

THE ROYAL COLLEGE OF VETERINARY SURGEONS

DIPLOMA IN CATTLE HEALTH AND PRODUCTION

Tuesday 24 August 1999

**PAPER 1 (whole syllabus)
(3 hours)**

Illegible handwriting or failure to answer the questions in the form requested may result in examiners being unable to award marks for information which candidates intended to convey.

Candidates are required to answer FIVE of the following SIX questions. (Allow 36 minutes per question).

If insufficient time is available to answer a question fully, it will be acceptable to complete in note form.

1. Discuss the potential benefits of a farm assurance scheme for dairy farms to cattle, farmers, consumers and veterinary surgeons.
2. Is the Krebs report an adequate response to the continuing increase in bovine TB? What, if any, are the potential drawbacks associated with their recommendations and what would you suggest should be done?
3. Johne's disease is widespread in certain sectors of the cattle industry. Give possible reasons for this and discuss the options for control with emphasis on difficulties encountered in attempting control.
4. A dairy farmer wishes to rent some moorland grazing 10 miles distant from his farm for summer grazing of dry stock and heifers. The land in question has been previously grazed by both sheep and beef cows with calves at foot. Discuss the possible animal health risks associated with this decision and what you might do to minimise them.
5. A farmer in Somerset with 200 pedigree dairy cows and 100 pedigree beef suckler cows asks your advice on bovine virus diarrhoea (BVD). How would you assess the BVD status of the herds? Discuss the options available to the farmer for eradication and/or control.
6. Write short notes on:
 - a) Necrotic enteritis of calves
 - b) Salmonella typhimurium DT 104 infection
 - c) Iodine deficiency in cattle
 - d) Aetiology of solar ulceration (pododermatitis circumscripta) in dairy cattle.

THE ROYAL COLLEGE OF VETERINARY SURGEONS
DIPLOMA IN CATTLE HEALTH AND PRODUCTION

Tuesday 24 August 1999

PAPER 2 (Dairy)
(3 hours)

PAPER 2 CONTAINS 2 SECTIONS

Illegible handwriting or failure to answer the questions in the form requested may result in examiners being unable to award marks for information which candidates intended to convey.

SECTION A

Candidates are required to answer BOTH of the following TWO questions.
(Allow 1½ hours i.e. 45 minutes per question)

If insufficient time is available to answer a question fully, it will be acceptable to complete in note form.

1. A dairy farmer in UK with 100 milking cows tells his veterinary surgeon that there is a fertility problem in his herd. His veterinary surgeon sends you the following details and asks for your help:-

First service 24-day submission rate	56%
First service pregnancy rate	46%
Services per pregnancy	2.1
Calving to conception	102 days
Culling rate for failure to conceive	12%
Cows served before 45 days	20%
Returns to service 18-24 days	46%

What can you conclude from these details? What further information would you want before visiting the farm? Outline how you would carry out a visit to the farm. Discuss how you would maintain a correct professional relationship with your colleague and his client.

2. The attached report shows the result of analysis of blood samples (Sheet 1) submitted as part of a metabolic profile scheme, together with information supplied by the farmer (Sheets A and B). What conclusions can you come to? What further information would you request? What further tests would you advise?

Cont/

SECTION B

Candidates are required to answer ALL of the following TEN questions.

(Allow 1½ hours i.e. 9 minutes per question)

If insufficient time is available to answer a question fully, it will be acceptable to complete in note form.

1. Weak calf syndrome is well recognised but poorly understood. Discuss.
2. A bull is described as having PIN 95 of 80 and ITEM of 90. Explain what these mean.
3. With the aid of diagrams, describe the surgical method of dealing with left displacement of the abomasum by left flank omentopexy (Utrecht method).
4. Briefly describe the recent changes in UK in the epidemiology of lungworm in cattle.
5. Environmental mastitis would appear to be on the increase. Suggest possible reasons for this.
6. Write short notes on nutritional strategies for the control of milk fever in the dairy cow.
7. There is considerable disquiet about the use of antibiotics in agriculture. What steps, if any, should the cattle industry take to minimise potential hazards associated with their use?
8. Comment on the composition of an oral rehydration solution for calf diarrhoea, with molar concentrations as follows: Na⁺ 30 mmol/l; K⁺ 20 mmol/l; HCO₃⁻ (as citrate) 10 mmol/l; Cl⁻ 40 mmol/l; and Glucose 111 mmol/l (20g/l).
9. Write short notes on methods of limb bone fracture repair in a calf.
10. Write short notes on the diagnosis of lead poisoning in:
 - a) a live calf and
 - b) a dead calf

**PRO ACTIVE
METABOLIC AUDIT INFORMATION INPUT (12 ANIMALS)
(SHEET B)**

Business Unit..... Farmer..... Address.....Stranraer..... Tel.No:..... Customer No:..... Sales Specialist:..... Bleed No:..... Address.....Tel.No:..... Technical Support..... Tel.No:..... Herd Information to be Included 1. Dietplan by group Feeds: 1385 - Gold Label Forage Analysis: Minerals being fed: NONE.....	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="6" style="text-align: center;">From 5 Previous Tests</th> </tr> <tr> <td colspan="6">Milk quality</td> </tr> <tr> <td>Butterfat</td> <td>4.22</td> <td>4.11</td> <td>4.28</td> <td>4.44</td> <td>3.93</td> </tr> <tr> <td>Protein</td> <td>3.29</td> <td>3.33</td> <td>3.24</td> <td>3.42</td> <td>3.47</td> </tr> <tr> <td>Cell count</td> <td>183</td> <td>196</td> <td>331</td> <td>273</td> <td>229</td> </tr> <tr> <td>Breed</td> <td colspan="5" style="text-align: center;">Average Cow Size - kg</td> </tr> <tr> <td colspan="6">Friesian</td> </tr> <tr> <td colspan="6">Holstein Friesian 600</td> </tr> <tr> <td colspan="6">Jersey</td> </tr> <tr> <td colspan="6">Date of Test: 28 May 1997</td> </tr> <tr> <th colspan="6" style="text-align: center;">3 Key Objectives for year</th> </tr> <tr> <td colspan="6">1. Fertility</td> </tr> <tr> <td colspan="6">2.</td> </tr> <tr> <td colspan="6">3.</td> </tr> </table>	From 5 Previous Tests						Milk quality						Butterfat	4.22	4.11	4.28	4.44	3.93	Protein	3.29	3.33	3.24	3.42	3.47	Cell count	183	196	331	273	229	Breed	Average Cow Size - kg					Friesian						Holstein Friesian 600						Jersey						Date of Test: 28 May 1997						3 Key Objectives for year						1. Fertility						2.						3.					
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	Cow No.	Calving Date	Condition Score	Daily Milk Yield	Lactation Yield	Lactation Number
6 Early Lactation 11	700	21.01.97	2	26.4	6529	1
	9 709	10.02.97	3-	22.6	5269	1
	8 515	24.03.97	2	25.2	7100	2
	6 140	18.12.96	1+	31.6	7264	3
	3 606	01.03.97	3-	29.8	6149	2
	2 427	25.03.97	2+	38.2	8238	3
6 Dry Cow	1 335	13.11.96	2	33	7831	3
	4 633	13.10.96	3	20.6	6250	1
	5 05	02.11.96	2+	28.6	2854	4
	7 38	08.11.96	4-	25.	6732	6
	10 509	01.11.96	2-	30.2	8069	2
				Please state next lactation number for dry cows		

Consistency of dung.....
3rd copy - Farmer
4th copy - Specialist

THE ROYAL COLLEGE OF VETERINARY SURGEONS
DIPLOMA IN CATTLE HEALTH AND PRODUCTION

Tuesday 22 August 2000

**PAPER 1 (whole syllabus)
(3 hours)**

Illegible handwriting or failure to answer the questions in the form requested may result in examiners being unable to award marks for information which candidates intended to convey.

Candidates are required to answer FIVE out of the following SIX questions.

(Allow 36 minutes per question).

If insufficient time is available to answer a question fully, it will be acceptable to complete in note form.

