

## Information on the Certifying Examination 2012

**The Examination will be held in Munich from 23th to 27th of July 2012**

The examination will consist of two (2) sections.

### ***Section 1: Basic knowledge and Reflection***

Section 1 will consist of three (3) parts.

These will cover all aspects of the speciality in proportions that reflect the range of topics in the syllabus.

<b>Paper 1</b>	a) Single best answer questions	50 to take 1 hour (100 marks)
	b) Long questions	2 to take 1.5 hours (50 marks each = total 100 marks)
<b>Paper 2</b>	Single best answer questions	100 to take 2 hour (200 marks)
<b>Exhibits</b>	Clinical case scenarios  A series of “exhibits” reflecting clinical scenarios will be presented with specific questions requiring short written answers.	4 exhibits to take 2 hours  (50 marks each = total 200 marks)

**Section 2: Problem solving, Project Management and Communication**

Section 2 will consist of two (2) parts.

<b>Paper 1</b>	Problem-based questions	2 to take 3 hours  (100 marks each = total 200 marks)
<b>Oral examination</b>	a) Presentation of research work and discussion  b) the second part includes discussion on a “hot” topic, or recent article, which will be made known to the candidates in advance	30 min.  30 min.  (100 marks each=total 200 marks)

**Candidates and their work will be identified by candidate number only, candidate numbers to be allocated by the ECBHM Central Office prior to the examination and will remain confidential until after the marking of all the written examination work is completed.**

***Marking of Papers***

All questions other than Single best answer questions will be marked against pre-determined outline specimen answers by at least two (2) examiners. The pass mark for each section is 60 %.

The examination performance will not be further graded.

Candidates that pass both sections are eligible to enter the ECBHM.

Candidates that fail one of the sections only have to re-sit that section.

## **Examiners**

There will be six (6) Examiners on the Examination Committee. Each examiner will sit for a maximum of three (3) years unless a recommendation from the ECBHM Board suggests otherwise. In addition, the Committee may ask one or several external independent examiner(s) to join the Committee for the examination.

## **Forwarding of Results**

The Chairperson of the Examination Committee will forward the results of the examination to the Board for approval. Following approval by the Board the secretary of the college will inform candidates of the outcome electronically and in addition per registered mail in case of failure, within four (4) weeks of the completion of the examination. In cases where a candidate fails to satisfy the Examinations Committee that he/she has reached the required standard, a brief written examiners' report will also be provided to the candidate to aid his/her preparation for future examination attempts.

A candidate must pass each section of the examination in the same sitting to become certified. That means that candidates that failed one part of the examination have to resit both parts. The number of re-applications to sit the examination is limited to three (3) (four (4) attempts in total). Failure to pass the examination within five (5) years of the first sitting will prevent the candidate from being certified. Candidates must also pass the examination within six years of being notified that they have satisfied the credentials process.

## **Relationship between syllabus, training and content of examination**

For the information of candidates the syllabus has been categorized into topics arranged in order of importance to the College. While this is not meant to stifle endeavour in the “less favoured areas” it is intended to give guidance to the overall apportionment of questions in the examination in relation to reading and other studies by residents.

### **Herd Health and Epidemiology**

- Principles of epidemiology, methods and techniques such as risk assessment in herd health programmes on an international, national, multiple herd and individual herd basis, export and import rules and regulation both within Europe and with countries outside Europe.
- Animal Health Economics - applicable to cattle units and cattle populations.
- Herd health planning.
- Immunity and vaccination usage to prevent disease at the herd level.
- Quality Assurance - farm assurance schemes for retailing; organics.
- Veterinary Informatics - Awareness of information and communication technology, data handling and the use of computer technology in herd health programmes.
- Biosecurity and infectious disease control methods on cattle units and within the cattle industry in its widest context.

### **Medicine and Surgery**

- Those diseases, syndromes and conditions of cattle of all types and ages which are commonly encountered in Europe, including their cause, epidemiology, prevalence, pathology, differential diagnosis, diagnosis, therapeutic regimes, control and prevention. Diagnostic methods including; clinical examination, case recording, post-mortem examination, collection and preservation of samples for laboratory examination, routine diagnostic laboratory techniques etc.
- Surgery and anaesthesia; a basic knowledge of common methods and procedures is required but not specialist knowledge or expertise.
- Lameness: aetiology, epidemiology, diagnosis, treatment and control.

