 1*

'A Worrying Problem' *Case Study 2*

A Feed Induced Haemorrhagic Disorder *Case Study 3*

A Navel Bleeding Problem *Case Study 4*

A study of Transport Deaths *Case Study 5*

'A Joint Ill Problem' *Case Study 6*

WHITE, M F C (1993) Porcine Reproductive and Respiratory Syndrome *Dissertation*

Actinobacillus Pleuropneumoniae: The disease and its long term control *Case Report*

An Investigation of Ear Damage and Vice in Growing Pigs *Case Report*

Breeding Herd Performance *Case Report*

Coccidiosis in the Suckling Pig *Case Report*

Porcine Stress Syndrome or Vitamin E Deficiency? *Case Report*

Swine Influenza *Case Report*

OWEN, J M (1996) The Control of Notifiable Diseases found within the European Union -From the UK Perspective *Dissertation*

A series of investigations on farms following the finding of Sulphonamide residues in meat *Case Study 1*

The Investigation and control of an outbreak of progressive atrophic Rhinitis *Case Study 2*

A Study of Porcine Reproductive and Respiratory Syndrome  
(PR RS)

Case Study 3

An Investigation into a Problem of High Sow Mortality and Low Farrowing Rate in a  
Multiplication Herd over a 3 year period

Case Study 4

The Pig Assurance Scheme An Assessment of Pig Assurance Visits Undertaken by the Author  
during January to September 1995

Case Study 5

An investigation of a cluster of outbreaks of Aujeszky's Disease

Case Study 6

CARR, J (1996)      Observations on the Systems of Water Delivery used on Pig Farms  
*Dissertation*

### **Other Publications**

The Codes of Recommendations for the Welfare of Livestock - Pigs, DEFRA Publications.

### **Useful Contacts (Website Information)**

National Pork Producers Council (NPPC) USA. <http://www.NPP.org>

USDA/FDA Foodborne Illness Education Information Center.  
<http://www.nal.usda.gov/fnic/foodborne/foodborn.htm>

American Association of Swine Practitioners (AASP). <http://www.aasn.org>

GarthVeterinaryPractice. <http://www.garth.demon.co.uk>

Pig and Poultry Production Institute, University of Adelaide, Australia.

<http://www.sardi.sa.gov.au/livestck/nignsnoul/nias.noul.htm>

Society of Veterinary Epidemiology and Preventive Medicine.

<http://www.vie.gla.ac.uk/svepm>

Medline, this data bank contains over one million references and abstracts relating to  
veterinary and medical publications. <http://www.ncbi.nlm.nih.gov/pubmed>

The Pig Journal, UK. <http://www.pigjournal.co.uk>

The World Health Organization (WHO). <http://www.who.ch>

Extoxnet, Cornell University, USA. This data bank contains information on pesticides.

<http://ace.ace.orst.edu/info/extonet/pips/dicofol.htm>

Web access to Veterinary information in Centre for Agriculture and Bioscience International, Oxon, UK. <http://vet.cabweb.org>

Oldcastle Laboratories Ltd. <http://ireland.iol.ie/kavnalab>  
RCVS Library and Information Service — <http://www.rcvs.org.uk>

December 1988, Revised November 1992, Revised June 1993, Revised September 1996 and October 1996, Revised June 1998, Revised July 1999, Revised Nov 2001.

**PLEASE ENSURE THAT YOU COMPLETE A FORM E1 (TO BE FOUND IN THE COMMON DOCUMENTS) AND ATTACH IT TO THIS FORM**

Specialisation and Further Education

**DIPLOMA IN PIG MEDICINE**

*(For use where a candidate has not previously applied for approval)*

**Dissertation**

Application to be completed and returned to the RCVS, Belgravia House, 62-64 Horseferry Road, London SW1P 2AF **no later than 1 November in the year prior to that in which it is planned to enter for the examination.**