1. In September a client says that he has just had his third abortion in his heavily pregnant autumn-calving beef cattle in three days. He has not told you of the two earlier cases. Describe how you would approach this problem, giving reasons for actions.
2. Discuss the value of vaccines in the control of pneumonia in single-suckled spring-born calves.
3. You are called to perform a caesarean section on a 14 month-old suckled beef heifer belonging to a client with a predominately spring calving suckler herd. Discuss what measures can be taken in the short term and long term to prevent this situation arising in the future. What other benefits are likely to accrue as a result of the farmer taking your advice?
4. Discuss the options for control of Ostertagia in dairy heifers in their first grazing season.
5. Discuss the strategies that a dairy farmer might adopt in the face of current economic changes.
6. Discuss the extent to which field experience has fulfilled expectations for vaccination of dairy cattle against BVD.

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THE ROYAL COLLEGE OF VETERINARY SURGEONS
DIPLOMA IN CATTLE HEALTH AND PRODUCTION

Tuesday 22 August 2000
PAPER 2 (DAIRY)
(3 hours)

PAPER 2 CONTAINS 2 SECTIONS

Illegible handwriting or failure to answer the questions in the form requested may result in examiners being unable to award marks for information which candidates intended to convey.

SECTION A

Candidates are required to answer BOTH of the following TWO questions.

(Allow 1½ hours i.e. 45 minutes per question).

If insufficient time is available to answer a question fully, it will be acceptable to complete in note form.

1. A dairy farmer in your practice who uses you infrequently sends you the records below and asks you to tell him what his problem is? What information do you still need? What can you deduce from what he has sent you?

Culling of served cows	15%	
Interval calving to first service	80 days	
Interval calving to conception	100 days	
Pregnancy rate to first service	41%	
Services per pregnancy	2.3	
Interval calving to first service	< 42 days	9%
	42-65 days	41%
	66-77 days	25%
	> 77 days	25%
Inter-service intervals	1 – 17 days	11%
	18 – 24 days	40%
	25 – 35 days	14%
	36 – 48 days	19%
	49 – 90 days	8%
	> 90 days	8%

2. You are asked to visit a dairy farm to assist another veterinary surgeon, who lacks confidence in advising on nutrition. The farmer wants advice on optimising health and production. He is feeding 200 milking Holstein cows the following winter ration (all weights in dry matter per cow):

Grass silage	10kg
Whole-crop wheat	5 kg
Maize gluten	2 kg

Sugar beet pulp 2 kg
 Soya meal 1 kg

The analysis of the forage includes:

Grass silage	dry matter	25%
	crude protein	16%
	pH	3.4
	ammonia	14% of total nitrogen
	ash	12%
Whole crop wheat	dry matter	35%
	crude protein	18%
	pH	8
	ash	5%

The ration is fed via a forage box into two feed faces in an open yard, each 15m (50 feet) long. The cows are in two groups of 100 cows, early lactation (EL) and late lactation (LL). They are bedded in cubicles with mats and chopped straw.

Records include:

Mean monthly Butterfat (BF) and Milk Protein (MP):

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
BF	3.8	3.9	3.8	3.7	3.7	3.9	4.2	4.2	4.3	4.2	4.1	4.0
MP	3.1	3.1	3.0	3.3	3.4	3.2	3.1	3.1	3.3	3.1	2.95	3.0

Annual yield 7,400 kg/cow

Annual number of cases of	milk fever	67
	hypomagnesaemia	1
	ketosis	15
	displaced abdomen	14

At a visit in February you make these observations:

Condition scores of EL cows range from 1.5 to 3, mean 2.1, of LL cows 2 to 3.5, mean 2.9, of dry cows 2.5 to 4, mean 3.4

Faeces of EL and LL cows are soft.

Twenty percent of lactating cows are lame.

Blood samples from six EL cows show:

	Lab standard						
Beta-hydroxy butyrate mcmol/L	0.5	1.7	0.9	1.5	0.8	1.0	<0.9
Triglycerides mcmol/L	9	8	12	8	11	9	15-35
Urea mmol/L	6.7	7.6	8.2	8.1	7.5	7.6	3.3-5

On the basis of this information available, what conclusions can you draw, and what advice can you offer?

SECTION B

Candidates are required to answer ALL of the following TEN questions.

(Allow 1½ hours i.e. 9 minutes per question)

If insufficient time is available to answer a question fully, it will be acceptable to answer it in note form.

1. Why is E.coli 0157 assuming such importance in cattle products?
2. Write short notes on the use of ultrasound scanning during routine fertility visits.
3. What methodologies are available to assist in establishing a diagnosis in calf pneumonia? Describe briefly the value of such knowledge.
4. You are approached by the farmer at a routine visit who says he has just had “another” still born calf. Five calves have been “stillborn” out of the first 10 heifers calved on a 120 cow autumn-calving B & W dairy herd. List possible causes and describe how you would arrive at a diagnosis.
5. Why do you think the number of TB reactors has increased so much in the UK?
6. How can one sex semen? What impact will this have?
7. Write short notes on the use of local analgesics.
8. Write short notes on the use of calf hutches.
9. Briefly compare and contrast the epidemiology of the two major environmental mastitis pathogens E.coli and Strep.uberis.
10. Footbathing the dairy cow is essential. Comment on this statement.

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THE ROYAL COLLEGE OF VETERINARY SURGEONS
DIPLOMA IN CATTLE HEALTH AND PRODUCTION

WEDNESDAY 8 AUGUST 2001

PAPER 1 (whole syllabus)
(3 hours)

Candidates are required to answer FIVE out of the following SIX questions.
(Allow 36 minutes per question).

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If insufficient time is available to answer a question fully, it will be acceptable to complete in note form.

1. Discuss the evidence linking bovine spongiform encephalopathy (BSE) with variant Creutzfeldt-Jakob Disease (vCJD).
2. Discuss the means available to control pain during and after surgical procedures in cattle.
3. Discuss the advice you might give to a farmer in the east of England who wishes to eradicate leptospirosis from his large closed dairy herd.
4. Discuss, with examples, ways in which ultrasound scanning can aid the diagnosis of digestive disorders in cattle.
5. Discuss the overall implications of the withdrawal of animal protein from the diet of cattle.
6. Discuss the advice you might give to an organic farmer on control of parasites in growing calves.

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THE ROYAL COLLEGE OF VETERINARY SURGEONS

DIPLOMA IN CATTLE HEALTH AND PRODUCTION

WEDNESDAY 8 AUGUST 2001

PAPER II (DAIRY)

(3 hours)

PAPER II CONTAINS 2 SECTIONS

Illegible handwriting or failure to answer the questions in the form requested may result in examiners being unable to award marks for information which candidates intended to convey.

If insufficient time is available to answer a question fully, it will be acceptable to complete in note form.

SECTION A

Candidates are required to answer BOTH of the following TWO questions.

(Allow 1½ hours i.e. 45 minutes per question).

1. A 120-Holstein-Friesian dairy herd in Essex presented the following information in December, with samples for a metabolic profile. The main problems were poor fertility, mastitis and retained fetal membranes. Comment briefly on any information that you consider helpful in relation to the problems and advice that you might propose to the farmer. Do **not** discuss what other information you might require.

Individual cow's information

	Number	Date calved or due	Yield Actual	Lactation Number	Condition Score	Parlour ration (Kg/day)
<u>Early Lactation</u>						
HEIFER	16	31/10	33	1	2.5	7
	18	29/9	45	8	2.5	8
	101	18/9	36	3	3	8
HEIFER	93	15/10	35	1	3	8
	38	29/9	39	4	3.5	8
	29	10/10	34	5	3	8
<u>Mid Lactation</u>						
	25	10/3	30	3	3	7
	9	4/7	21	1	2.5	6
	46	29/5	36	2	2.5	7
	138	18/3	27	6	3.5	7
<u>Dry</u>						
	48	1/1		1	3.5	
	62	15/12		4	4	
	13	1/12		4	4.5	
	LANNIE 11220	14/12		0	3.5	

Milk Yield and composition last 12 months

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Yield by kg/day	27.3	26	26.2	27.0	26.9	28.3	28.3	23.9	26.7	27.4	27.4	28.0
Number in milk	99	92	83	88	91	98	93	95	82	77	77	96
B.F.%	4.15	4.23	4.28	4.08	3.71	3.74	3.74	4.11	3.78	4.08	3.78	3.78
Protein %	3.28	3.39	3.21	3.14	3.28	3.28	3.28	3.77	3.16	3.29	3.16	3.17

Feeding out-of-parlour

a. Out-of-parlour feed to early lactation cows and cows 25 and 46

Big bale silage 11kg
 Maize silage 16kg
 Lucerne hay (high ME) 2kg
 Complimix special 225kg

Calculations showed this ration to provide 24.2kg dry matter, 285 MJ of ME, a ratio of rumen protein : energy of 0.99, a crude protein of 19%, and long forage 12.1kg.

b. Our-of-parlour feed to mid-lactation cows 9 + 138

Big bale silage 15kg
 Maize silage 6kg
 Lucerne hay (high ME) 2kg
 Molassed beet pulp 2kg
 Complimix special 221.5kg

Calculations showed this ration to provide 20.9kg dry matter, 242 MJ of ME, a ratio of rumen protein : energy of 1.00, a crude protein of 18.7%, and long forage 10kg.