## **Reproduction and Genetics**

- Reproduction; normal and abnormal reproductive behaviour, artificial control of reproduction, husbandry aspects of reproduction.
- Principles of bull usage and cow management, the effects of nutrition on reproduction.
- Pregnancy diagnosis and examination of the reproductive tract and foetus, diseases of the reproductive tract and their treatment, factors influencing oestrous detection rate.
- Infertility in the cow, problems during pregnancy, normal parturition and basic obstetrical procedures, common causes of reduced herd reproductive performance.
- Recording reproduction data, methods for investigation and correcting lowered reproductive performance, interpretation of records, organisation of fertility control schemes.
- An understanding of the principles of AI, infertility in the bull and clinical examination, competent use of ultrasonography for reproductive examination.

In summary residents should be competent to deliver reproductive herd health and have a basic understanding of modern reproductive and genetic technologies. However they need not have specific specialist expertise in modern reproductive technologies such as embryo transfer, cloning, etc.

## **Husbandry – Nutrition and Housing**

- Importance of housing - Cattle housing and its impact on health and disease for all classes of cattle.
- Nutrition; anatomy, physiology and principles of normal digestion, nutritional requirements of cattle at different ages and stages of production.
- Common dietary constituents used in compounding and formulating rations, methods of feed analysis.
- An understanding of principles of diet formulation, that there are a number of different national systems for feed evaluation but that all have similar principles – e.g. ruminant N balance.
- Various commonly used methods of forage conservation.
- The more commonly used feeding regimens for dairy and beef cattle, “hand steering diets”, EU regulations on foodstuffs.
- Diseases associated with nutrition.
- Poisoning including toxic plants.
- Effect on meat and milk quality of feed supplements and additives, methods of feed dispensing.

In summary, residents should have a thorough understanding of the nutrition of all classes of cattle at all stages of production.

### **Dairying**

- Structure of EU dairy industry.
- Dairy production systems e.g. milk from grass, organics.
- Mastitis, Milk quality – fat, protein and SCC.
- Milking machine types and problems

### **Meat Hygiene / Food Safety**

- Structure and economics of the European cattle industry.
- Production systems; a detailed knowledge of all aspects of commonly used production systems including organics.
- Cattle marketing and slaughtering methods.
- Food safety, consumer protection and environmental protection as are applicable to cattle, cattle production and cattle products, HACCP principles.

### **Zoonoses**

- Zoonoses; cattle diseases transmissible to humans, main symptoms in humans, epidemiology, pathology, clinical signs, diagnosis, differential diagnosis, treatment, control.
- Notifiable diseases of cattle and all related appropriate legislation at the level of the EU.

### **Legislation and Welfare**

- Welfare, ethics and animal use; normal behavioural patterns and their alteration by stress; pain and disease, pain recognition and assessment; welfare in relation to stockmanship, housing, nutrition and breeding; welfare standards on the farm, during transport, in the market place and at the slaughterhouse; care and welfare of sick and injured cattle; transport of casualty cattle (fallen stock); impact of biotechnology on welfare.
- All EU legislation in place to safeguard the welfare of cattle.
- Immunity and vaccination usage to prevent disease at the herd level.

## Model Questions for the Certifying Examination of the ECBHM

Single best answer questions

**Which of the following methods can be used for the reduction of bacterial contamination in colostrum without reducing quality? (1 mark)**

Pasteurization for 30 min. at 63°C

- I. Pasteurization for 60 min. at 60°C
- II. Refrigeration at 5°C for 2 days
- III. Pasteurization for 15 sec. at 72°C
- IV. No method available

Answer: 2 (Write appropriate number)

*Godden S, McMartin S, Feirtag J, Stabel J, Bey R, Goyal S, Metzger L, Fetrow J, Wells S, Chester-Jones H., J Dairy Sci. 2006 Sep;89(9):3476-83. Heat-treatment of bovine colostrum. II: effects of heating duration on pathogen viability and immunoglobulin G.*

*McMartin S, Godden S, Metzger L, Feirtag J, Bey R, Stabel J, Goyal S, Fetrow J, Wells S, Chester-Jones H., J Dairy Sci. 2006 Jun;89(6):2110-8.*

*Heat treatment of bovine colostrum. I: effects of temperature on viscosity and immunoglobulin G level.*

Long question (50 marks)

Time to answer: 1.5 hours for 2 questions

Describe traditional manual-based dairy calf feeding systems and discuss factors that may contribute to malnutrition as a herd or single calf problem in pre-weaned dairy calves in this context. Describe and discuss the minimal standards relating to the protection of calves in European legislation that relate to nutrition.