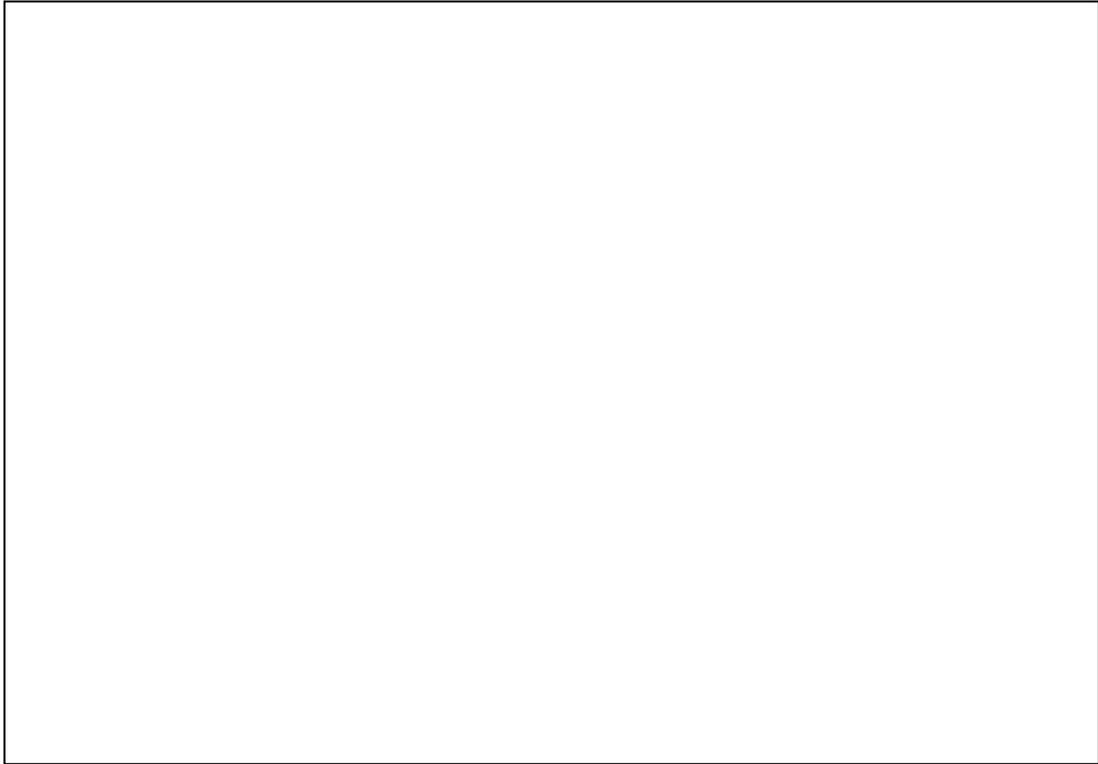
**1. NAME** in full (block letters)

**2. PROPOSED TITLE FOR DISSERTATION** giving a brief outline

*Candidates may not include work, which has already been included in a submission for **any other RCVS postgraduate qualification unless** that work forms only a minor part of the submission, the major part of which must be distinct from **any** previous submission for **any other postgraduate qualification.***

**You are requested to declare which part, if any, has previously been used for another postgraduate qualification and to outline below how you propose to re-work/develop the work in respect of this Diploma.**

3. PLEASE INDICATE YOUR IN-DEPTH SUBJECT: -



Signature

Date

**PLEASE RETURN ORIGINAL FORM PLUS FOUR COPIES**

*Please enclose a S.A.E. for acknowledgement*

Specialisation and Further Education

**DIPLOMA IN PIG MEDICINE**

**Application for FINAL approval of experience and for permission to submit an entry to the next examination**

to be completed and countersigned by your Adviser before being returned to the RCVS, Belgravia House, 62-64 Horseferry Road, London SW1P 2AF by **1 November. NO LATE APPLICATIONS WILL BE ACCEPTED.**

**PLEASE SUBMIT ORIGINAL PLUS 4 COPIES OF ALL FORMS**

1. **NAME** in full (block letters)

2. **DEGREES/DIPLOMAS/CERTIFICATES** \_\_\_\_\_ (in abbrev. form)

3. **ADDRESS** for all correspondence (block letters)

4. **TELEPHONE Nos** (for daytime contact)

**FAX Nos** (for daytime contact)

**E Mail**

5. **DATE OF ENROLMENT** \_\_\_\_\_ (MONTH/YEAR)

If application for enrolment is being submitted concurrently with this application please state 'concurrent'.