<u>Analysis of silage</u>	<u>Big bale silage</u>	<u>Maize silage</u>
Dry matter	35.5%	37.5%
pH	4.5	3.9
Ammonia	7.5% of total nitrogen	3
Crude protein	11.05%	8.0%
ME	10.5 MJ	11.3 MJ
Starch	-	25.6%
Ash	7.7%	4.3%

Feeding system

Parlour feed (Maize match, 25% crude protein) is offered twice a day. Out-of-parlour feed is mixed and fed once a day at 5 a.m. as a complete diet (total mixed ration).

In summer cows are set stocked and strip grazed. The parlour feed dispensers were last calibrated on 22nd November.

Metabolic profile results

FARM NO	DATE									
95L-3815	05/12									
COW NO	BHB	UREA	ALB	GLOB	MG	PO4	BILAC	CU	GSHX	TRIGLY
Early Lactation:										
16 (Heifer)	0.21	4.6	32	36	0.93	2.3	104	14.7	96	0.09
18	0.28	6.3	31	49	0.92	2.1	50	17.3	144	0.1
101	0.28	6	35	36	0.92	2	39	14.3	221	0.12
93 (Heifer)	0.32	6.2	34	36	0.93	1.8	194	16	169	0.11
38	0.28	4.5	35	41	0.86	1.9	32	16.3	159	0.11
29	0.34	5.1	35	38	0.98	1.6	95	16.2	166	0.1
Mid Lactation:										
25	0.3	6	34	43	0.8	2.9	42	15.5	159	0.13
9	0.35	5.9	34	40	0.66	2.1	68	16.7	157	0.16
46	0.29	7.3	36	32	0.7	2	52	16.2	231	0.13
138	0.46	4.6	35	42	0.94	1.6	37	16.6	202	0.12
Dry Lactation:										
48	0.87	3.6	34	34	0.7	1.9	37	13.1	177	0.13
62	0.37	2.1	36	35	0.48	1.7	33	13.3	156	0.27
13	0.57	2.9	35	36	0.78	2.5	30	15.6	170	0.29
LANN	0.76	2.9	36	33	0.52	1.9	23	16.1	123	0.19
Standard values	<0.9	3.3 - 5	30-40	30-40	>0.7 4	>1. 6	<60	>9. 4	>40	15-25

P.T.O. FOR QUESTION 2

2. A farmer in Dorset has recently inherited from his uncle a dairy herd comprising 100 Holstein-Friesian and 20 Ayrshire cows, and a beef herd of 40 pedigree Simmental cows. Replacement heifers were bred from the cows using artificial insemination for the dairy cattle and a 9-year old bull for the beef cattle, which was also used occasionally on dairy cows that had “repeated” to insemination for the third time. Both herds calve all year round at present. The farmer and one part-time worker staff the farm. Basic records are kept for the dairy herd with the following results last year:

Average lactation yield	6,343 litres
Calving index	414 days
Submission rate	44%
Calving to first insemination interval	69 days
Culling rate overall	27%
Pregnancy rate to first insemination	43%
to all inseminations	38%

The stated aim of the new farmer is to maximize milk yield from grass and simplify the breeding management of both dairy and beef herds. As a consequence, the farmer purchased two 15-month old Holstein/Friesian bulls ten months ago and ran them with the herd at grass in the autumn. Initially the farmer was impressed by the bulls, and two months ago he purchased a third young Holstein/Friesian bull for £3,000. However, the farmer has now consulted you with the following problems:

- Six cows have aborted in the last two months.
- Two of the first six calves to be born appear to be blind.
- There have been a large number of cows with a vulval discharge since the introduction of the latest bull to the dairy herd.
- One of the first purchased bulls has suddenly stopped mating heifers to which he was introduced (instead of the beef bull) and appears to have a “stiff” gait and a swelling in front of the scrotum.
- There have been increased returns to service

Describe in detail how you are going to investigate the herd problems, what are the most likely causes and how would you correct them. How would you advise your client so that he can meet his aims?

P.T.O. FOR SECTION B

SECTION B

Candidates are required to answer ALL of the following TEN questions.

(Allow 1½ hours i.e. 9 minutes per question)

Illegible handwriting or failure to answer the questions in the form requested may result in examiners being unable to award marks for information which candidates intended to convey.

Write **short notes** on the following:

1. Selection of cattle for longevity.
2. The advantages of live vaccines.
3. The value of prevalence and incidence as measures of the frequency of lameness.
4. The use of quinolones in cattle.
5. The advantages and disadvantages of straw yards compared with cubicles.
6. The assessment of colostrum absorption in calves.
7. Broncho-alveolar lavage.
8. Iodine deficiency in cattle.
9. The value of analysing inter-service intervals in cattle.
10. Mastitis caused by *Staphylococcus aureus*.

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THE ROYAL COLLEGE OF VETERINARY SURGEONS

DIPLOMA IN CATTLE HEALTH AND PRODUCTION

TUESDAY 30 JULY 2002

PAPER 1 (whole syllabus)

(3 hours)

Candidates are required to answer **FIVE** of the following **SIX** questions.

Allow 36 minutes per question.

Illegible handwriting or failure to answer the questions in the form requested may result in examiners being unable to award marks for information which candidates intended to convey.

If insufficient time is available to answer a question fully, it will be acceptable to complete in note form.

1. A client who has restocked with Jersey cattle from three different sources wishes to convert to organic production and to attempt to move to a high health status. One source vaccinates against *Leptospira* serovar hardjo, one against B.V.D. virus and one admits to having had a case of Johne's disease. One herd is in South West England but has never failed a State Veterinary Service T. B. test. How would you plan his actions over the short-term (this year), medium-term (five years) and long-term (beyond this)?
2. When you are routinely undertaking pregnancy diagnosis on his herd a farmer mentions to you that his milk price is 1p/l less than his neighbours (both have the same buyer). You have a couple of hours to spare that morning and the farm has good records e.g. its milk records etc. How would you investigate this further?
3. A Beef Suckler farmer has a problem with his young calves: more than 50% have diarrhoea during the first week of life and there has been 15% mortality. Discuss how you would approach the problem and what are the most likely causes?
4. A dairy farmer informs you that he considers achieving a 365 day calving index (CI) for his herd his main aim in fertility management. His herd is mainly autumn calving (September to February). How would you respond to this? Are there any other parameters (and targets) that you consider equally (or more) important?. What might be the health implications if this 365 day CI is relaxed but there is inadequate attention paid to these other parameters?

P.T.O. for Questions 5 and 6

5. A consortium of beef producers wishing to develop a beef Herd Health Plan (HHP) has requested that you modify the British Cattle Veterinary Association (BCVA) HHP to produce a plan specifically for beef farmers. **Briefly** and in note form if necessary:
- ◆ **List** the major elements of the beef HHP specifically pointing out how it would differ from the current BCVA HHP.
 - ◆ Illustrate what your plan would contain, by drafting an outline plan for a suckler producer in the Scottish Borders with 120 cows, finishing all his own calves. Replacement cows are purchased as are breeding bulls.
6. “The use of silage additives in a grass silage system for high-yielding dairy cows is not cost-effective. The money would be better spent on additional concentrates”. Discuss this statement. Include in your answer consideration of the major types of silage additives available, their mode of action and the likelihood of an economic response?

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THE ROYAL COLLEGE OF VETERINARY SURGEONS

DIPLOMA IN CATTLE HEALTH AND PRODUCTION

TUESDAY 30 JULY 2002

PAPER II (DAIRY)

(3 hours)

**This paper is in two Sections (A and B)
instructions relating to the number of questions to be answered
are given at the head of each Section.**

SECTION A

Candidates are required to **answer BOTH** of the following **TWO** questions.

Allow 45 minutes per question.