*(model answer derived from James K. Drackley, Calf Nutrition from Birth to Breeding, Vet Clin Food Anim 24 (2008) 55–86)*

*Traditionally dairy calves are fed about 10 % of body weight in milk or milk replacer. The average Holstein calf traditionally weighed slightly less than 40 kg and the feeding regime was further simplified to 2 litres milk replacer (or 2 quarts in the U.S. which is even less) twice daily. This restricted feeding encouraged calves to eat concentrates as early as possible and minimized costs. However, the energy provided is just enough for the ‘average calf’ to allow for minimal weight gain under ‘optimal conditions’.*

The following problems arise from this traditional feeding regime:

- Even the 'average' Holstein calf nowadays is heavier at birth
- The energy content of milk replacers is lower than that of whole milk + the quality of milk replacer can be very variable. Non-milk proteins can cause poor digestibility in young calves.
- Every kind of stress or immune response elevates the energy requirements (transport, grouping)
- 'Optimal conditions' imply thermoneutral (15 – 25 °C) environment. Energy needs increase rapidly with falling temperatures, but also with heat.
- The regime relies on calves eating concentrates very early in life, so they can make up for low weight gains in the first weeks. That requires that calves actually have access to palatable, fresh concentrates at all times.
- Concentrate intake is increased by the availability of water. (Calves will drink water almost irrespective of the amount of milk given around 1.5l/day but can be >4l)
- In group feeding systems individual weaker calves may have a problem with competition, especially if there are fewer teats than calves, or not enough trough space.
- When milk is withdrawn from diarrhoeic calves that are already criss-crossing the borderline of malnutrition, they can literally starve to death. Hence the need to keep feeding milk to diarrhoeic calves.

European legislation (*Council Directive 2008/119/EC of 18 December 2008 laying down minimum standards for the protection of calves*) is very generic and leaves plenty of room for interpretation:

*11. All calves must be provided with an appropriate diet adapted to their age, weight and behavioural and physiological needs, to promote good health and welfare. To this end, their food must contain sufficient iron to ensure an average blood haemoglobin level of at least 4,5 mmol/litre, and a minimum daily ration of fibrous food must be provided for each calf over two weeks old, the quantity being raised from 50 g to 250 g per day for calves from eight to 20 weeks old.*

*12. All calves must be fed at least twice a day. Where calves are housed in groups and not fed ad libitum or by an automatic feeding system, each calf must have access to the food at the same time as the others in the group.*

*13. All calves over two weeks of age must have access to a sufficient quantity of fresh water or be able to satisfy their fluid intake needs by drinking other liquids. However, in hot weather conditions or for calves which are ill, fresh drinking water must be available at all times.*

**Problem-based question (dairy):**

**This question attempts to reflect an on-farm situation that the candidate might encounter. Clearly, in many instances the herds will be bigger but it is the candidate’s understanding of the principles of and the approach to the investigation that are the primary focus of this question. Since some computation is needed, there is an ample time allowance (90 minutes per question) and significant marks allocation for this type of question (100 for each of the two questions).**

**Question:**

A new client with a relatively small dairy herd of 34 milking cows and four in-calf heifers asks you to look at his available records and assess the farm with a view to identifying any potential problems that might be limiting profitability or welfare. Cows are housed during the winter and grazed during the summer and milked through a 4x4 herringbone parlour. During housing period, they are fed grass silage by direct access to the silage pit and given concentrate both in the parlour (2 kg twice a day) and out of parlour (up to a maximum of 10 kg in 6 feedings). Describe the investigative approach you would adopt and your management of the challenge given to you by the farmer, given the information and data provided. Please also comment on what you consider these data are telling you. (Herd data are provided in Appendix A)

**Outline of Specimen Answer:**

**Approach**

**1. Analyse the data (see Appendix A)**

*Half the marks awarded derive from interpretation of these data. (50 marks)*

- a) Note that the records **do not include young heifers** (2 marks) being bred for the first time
- b) Comment on calving pattern-**calves all year round but more in spring** (2 marks)