**6. PERIODS OF EXPERIENCE BEING OFFERED** to meet the requirements of the byelaws

(please refer to the guidance notes and give overleaf full details of your experience, including dates, places and nature of employment. Also list all veterinary activities. It is important to state the average hours per month/year in each of the activities you list, and to show that you are involved for about 30 hours per week in pig medicine and related activities.)

Please append a list of congresses, conferences, symposia and any formal courses attended in recent years and include details of any involvement in the instruction of others.

If you are submitting forms E.1 and E.2 together, it is not necessary to repeat information already given in form E.1, but please ensure that full details of all your experience and activities in the field of pig medicine are included.

**7. PUBLICATIONS/ARTICLES/PAPERS/LECTURES**

Please give details below or append a list:

**8. OTHER POSTGRADUATE STUDIES**

During the period of experience being offered, you have been or are studying for any other postgraduate qualification?

YES / NO?

If YES, give brief details:

**Please send a photocopy of your RCVS CPD Record Card covering the period of experience being offered.**

**9. SUBMITTED WORK**

DISSERTATION TITLE - please confirm your title below:

**10. PLEASE CONFIRM YOUR CHOICE OF SUBJECT IN WHICH TO BE EXAMINED IN DEPTH.**

**11. I HEREBY APPLY FOR APPROVAL OF EXPERIENCE AND FOR PERMISSION TO SUBMIT AN ENTRY TO THE NEXT DIPLOMA EXAMINATION IN PIG MEDICINE**

I certify that the period of experience being offered has not been/is not being offered to meet the requirements of the byelaws for any other RCVS Certificate or Diploma.

**12. CONFIRMATION OF INTENT TO SIT THE EXAMINATION**

If approval of experience is granted, I do / do not (*delete as appropriate*) intend to submit an entry to the next examination.

Signature \_\_\_\_\_ Date \_\_\_\_\_

Please enclose S.A.E. for acknowledgement.

**PLEASE RETURN ORIGINAL PLUS FOUR COPIES**

**THE FOLLOWING SECTION SHOULD BE COMPLETED BY YOUR ADVISER.**

I confirm that I am acting as this candidate's Adviser

Name \_\_\_\_\_  
(block capitals)

Signature \_\_\_\_\_ Date \_\_\_\_\_

**DIPLOMA IN PIG MEDICINE ADVISER LIST**

Candidates should consult the RCVS Register of Members for a suitably willing and qualified individual (someone holding a Diploma or equivalent) who is familiar with the RCVS Diploma examination system and clinically active.

**The Royal College of Veterinary Surgeons**

**DIPLOMA EXAMINATION IN PIG MEDICINE**

**PAPER I**

**Wednesday 1 May 1996**

**10.00 a.m. to 1.00 p.m. (3 hours)**

Any **three** of the following five questions **MUST** be answered. (Answers in note form are acceptable, where appropriate).

**Candidates are warned that illegible handwriting may result in examiners being unable to award marks for information which candidates intended to convey**

1. Write **notes** on the options open to intensive pig farmers for the rehousing of their sows after stalls have been banned in the U.K. Give the pros and cons of different systems and the factors that should be taken into account in arriving at a decision.
  
2. Swine dysentery and pneumonia, in which *Mycoplasma hyopneumoniae*, *Actinobacillus pleuropneumoniae* and Porcine Reproductive and Respiratory Syndrome (PRRS) virus have been identified, are causing problems in a 1000 pig place finishing unit taking pigs in at about 30kg and slaughtering at around 95kg. The unit is part of a large integrated organisation and is stocked on an all - in all - out basis from several sow herds each under independent ownership. What investigations would you carry out? What options are there to reduce the problem and what sequence of actions would you advise?
  
3. Discuss nutrition as it relates to lameness in pigs.
  
4. Reproduction analysis in a 600 sow breeding herd shows approximately the same values for three month and six month rolling averages. The non—return rate to first service is 82%, the farrowing rate is 80% and the number of litters per sow per year is 2.22 (annualised). The farmer perceives that he has a problem. How would you investigate it and what advice would you give depending on what you found?