Illegible handwriting or failure to answer the questions in the form requested may result in examiners being unable to award marks for information which candidates intended to convey.

If insufficient time is available to answer a question fully, it will be acceptable to complete in note form.

-
1. You are consulted by a veterinary surgeon about a dairy herd with an annual milk yield of 7,850 litres, where there is a suspected problem with oestrus detection. The veterinary surgeon supplies you with information from the InterHerd computer programme giving you a fertility summary, the distribution of inter-service intervals and a Cu-sum (**Please Contact Board Secretary for charts listed below.**); the voluntary waiting period is 42 days. Write a report to the consulting veterinary surgeon on your interpretation of these data, how you recommend the problem should be investigated, and suggest solutions that could be offered to the farmer.

Please contact Board Secretary for 5 pages with monthly summary, Cu-sum & Bar chart of inter-service intervals. With reference to question 1.

2. A veterinarian refers a problem with an 80 cow dairy farm to you. The farm is a relatively low output farm giving ~5500litres /cow /year milking all year round but with calving peaks in the autumn and spring. It has a simple winter management system with self feed silage (from a face), supplemented with commercial concentrates in the parlour (served at 0.4 kg per litre over 10 l/day) and 2 kg/day mix (10% Soya/ 50% Molassed sugar beet pulp/40% barley) served once a day in a trough along the side of the collecting yard. The farmer has complained that the yield of his herd following the introduction of this system at housing is less than in the last two years (by almost 100 l/day). He considers that his peak yielders are only managing just over 25 litres/day when he would like them to be nearer 30 litres/day. The cows are in acceptable condition and he claims that fertility does not seem to be markedly affected with cows showing oestrus apparently normally. The veterinarian conducted an investigation including a metabolic profile and found the results shown in the **attached summary**. He considered that there was a lack of energy and after discussion with the farmer they increased the straights to 3kg per day by simply adding more barley. However this did not appear to have any effect on milk yield. Describe your approach to this problem.

SUMMARY OF RESULTS AVAILABLE TO VETERINARY SURGEON (DCHP Paper II Question 2)

2. Metabolic Profile

	Cow no	Total protein (g/l)	Albumin (g/l)	Ca (mmol/l)	Mg (mmol/l)	P (mmol/l)	BOHB (mmol/l)	Urea (mmol/l)	NEFA Meg/l	AST (iu/l @30 °C)	Gamma GT (iu/l @30 °C)	CK (iu/l @30 °C)
normal		55-75	29-39	2.2-2.6	0.8-1.1	1.7-2.2	<0.8	2.0-6.6	<0.7	20-60	8-22	<50
Early	lactation											
"	15	74	39	2.4	1.0	2.0	1.6	4.4	0.72	47	28	79
"	33	78	37	2.3	1.1	2.1	1.8	5.0	0.83	57	30	46
"	632	80	37	2.3	1.1	1.9	2.3	4.6	0.90	45	36	30
"	48	75	40	2.5	1.1	1.8	1.4	3.4	0.98	43	29	108
"	234	73	36	2.3	0.9	2.1	1.0	3.8	0.95	45	28	10
"	122	78	36	2.2	1.0	2.0	2.1	3.9	0.76	47	36	50
Mid	lactation											
"	12	76	39	2.2	1.0	2.1	1.6	2.3	0.68	46	25	30
"	2	80	38	2.2	1.0	1.9	1.7	4.8	0.69	41	31	34
"	269	83	40	2.0	1.1	1.8	1.9	5.1	0.53	39	27	23
"	38	79	38	2.2	0.8	2.1	2.1	3.4	0.63	49	20	8
"	45	75	39	2.1	0.9	2.2	1.1	2.9	0.45	54	39	21
"	57	79	39	2.3	0.9	2.1	0.8	3.5	0.57	39	24	18
Late	lactation		Or	Dr								
"	11	75	39	2.3	0.9	2.2	1.0	4.2	0.40	43	12	15
"	265	74	34	2.3	1.0	2.2	0.7	3.8	0.56	47	21	28
"	39	72	35	2.1	0.9	2.1	0.8	3.9	0.42	42	24	10
"	40	81	37	2.2	1.0	1.9	0.6	3.3	0.37	41	5	35
"	43	76	33	2.4	1.0	1.9	0.8	3.6	0.37	38	13	16
"	7	73	31	2.6	0.9	2.1	0.8	3.6	0.32	47	16	14

2. Nutritional information

Feed	DM g/kg	ME MJ/KgDM	CP	Ash g/kg DM	FME/ME
Silage	240	10.8	130	80	0.73
Parlour Concentrate	870	12.8	207	100	0.81
Original Mix	880	12.8	160	60	0.96

3. Rough guide for requirements for 550 kg cow giving ~28 litres milk/d and losing weight (~0.4 kg/d) (from nutritional package)

ME ~210 MJ/day MP 1700 g/day

ERDP 1800 g/day

P.T.O. FOR SECTION B

DIPLOMA IN CATTLE HEALTH AND PRODUCTION

TUESDAY 30 JULY 2002

PAPER II (DAIRY)

(3 hours)

SECTION B

Candidates are required to **answer ALL** of the following **TEN** questions.

Allow 9 minutes per question.

Illegible handwriting or failure to answer the questions in the form requested may result in examiners being unable to award marks for information which candidates intended to convey.

Write **short notes** on the following:

1. Write a **short** summary on vaccination against *Leptospira* serovar hardjo for a local veterinary/medical meeting.
2. Write **short notes** on non-foot lameness and why it should not be ignored in dairy herds.
3. You have to give a talk on Animal Welfare legislation at your local agricultural college to students on a dairy farming module. **List** the main Acts of Parliament and other possible points you would refer to.
4. **List** the major spermatozoal abnormalities associated with infertility in the bull.
5. A client phones to say he has noticed two recently calved cows with red urine. It is September and the cows are on a permanent grass pasture with a hedgerow fencing. **List** some differential diagnosis and possible distinguishing features (no more than one for each).
6. A client phones to say he had bought a young (20 month) beef bull which he introduced to about a dozen non-pregnant dry cows and heifers. Since he saw it showing interest in cows he left it with them for some 8 weeks. However he has never seen it mating. Now they are housed he thinks none are in-calf. **List** some possible reasons for this.
7. A recently housed Holstein heifer 13 months old has bloat which your assistant has relieved twice in the previous week. **List** the differential diagnoses that you might consider on the way to visit the animal. **Outline** your approach and treatment protocol for such cases, and one surgical method for correction of the problem.

P.T.O for questions 9, 10 and 11

8. What is "heritability"? Give an example of a low and a highly heritable trait. How would you advise a client who wanted to establish a breeding programme for a low heritability trait?
 9. A milk sample from a cow with mastitis taken by the herdsman and then sent to the local VI Centre yields pure *Listeria monocytogenes* on culture. The farm makes its own cheese for sale. What would you advise the farmer to do?
 10. Write **short** notes on foeto-maternal disproportion.
-

THE ROYAL COLLEGE OF VETERINARY SURGEONS

DIPLOMA IN CATTLE HEALTH AND PRODUCTION

THURSDAY 17 JULY 2003

**PAPER 1 (whole syllabus)
(3 hours)**

Candidates are required to answer **FIVE** of the following **SIX** questions.

Allow 36 minutes per question.

Illegible handwriting or failure to answer the questions in the form requested may result in examiners being unable to award marks for information which candidates intended to convey.

-
1. A client who carries out Do it yourself artificial insemination (DIY AI) on a dairy farm is concerned that the conception rate is decreasing. Describe the steps you would go through with the client to check semen storage, semen handling and insemination technique.
 2. The owner of a large dairy herd reports that he is experiencing an increase in the number of stillborn calves being born by pregnant heifers. The calves are full term and do not have any obvious gross abnormalities. Set out your plan for investigating this problem.
 3. "Straw yards are always better for the welfare of dairy cows than cubicles". Discuss this statement in the light of current thinking on animal welfare.
 4. The Government is currently developing an Animal Health and Welfare Strategy for Great Britain. **Outline** what you think this strategy should deliver, and discuss the role of the specialist cattle veterinarian in the implementation of such a strategy.
 5. You have been consulted by a veterinary practice that has a problem with more than 20% cattle developing peritonitis after routine caesarean operations. **Outline** your advice.
 6. A dairy farmer plans to purchase 45 in-calf spring-calving suckler cows in June to keep on a 65-acre upland farm that the farmer has recently inherited. It is now May and the farmer seeks your advice about their management for the next 12 months. How do you proceed and what is your advice?