2005								2006					
May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1	0	3	2	3	2	1	2	1	10	2	3	3	0

- c) **Yield/day seems reasonably good** for this type of small farm - mean 34 range 17 to 51 likely 305 d average certainly over 8,500 probably over 9,000. Avg., fat rather low (3.7%) protein good (3.2%) OK - cell counts and bactoscan/tbc (not available ask for them?) (4 marks)
- d) **Candidate might note that best overall performance is from lactation 3 cows** (2 marks)
- e) Herd distribution - 33 cows in herd; 7 earmarked for culling & not served and 21 served: expect there will be a **need for more than 7 replacements over next year yet only 4 identified within in-calf heifer group.** (4 marks)

Interestingly, relatively low number of 2nd calvers in herd profile suggests this has happened before. 4 marks

Lactation Number	1	2	3	4	5	6	7	8	9	10
Number of Cows	9	3	7	4	3	2	2	2	1	0

f) Days to first service & conception – not too bad? Looks like does not usually start serving before 50 days apart from one exception (29 days) (4 marks)

	Days to first service	Days to conception
Mean	72.9	89.9
Range	67	74
Minimum	29	59
Maximum	96	133
Count	21	15

Spread of days to conception reasonable although quite a few >100 days (4 marks)

Days to conception	50-60	61-70	71-80	81-90	91-100	101-110	111-120	120-130	131-140
Number of Cows	1	2	5	1	0	2	1	2	1

g) Submission rate derived from number served from 50 to 75 days, divided by rest - ~55% a bit lower than desired but not unusual. (4 marks)

h) Inter-service intervals - really too few for meaningful analysis esp., with treatments but confirm submission rate. (4 marks)

Interservice intervals	>18	18 to 24	25 to 35	36 to 48	>48
No. of cows	2	1	3	2	3

Pregnancy rates – overall really quite reasonable given yield etc. (4 marks).

Overall 89% of cows served with a known PD result have become pregnant. (at 1.82 services per recorded pregnancy) no evidence of bull problem though few numbers. (4 marks)

Service	1 <sup>st</sup>	2nd	3rd	4th	all
All known results	19	8	3	1	31
% Pregnant	47%	63%	67%	100%	55%
<u>BULL</u>					
aa	50%				
gj	60%				
wdc	30%*				

\* one not PD'd

### **Actions (50 marks)**

- Report the analysis to the client but do not give any recommendations until you have visited farm (4 marks)
- Ask to visit the farm (4 marks)
- Assess cow body condition, welfare e.g. broken ribs hock sores etc (6 marks)
- Assess access to feed, weigh an aliquot of food from in-parlour and out-of-parlour feeders (if not done regularly) (4 marks)
- If in summer look at grazing assess grass heights (overall aim for 8 to 10 cm with rising plate on entrance & 3 to 4 cm on exit) and overall “forage” (grazed + silage etc.) stocking rate/ha should be around 2 to 2.5cows/ha) (4 marks)

- Assess water access as a rough guide, expect ~10% of cows to be able to drink at one time remember lactating cows drink a lot (~100l) even on wet grass! (4 marks)
- Assess buildings, cubicles (if cows are in could use the cow comfort quotient or CCQ = number of cows lying properly in stalls ( $\times 100$ ) divided by the number of cows that were lying or standing with 2 or 4 feet in the stall) and walkways for “comfort”. (6 marks)
- View milking technique - if possible ascertain quality of health records e.g. individual cow somatic cell counts, treatment records. (4 marks)
- Ask to see young stock – does he breed all his own replacements? – problem of adequate replacements each year and approach to this. (4 marks)
- Assuming all quite reasonable, congratulate client on quite a well-run herd. (2 marks)
- Try to discover how client approaches cows not seen in oestrus by 50 days post calving or found to be not pregnant; suggest regimes for both of these depending on findings. (4 marks)
- Suggest how some improvement might be made in efficiency of oestrus detection – use of pedometers collars etc.? cost advantage in small herd? (4 marks)

*Model answer derived from Andrews, Bovine medicine, 2<sup>nd</sup> ed.: Herd fertility management b) Dairy herds. Barrett & Boyd pp 663-677*