**p.t.o. for Question 5**

5. Write **short notes** on any **five** of the following:
- a. The importance of the quantity and quality of dietary fibre
  - b. The usefulness of abattoir monitoring for different types of herd.
  - c. Welfare advantages and disadvantages in keeping pigs out – of – doors.
  - d. Problems with the implementation of present and impending regulations governing the transport of pigs.
  - e. Modern methods used in genetic improvement.
  - f. Electrical safety on pig farms.
  - g. Influenza viruses infecting pig herds in the U.K

The Royal College of Veterinary Surgeons

**DIPLOMA EXAMINATION IN PIG MEDICINE**

**PAPER II**

**Wednesday 1 May 1996**

**2.00 p.m. to 5.00 p.m. (3 hours)**

Any **three** of the following five questions **MUST** be answered. (Answers in note form are acceptable, where appropriate).

**Candidates are warned that illegible handwriting may result in examiners being unable to award marks for information which candidates intended to convey**

**SPECIAL SUBJECT: THE NOTIFIABLE DISEASES OF THE PIG.**

1. *List* the taxonomic and physico - chemical characteristics of the viruses of foot - and - mouth disease, swine vesicular disease, African swine fever and classical swine fever and describe how these features influence their survival and transmission.
2. Discuss the role of the pig in the epidemiology of foot – and - mouth disease with particular reference to the risk of the disease being introduced to the U.K.
3. **Discuss** the pathogenesis and associated clinical signs during the different manifestations of Aujeszky's disease in the pig.
4. What are the most likely routes by which swine vesicular disease is likely to be introduced onto a pig farm? Describe the main control measures which should be implemented following the confirmation of an outbreak of that disease in a large commercial pig finishing unit.
5. Write **notes**, highlighting key issues, on any **four** of the following:
  - a. Clinical and laboratory differential diagnosis of classical and African swine fever.
  - b. Swine vesicular disease in the E.U.
  - c. Mechanisms of spread of Aujeszky's disease between pig herds.
  - d. Anthrax in pigs in the U.K.
  - e. *Brucella suis* in countries of the E.U.

The Royal College of Veterinary Surgeons

**DIPLOMA EXAMINATION IN PIG MEDICINE**

**PAPER II**

**Wednesday 1 May 1996**

**2.00 p.m. to 5.00 p.m. (3 hours)**

**Any three** of the following five questions **MUST** be answered. (Answers in note form are acceptable, where appropriate).

**Candidates are warned that illegible handwriting may result in examiners being unable to award marks for information which candidates intended to convey**

**SPECIAL SUBJECT:                      SOW MANAGEMENT WITH SPECIAL REFERENCE TO LIQUID INTAKE AND URINARY TRACT DISEASE**

1. List the toxic substances and pathogenic organisms that in your opinion might contaminate water supplies to sow herds in Europe and North America. Give an indication of the likelihood of their occurrence and write *brief notes* on each explaining how the contamination may come about, what effect it would have on the breeding animals and their piglets, and what actions you would take to deal with the problem.
2. Discuss the reasons for sow culling and list the conditions you mention in approximate order of their economic importance.
3. Discuss the advantages and disadvantages of liquid feeding and liquid feeding systems including computerised automated systems.
4. An intensive pig farm with about 1,000 mature sows in total confinement (sow stalls and farrowing crates) plus about 300 mated gilts loose—housed in pens, is suffering an unacceptably high level of deaths through cystitis/nephritis which is seriously affecting the farmer's culling and replacement policy. The sows are all liquid—fed once a day manually through hose—pipes from central mixers, the amount given at each feed being judged by eye. The feed is home—mixed, whey—based, with other human food waste materials including lemonade and brewery waste. Outline what you would consider doing to tackle this problem and how soon you would expect to see positive results.

**p.t.o. for Question 5**

5. Write *notes*, highlighting key issues, on any **four** of the following:
  - a. Birth weights and weaning weights.
  - b. Fly control.
  - c. Feeding bought—in gilts prior to mating, during gestation and after tarrowing.
  - d. Water medication for weaned, growing and finishing pigs.
- e. Pathogenesis of *Eubacterium (Corynebacterium) suis*.