* * * *

THE ROYAL COLLEGE OF VETERINARY SURGEONS

DIPLOMA IN CATTLE HEALTH AND PRODUCTION

THURSDAY 17 JULY 2003

PAPER II (DAIRY)

(3 hours)

**This paper is in two Sections (A and B)
instructions relating to the number of questions to be answered
are given at the head of each Section.**

SECTION A

Candidates are required to **answer BOTH** of the following **TWO** questions.

Allow 45 minutes per question.

Illegible handwriting or failure to answer the questions in the form requested may result in examiners being unable to award marks for information which candidates intended to convey.

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1. You are provided with a series of DAISY computer programme fertility event sheets by a solicitor. The solicitor is acting for a farmer who claims that a nearby factory has polluted the farm causing infertility. The solicitor asks you to produce summary data on the fertility of this farm and report on the significance of the data. **(Please contact Board Secretary to receive copies of these).**
 2. You are asked to investigate a herd mastitis problem as a consultant by a neighbouring veterinary practice. The client is milking 160 cows, housed in straw yards, through a herringbone parlour. There were 103 recorded cases of mastitis in the last 12 months and the rolling cell count is 220,000 / ml. Mastitis milk samples have yielded Staph. aureus (15), E. coli (4), Strep. uberis (8), no growth (6). Before the visit you are provided with the National Milk Records (NMR) animal cell counts and the first two pages of the report are attached. In addition, you arrange an analysis of a bulk milk sample and the ADAS report is attached. From the data you are provided with, **outline** your conclusions and describe how you would focus your investigation of the farm. **(TWO NMR sheets and ONE ADAS report attached).**

**Please contact Board secretary to receive FOUR DAISY SHEETS,
TWO NMR sheets and ONE ADAS report attached,
and for Section B**

DIPLOMA IN CATTLE HEALTH AND PRODUCTION

THURSDAY 17 JULY 2003

PAPER II (DAIRY)

(3 hours)

SECTION B

Candidates are required to **answer ALL** of the following **TEN** questions.

Allow 9 minutes per question.

Illegible handwriting or failure to answer the questions in the form requested may result in examiners being unable to award marks for information which candidates intended to convey.

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1. Write **short notes** on Escherichia coli O157, and how to minimise the risk this organism poses to human health.
 2. **Briefly** explain what £PIN, £PLI and TOP mean when applied to the genetic evaluation of dairy cattle? How do they differ from each other?
 3. Define the following epidemiological terms:- incidence, prevalence, sensitivity, specificity and positive predictive value.
 4. Write **short notes** on Complex Vertebral Malformation (CVM) in the Holstein breed.
 5. Name **ONE** commercially available method of detecting antibiotic residues in bovine milk. Describe **briefly** the principle on which it works and **list** what you consider to be its main disadvantages.
 6. A client tells you he has experienced a lot of swollen navels in his young calves during the past month. **Briefly** describe how you would investigate this problem.
 7. Write **brief notes** on aetiology and clinical presentation of femoral nerve paralysis in cattle.
 8. Write **short notes** on the role of each of the following enzymes in the diagnosis of liver disease in cattle: ALT (Alanine aminotransferase); AST (Aspartate aminotransferase); ALP (Alkaline phosphate).
 9. Describe your protocol for general anaesthesia of a 650kg Holstein cow in the field for the repair of a fractured mandibular symphysis.
 10. Write an **outline** of Bacillus cerus mastitis for a newsletter for veterinary surgeons.
-

THE ROYAL COLLEGE OF VETERINARY SURGEONS

DIPLOMA IN CATTLE HEALTH AND PRODUCTION

WEDNESDAY 13 JULY 2005

PAPER 1 (whole syllabus)
(3 hours)

Candidates are required to answer **FIVE** of the following **SIX** questions.

Allow 36 minutes per question.

Illegible handwriting or failure to answer the questions in the form requested may result in examiners being unable to award marks for information which candidates intended to convey.

1. ***“Preventing cows from exhibiting normal behaviour influences their health, welfare and financial performance”.*** Discuss.

2. A client has a Spring (April-May) calving herd of 100 beef suckler cows in which you have recently diagnosed a case of mucosal disease. Further serological investigations suggest the herd has been endemically infected with Bovine Virus Diarrhoea Virus (BVDV) for some time. All calves are finished on the farm at 12-18 months of age. Replacement bulling heifers are purchased annually from various sources. The owner is considering a vaccination programme for BVDV but needs more information on which to base a decision.

Prepare a report for the client outlining a suitable BVDV vaccination strategy for the herd including estimated cost-benefit analysis breakdown.

3. **Discuss how individual cow monthly milk records can be used to monitor the health and production of dairy cows. Briefly summarise the sources of milk records that are available.**

4. A client asks you to fill in a basic NDFAS compliant health plan using a standard proforma supplied by the milk purchaser. **Discuss** how you would try to convince the client that it would be better to pay you to produce a full health plan (for example the British Cattle Veterinary Association (BCVA) format).

5. *“Genetic selection of dairy cows in the last 15 years has provided as many disadvantages as advantages”.* **Discuss.**

6. An insurance company has asked you to investigate a claim for infertility in a valuable 2 year-old beef bull that has been running with a group of 15 heifers for 10 weeks. It is alleged that none of the heifers is pregnant. Describe the investigation protocol you would use and indicate possible causes of infertility that may be detected at the different stages of your examination.

THE ROYAL COLLEGE OF VETERINARY SURGEONS

DIPLOMA IN CATTLE HEALTH AND PRODUCTION

WEDNESDAY 13 JULY 2005

PAPER II (DAIRY)

(3 hours)

This paper is in two Sections (A and B)
instructions relating to the number of questions to be answered
are given at the head of each Section.

SECTION A

Candidates are required to **answer BOTH** of the following **TWO** questions.

Allow 45 minutes per question.

Illegible handwriting or failure to answer the questions in the form requested may result in examiners being unable to award marks for information which candidates intended to convey.

1. You are asked by a veterinary colleague for advice about the fertility of a 300 cow, all year calving Holstein dairy herd. You are provided with the following details:

Herd annual yield 7800Kg (milk sold /cow /year)

Calving interval (mean) – 415 days

% in calf by 100 days post calving – 33%

% not in calf by 200 days post calving – 24%

Calving to first service interval (mean) – 88 days

Overall pregnancy rate – 34%

Abortions – 3%

Culls for infertility – 18%

Inter-oestrus intervals:

0-15 days – 5%, 16-28 days – 41%, 29-35 days – 10%, 36-48 days – 15%, > 48 days – 29%

The farm is considering starting routine veterinary visits and your colleague asks for some advice.

- i. **Describe** precisely how you would advise that the routine veterinary visits are set up and carried out in relation to improving herd fertility. Include any fertility monitoring that you would suggest.
- ii. **Outline** improvements that this herd could achieve in terms of fertility. Indicate which aspects would be relatively easy to achieve and which may be more difficult.
- iii. Make some estimates of the cost benefits for the improvements specified in part ii and indicate an overall approximate cost benefit. On what do these estimates mainly depend?

2. [See Separate data attached for reference]

A farmer who has had chronic problems with high somatic cell counts and a history of *Streptococcus uberis* infection phones you for help because his milk purchaser has informed him he is going to incur payment penalties based on his 3 month rolling average cell count (**Sheet A**). The latest recorded bulk cell count is 304,000 and cows with ISCC > 250,000, sampled at the same time are summarised on **Sheet B**. Since mucking out the straw bedded yards 14 days previously there has been a steady stream of new clinical cases. 6 milk samples submitted from the highest SCC cows at the last milk recorded test have yielded *Streptococcus uberis* from 4 and no pathogens from 2. You visit to discuss the problem and carry out teat scoring while the farmer collects further milk samples for ISCC. Teat scoring reveals some mild bruising of teat ends and some mild hyperkeratosis. The results of the ISCC from your visit are attached (**Sheet C**) and a bulk sample submitted at this time has a cell count of 407,000. Bactoscan readings have remained < 50,000 throughout the year.

The herd of 110 cows calves all year round and is winter housed in straw bedded yards that are bedded daily with round bales that are stored in an open field adjacent to the shed. The milking routine consists of pre-dip (same solution as post dip), dry wipe with paper towels, no fore milk stripping, and post dip. Dry cow antibiotic therapy consists of cephalonium or cloxacillin.

- i. Comparing the ISCC data from the two dates what main points of concern would you highlight to the farmer?
- ii. What measures will you advise in the short term to deal with the impending SCC penalties?
- iii. **Describe** in detail the treatment protocols you would recommend for new clinical cases and the subclinical high SCC cows detected in the second milk sampling.
- iv. What longer term management advice would you give to the farmer to help tackle this recurring *Strep.uberis* problem?

P.T.O. for Section B

DIPLOMA IN CATTLE HEALTH AND PRODUCTION

WEDNESDAY 13 JULY 2005

PAPER II (DAIRY)

(3 hours)

SECTION B

Candidates are required to **answer ALL** of the following **TEN** questions.

Allow 9 minutes per question.

Illegible handwriting or failure to answer the questions in the form requested may result in examiners being unable to award marks for information which candidates intended to convey.

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3. **Outline** the "Ovsynch/Intercept" programme for synchronised artificial insemination in dairy cows. **List** the potential advantages and disadvantages of this system for a large dairy herd.
 4. Write **short notes** on best practice for a client new to 'Do It Yourself' (DIY) artificial insemination.
 5. Write **short notes** on the epidemiology and control of the diseases in cattle caused by the following herpesvirus:
 - i. Bovine herpesvirus-1
 - ii. Bovine herpesvirus-2
 - iii. Ovine herpesvirus –2.
 6. **List** the major zoonotic pathogens that could be present in raw milk. Write **brief notes** on **TWO** of them.
 7. Write **short notes** on the diagnostic tests available for investigating lungworm infection in cattle.
 8. **Briefly outline** the mechanisms of milk clot formation in a calf between birth and 14 days of age. **List** risk factors for nutritionally induced diarrhoea during this period.
 9. **Outline in notes** the procedures you would use to vasectomise an 18 month-old Limousin bull.
 10. Penethemate hydriodide (Mamyzin) has recently become licensed in the United Kingdom as an injectable therapeutic product. Assess, **in note form**, the impact this will have on the treatment of mastitis.
 11. Write **short notes** on aspects of cubicle design that are important for the health and welfare of cattle.
 12. Ketosis may be separated into different types according to the underlying aetiology. Write **short notes** on the different syndromes that can lead to ketosis.
-

THE ROYAL COLLEGE OF VETERINARY SURGEONS

DIPLOMA IN CATTLE HEALTH AND PRODUCTION

TUESDAY 8 JULY 2008

**PAPER 1 (whole syllabus)
(3 hours)**

Candidates are required to answer **FIVE** of the following **SIX** questions.

Allow 36 minutes per question.

Illegible handwriting or failure to answer the questions in the form requested may result in examiners being unable to award marks for information which candidates intended to convey.

1. There is currently considerable debate about ways of finding a viable United Kingdom market for Holstein-Friesian bull calves. The consensus seems to be that group reared "pink-veal" is the way forward. Produce an information sheet for your dairy farm clients entitled, "*Disease Prevention in Modern-day Welfare Friendly Veal Systems*".
2. **Outline** the control and eradication strategy for Bluetongue virus serotype 8 (BTV8) currently in place in Great Britain. If you had an opportunity to significantly influence this strategy, what would be your **SIX** key recommendations to the Chief Veterinary Officer and to Ministers? Justify why you feel these recommendations are important.
3. "The health and welfare of organic dairy and beef cattle may be compromised compared to non-organic herds". **Discuss** this statement using examples from your experience.
4. **Discuss** the role of fibre in feeding the high yielding dairy cow.
5. **Describe** the various methods of assisted conception and biotechnology being used in dairy cattle and discuss ways in which they may help to address the declining fertility of the National Herd.
6. New techniques have recently been described for correction of left displaced abomasum (LDA) in dairy cows. (a) **Describe in detail** your preferred method for correction of LDA (b) **Briefly** review other methods of LDA surgery that have been described in the literature giving advantages and disadvantages of **each**.

THE ROYAL COLLEGE OF VETERINARY SURGEONS

DIPLOMA IN CATTLE HEALTH AND PRODUCTION

TUESDAY 8 JULY 2008

PAPER II (DAIRY)

(3 hours)

**This paper is in two Sections (A and B)
instructions relating to the number of questions to be answered
are given at the head of each Section.**

SECTION A

Candidates are required to **answer BOTH** of the following **TWO** questions.

Allow 45 minutes per question.

Illegible handwriting or failure to answer the questions in the form requested may result in examiners being unable to award marks for information which candidates intended to convey.

1. The manager of a 200-cow dairy unit has phoned the practice complaining of “a big problem with rising bulk milk somatic cell count (BMSCC), clinical cases of mastitis and teat lesions”. He urgently requires help as he is suffering milk payment penalties from his milk purchaser. Fortunately he has NMR Herd Companion cell count data available, which is presented in **Figure 1** and **Tables 1 and 2**. An advisory visit is arranged at which time a milk bacteriology screen is undertaken, with samples from both high SCC cows and clinical cases being collected. The results are tabulated in **Table 3**. A lactocorder trace taken during a test of his newly installed milking machine is presented in **Figure 4**. This test also demonstrated an inadequate air flow at the long milk tube.
 - (a) Comment on the Herd Companion data, how this varies with time and how the data compares to target figures.
 - (b) Comment on the results of the bacteriology screen.
 - (c) Comment on the significance of the poor air flow and the lactocorder trace taken at the time of the milking machine test.
 - (d) The teat lesions were thought to be associated with Pseudocowpox. How may these be influencing the current problem?
 - (e) Suggest a possible Action Plan to address the current problem and highlight areas that are critical to the control of the problem and that require emphasis and compliance from the farmer.

P.T.O. for Question 2

2. You have been approached by another practice to do a second opinion consultancy visit to a calf rearing unit. The manager of the calf rearing unit, which handles approximately 1000 calves per year, is concerned as mortality has recently increased and is now close to 8% over the last 3 months, principally down to pneumonia. He rears dairy cross calves on contract up to approximately 130Kg which arrive from central collection centres at approximately 2-3 weeks of age.

Discuss the approach you would take to investigate this problem during a consultancy farm visit.

P.T.O. for Section B

DIPLOMA IN CATTLE HEALTH AND PRODUCTION

TUESDAY 8 JULY 2008

PAPER II (DAIRY)

(3 hours)

SECTION B

Candidates are required to **answer ALL** of the following **TEN** questions.

Allow 9 minutes per question.

Illegible handwriting or failure to answer the questions in the form requested may result in examiners being unable to award marks for information which candidates intended to convey.

1. Write **short notes** on the use of vaccination in United Kingdom dairy herds as an option for the control of Johnes disease.
2. Write **short notes** on the new Holstein UK "Type Merit" formula that was recently introduced.
3. Describe **briefly** the clinical manifestations of *Mycoplasma bovis* infection that might be expected in a dairy farm breeding its own replacements.
4. Define or explain the following terms, and give an example of the use of **each** term in the monitoring and control of disease or production of dairy cattle:
 - i) Geometric mean.
 - ii) Interquartile range.
 - iii) Positive-predictive value.
 - iv) Sensitivity.
 - v) Specificity.
5. Write **short notes** on the diagnosis, treatment and control of liver fluke infection in dairy cows.
6. **List FIVE** potential zoonoses that may be encountered by students when doing vacation work experience on dairy farms in the United Kingdom. For **each** pathogen listed comment on potential routes of infection for humans and control methods that could reduce infection risk.

7. Write **short notes** on the possible uses of gonadotrophin releasing hormone (GnRH) injection in dairy cows.

8. Write **short notes** on botulism in dairy cattle.

9. Various pathophysiological changes are believed to occur in the cow's foot around calving. Write **short notes** on the relationship between these changes and the external environment that can predispose to claw lameness.

10. Write **short notes** on the potential advantages and risks of short dry periods in modern dairy husbandry.

THE ROYAL COLLEGE OF VETERINARY SURGEONS

DIPLOMA IN CATTLE HEALTH AND PRODUCTION

TUESDAY 7 JULY 2009

PAPER 1
(whole syllabus)
(3 hours)

Candidates are required to answer **FIVE** of the following **SIX** questions.

Allow 36 minutes per question.

Illegible handwriting or failure to answer the questions in the form requested may result in examiners being unable to award marks for information which candidates intended to convey.

1. *'Non Steroidal Anti-Inflammatory Drugs (NSAIDs) are greatly underused in cattle medicine'.*

Discuss this statement with reference to the available products for use in the United Kingdom and the situations in which these may be used.

2. *'Failure of heat detection is fast becoming the biggest fertility issue on dairy farms'.*

Discuss this statement with particular reference as to why this might be and possible solutions to the problem.

3. A farm has suffered an abortion storm in a group of dry cows, which has been diagnosed by immunohistochemistry to be due to *Neospora caninum*. 20% of the herd has aborted and the farm is now considering buying in some recipient heifer replacements into which to implant embryos from some of the genetically superior cows diagnosed to be *Neospora* infected.

Discuss in detail a management plan to control the effects of *Neospora* in this herd and detail the considerations that ought to be taken regarding the purchase of the replacement recipient heifers.

4. Write a **brief review** of the routinely available diagnostic tests for paratuberculosis (Johne's disease) with particular reference to their sensitivity and specificity.

How can these tests be employed to investigate the disease status of individuals and herds and to assist in herd eradication?

5. Clinical and sub-clinical mastitis in first lactation cows during early lactation is a problem in some herds. What might be the reasons for this and how can the problem be investigated and controlled?
6. **Outline** the records and assessments you would feel necessary to monitor lameness on farm.
- Discuss** the **advantages and disadvantages** of the various approaches you would instigate and **briefly outline** how you may assess such collated records to better understand lameness on farm.

THE ROYAL COLLEGE OF VETERINARY SURGEONS
DIPLOMA IN CATTLE HEALTH AND PRODUCTION

TUESDAY 7 JULY 2009

PAPER II
(BEEF)
(3 hours)

This paper is in two Sections (A and B)
instructions relating to the number of questions to be answered
are given at the head of each Section.

SECTION A

Candidates are required to **answer BOTH** of the following **TWO** questions.

Allow 45 minutes per question.

Illegible handwriting or failure to answer the questions in the form requested may result in examiners being unable to award marks for information which candidates intended to convey.

1. On 12/12/08 you are presented with the information **shown in the Table overleaf** from the referring veterinary surgeon of the owner of a suckler herd who is convinced that he has an intractable Bovine Viral Diarrhoea (BVD) problem affecting the fertility of his cattle.

[See ALSO, data in Tables 1, 2, 3 and 4 overleaf]

Outline your differential diagnoses of the causes of sub-fertility in order of likelihood and an investigation plan to confirm or refute these.

P.T.O for Table

Case history:

The herd consists of approximately 80 suckler cows and has suffered from subfertility since Spring calving 2007 as illustrated in Table 1. Calving occurs mostly in the Spring. Before this time the reproductive performance of the herd was satisfactory. The herd has been correctly vaccinated against Leptospirosis for 12 years.

July 2007: Too many cows were seen returning to oestrus.

11/11/07 and 1/12/07: The breeding stock were vaccinated against BVD using Pregsure BVD™ (Pfizer Animal Health).

14/11/07: Five homebred young stock aged 10-12 months were tested for antibody to BVD virus and all were seropositive.

February 2008: bull 'Utwo' went to a bull stud and semen testing proved satisfactory.

11/2/08 to 25/5/08: Spring 2008 calving was completed with no cases of dystocia.

04/05/08: Eight first calvers bought in with 3-month-old calves at foot to supplement numbers of Spring 2008 calvers.

26/08/08: a herd test for BVD was carried out which identified one PI calf (born on 10/10/07). As a part of this test the 2008 Spring-born calves were all tested for antibody to BVD (table 4) and seronegative animals were tested for BVD virus antigen by ELISA with negative results in all cases. The precise dates of birth of the calves were not available but the range was known from the calving spread and their ear numbers allowed them to be placed in likely age order.

28/08/08: the three stock bulls were preputial washed for *Campylobacter* bacteriology with negative results.

November 2008: scanning of Spring 2008 calving cows breeding group gave disappointing results (Table 1). Of the 8 bought in first calvers, 7 were in-calf; of the homebred first calvers only 1/6 was in-calf. Of 30 cows calving Spring 2007 and 2008 only 22 were in-calf. Two Spring 2007 calvers that failed to conceive for calving in Spring 2008 and Autumn 2008 were both pregnant.

December 2008: Pregsure BVD booster administered to all breeding stock and primary course to heifers.

Bull policy:

There are three stock bulls:

Rufus: born JAN01, bought FEB03 – not used elsewhere before purchase

Albert: Born APR06 bought JUN07 – not used elsewhere before purchase

Utwo: Born Feb04 bought NOV07 – used as a stock bull elsewhere previous to purchase

During the breeding period the bulls are rotated between mating groups at three weekly intervals.

The bulls are not routinely semen tested.

Biosecurity audit:

Part of the farm perimeter adjoins farms with cattle of unknown disease status but the fences are stock proof. No biosecurity precautions are taken with bought-in stock. Previously-bred cows were bought-in in May 2008.

**P.T. O. for Tables 1 – 3
and Table 4**

Table 1: Summary of reproductive performance

COWS – Spring Calvers					
	calved	Mated (mating period start - end)	in-calf	barren	% mated in-calf
2006		55 (18/5-14/8)	53	2	96
2007	53	60 (19/5-18/8)	37	22	62
2008	44	56 (18/5-21/7)*	35	21	63
COWS – Autumn calvers					
2007	16	33	28	5	85
2008	28	42			
HEIFERS – Spring calvers					
2006	-	10 (24/4-14/7)	10	0	100
2007	-	10 (21/4-18/7)	7	3	70
2008	-	13 (18/4)~	12	1	92

*Bulls rotated 21/6 and 13/7

~ Albert

Table 2: Spring 2008 calvers: calving spread analysis

week	no. calved put to bull	p.d. results	
		pregnant cows	barren cows
1-3	27	15	12
4-6	10	5	5
7-9	1	1	0
10-11	6	5	1
Totals	44	26	18

Table 3: Spring 2008 calvers: age analysis

Age (years)	no. calved put to bull	p.d. results	
		pregnant cows	barren cows
3	15#	9	6
4	7	3	4
5	1	1	0
6	2	2	0
7	10	5	5
8	8	7	1
9	5	3	2
10	4	3	1
11+	4	2	2
Totals	56	35	21

5/6 homebred 1st calvers barren; 1/8 1st calvers bought in (with 3-month old calves at foot) barren

Table 4: Spring 2008 born calves BVD serology results (sampled 26/08/08)

Sample no	Ear no	Age (likely descending order)	BVD serology Interpretation	% positivity (%) [$< 14 = \text{negative}$]
51	616	93 - 196 days	NEG	0
47	617	93 - 196 days	NEG	4
86	619	93 - 196 days	NEG	2
50	620	93 - 196 days	NEG	-1
93	621	93 - 196 days	NEG	0
87	622	93 - 196 days	NEG	0
82	623	93 - 196 days	NEG	3
49	624	93 - 196 days	NEG	5
83	625	93 - 196 days	POS	18
99	628	93 - 196 days	NEG	1
95	628	93 - 196 days	NEG	6
85	629	93 - 196 days	NEG	13
90	630	93 - 196 days	NEG	1
46	631	93 - 196 days	NEG	-1
98	632	93 - 196 days	NEG	5
92	633	93 - 196 days	NEG	2
89	634	93 - 196 days	NEG	0
20	635	93 - 196 days	NEG	-1
17	636	93 - 196 days	POS	36
18	637	93 - 196 days	NEG	0
24	638	93 - 196 days	NEG	6
19	639	93 - 196 days	NEG	2
15	640	93 - 196 days	NEG	8
21	641	93 - 196 days	POS	14
96	642	93 - 196 days	NEG	1
13	643	93 - 196 days	NEG	6
105	644	93 - 196 days	NEG	4
88	645	93 - 196 days	NEG	2
16	646	93 - 196 days	NEG	4
48	647	93 - 196 days	NEG	3
14	648	93 - 196 days	POS	25
97	649	93 - 196 days	NEG	2
23	650	93 - 196 days	NEG	1
22	651	93 - 196 days	NEG	6
25	652	93 - 196 days	NEG	9
91	653	93 - 196 days	POS	52
11	655	93 - 196 days	POS	26
5	657	93 - 196 days	POS	26
12	658	93 - 196 days	POS	23
3	659	93 - 196 days	POS	57
4	666	93 - 196 days	POS	18

2. There were a number of anecdotal reports of abortion in cattle following the use of Blue Tongue (BTV) vaccines in the United Kingdom in 2008. These vaccines are currently marketed under a provisional marketing authorization (PMA). As an expert you are approached to comment on the number of abortions occurring after BTV vaccination and to draw up a prospective study protocol to determine if there is an increased risk of abortion following BTV vaccination.

Following a review of your practice data you find the practice sold approximately 125,000 doses of BTV vaccine to beef farmers last year, in the two weeks following vaccination you are aware of 15 abortions.

- a. **Briefly outline** what you understand a PMA to be.
- b. On the basis of your practice figures, **comment** on the rate of abortion seen in your practice following BTV vaccination (please show your workings).
- c. **Briefly outline**, and **discuss**, a study protocol to determine if there is an increased risk of abortion following BTV vaccination.

P.T.O. for Section B

DIPLOMA IN CATTLE HEALTH AND PRODUCTION

TUESDAY 7 JULY 2009

PAPER II

(BEEF)

(3 hours)

SECTION B

Candidates are required to **answer ALL** of the following **TEN** questions.

Allow 9 minutes per question.

Illegible handwriting or failure to answer the questions in the form requested may result in examiners being unable to award marks for information which candidates intended to convey.

3. **List** the key factors you would address to maximise pregnancy rates when undertaking an oestrus synchronisation programme for beef heifers.
4. 'Black disease' (infectious hepatic necrosis due to *Clostridium novyi* infection) is confirmed in two bulling heifers in a suckler herd at post-mortem examination.
Outline the advice you would give to the farmer to reduce the risk of further losses.
5. **Briefly describe** a technique for transfusing blood into a heifer that has suffered a torn vaginal artery at calving.
List the other conditions when this technique may be indicated.
6. **Briefly outline** your understanding of 'Decoupling', 'Cross Compliance', 'Modulation' and the abandoned concept of 'degressivity' in the context of European Union Common Agricultural Policy reform.
7. **List** the recognised risk factors for calf pneumonia in a group of weaned beef steers.
8. **Briefly outline** the advice that you would give to the owner of a suckler herd who home breeds replacements and is keen to reduce the incidence of dystocia in his herd by genetic means.

9. Write **brief notes**, including **advantages and disadvantages**, of **TWO** methods of Lungworm control in a beef suckler herd.

 10. **Briefly outline** the beef carcass classification system and illustrate the typical distribution of carcasses seen in the United Kingdom.

 11. What is 'compensatory growth' and how can it be utilised to improve profitability in beef rearing enterprises?

 12. Comment on the issues surrounding administration of multiple vaccinations to cattle e.g. Blue Tongue, Bovine Viral Diarrhoea (BVD), Leptospirosis.
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DIPLOMA IN CATTLE HEALTH AND PRODUCTION

TUESDAY 7 JULY 2009

PAPER II

(DAIRY)

(3 hours)

**This paper is in two Sections (A and B)
instructions relating to the number of questions to be answered
are given at the head of each Section.**

SECTION A

Candidates are required to **answer BOTH** of the following **TWO** questions.

Allow 45 minutes per question.

Illegible handwriting or failure to answer the questions in the form requested may result in examiners being unable to award marks for information which candidates intended to convey.

1. The owner of a large dairy herd has asked his vet to refer a calf-pneumonia problem to you. The referring vet has summarised the problem below:
 - 970 dairy cows with an even all year calving pattern resulting in 600-700 calves reared per year.
 - The cows are housed all year with only dry cows having access to pasture where there is no risk of contact with cattle from neighbouring farms.
 - All cattle are homebred by AI; there are no bought-in animals.
 - Calves are removed from the cow to single pens where they are fed three litres of pooled colostrum from a bucket with a teat within 6 hours of birth
 - The colostrum is usually from the cow's first milking
 - When aged 10 days calves are moved from single pens to group pens of 11 in two different air spaces, where there is a large rolling population of calves to age three-months.
 - Calves are fed colostrum for 4 days then milk from cows vaccinated against rotavirus, coronavirus and *E.coli* F5 (K99) adhesin (Rotavec™ Corona, Intervet/Schering Plough Animal Health) vaccinated cows for 2 weeks followed by waste milk, topped up with powdered milk as necessary.
 - Two litres twice daily in single pens (single bucket and teat)
 - Halofuginone (Halocur, Intervet/Schering Plough Animal Health) is fed with the milk for the first 7-days of life at the licensed dose rate.

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- Three litres twice daily in group pens (bin with 12 teats)
- Calves are vaccinated with live RSV and PI3 vaccine by the intranasal route (Rispolval RS + PI3 intranasal, Pfizer Animal Health) when aged 7 days
- Calves are moved to the group pens when aged 10 days
- For the first 80-100 calves vaccinated (commencing in October 2007) this appeared to reduce the incidence of pneumonia
- Now within ~4 days of movement ~70% of the calves are affected by pneumonia and some show scour.
- Provided cases are treated early there is a good response to treatment but there is a significant growth set back.
- Nine bull calves that have not been moved from the single pens and are not vaccinated have remained healthy to date when aged 17-24 days.
- For reasons of space and labour the calves cannot normally be kept in the single pens beyond 10 days of age.
- Four calves aged < 7 days were blood sampled and tested by zinc sulphate turbidity test with the following results:

Laboratory reference figure for ZST: > or = 14 ZST units:

Calf A:	9	ZST units
Calf B:	15	ZST units
Calf C:	12	ZST units
Calf D:	9	ZST units

Outline your initial assessment of the problem on the basis of this information and your experience of calf-pneumonia problems in dairy herds.

How would you investigate the problem further?

What possible solutions are there for this herd?

2. There were a number of anecdotal reports of abortion in cattle following the use of Blue Tongue (BTV) vaccines in the United Kingdom in 2008. These vaccines are currently marketed under a provisional marketing authorization (PMA). As an expert you are approached to comment on the number of abortions occurring after BTV vaccination and to draw up a prospective study protocol to determine if there is an increased risk of abortion following BTV vaccination.

Following a review of your practice data you find the practice sold approximately 125,000 doses of BTV vaccine to dairy farmers last year, in the two weeks following vaccination you are aware of 15 abortions.

- a. **Briefly outline** what you understand a PMA to be.
- b. On the basis of your practice figures, comment on the rate of abortion seen in your practice following BTV vaccination (**please show your workings**).
- c. **Briefly outline**, and **discuss**, a study protocol to determine if there is an increased risk of abortion following BTV vaccination.

P.T.O. for Section B

DIPLOMA IN CATTLE HEALTH AND PRODUCTION

TUESDAY 7 JULY 2009

PAPER II

(DAIRY)

(3 hours)

SECTION B

Candidates are required to **answer ALL** of the following **TEN** questions.

Allow 9 minutes per question.

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3. **List** the key factors you would address to maximise pregnancy rates when undertaking an oestrus synchronisation programme for dairy heifers.
4. 'Black disease' (infectious hepatic necrosis due to *Clostridium novyi* infection) is confirmed in two bulling heifers in a dairy herd at post-mortem examination.
Outline the advice you would give to the farmer to reduce the risk of further losses.
5. **Briefly describe** a technique for transfusing blood into a heifer that has suffered a torn vaginal artery at calving.
List the other conditions when this technique may be indicated.
6. **Briefly outline** your understanding of 'Decoupling', 'Cross Compliance', 'Modulation' and the abandoned concept of 'degressivity' in the context of European Union Common Agricultural Policy reform.
7. **List** the signs that you would expect to see in a dairy herd where cubicle compliance was poor.

8. **Briefly outline** the advice that you would give to a dairy farmer who is keen to improve the fertility of his herd by genetic means.

 9. **List** the differential diagnoses for oral ulceration in a 12 month-old black and white Holstein heifer. How would you approach a situation where a client who rears replacement heifers asks for telephone advice regarding three animals in a group of twenty showing signs of oral ulceration?

 10. Write **short notes** on urine analysis in dairy cows. Include techniques for sample collection, situations when urine analysis may be useful and tests commonly done on urine samples collected.

 11. **List** the signs of copper poisoning in cattle. **Outline** a suitable treatment for this condition and the circumstances under which it may occur on a dairy farm.

 12. Write **brief notes** on 'Black Spot Defect' in Cheddar cheese.
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