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UNIVERSITY OF SWAZILAND

(2ND SEMESTER- 2016/2017)

FINAL MAIN EXAMINATION PAPER

PROGRAMME: BSC ANIMAL SCIENCE (DAIRY OPTION)

COURSE CODE: ASD 401

TITLE OF PAPER: DAIRY ANIMAL FEEDING

TIME ALLOWED: TWO HOURS

INSTRUCTIONS: ANSWER ANY FOUR QUESTIONS

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QUESTION 1

At the onset of lactation, the dairy cow undergoes changes on dry matter intake (DMI), milk production and body condition.

a) Using a clearly labeled diagram, illustrate and further discuss these changes. **(15 Marks)**

b) Of what consequence are these changes to the energy availability of the cow?

(5 Marks)

c) Briefly explain how dairy farmers can prepare the cow for these changes. **(5 Marks)**

QUESTION 2

Assessment of feed quality based on physical characteristics on-farm enables dairy managers to quickly adjust their feeding program. In your internship in one of the dairy farms, you were asked to characterise the following;

a) Good quality maize silage **(8 Marks)**

b) High quality colostrum **(5 Marks)**

c) Good quality milk replacer **(6 Marks)**

d) High quality grass hay **(6 Marks)**

QUESTION 3

The UNISWA dairy herd comprises of mature cows that weigh 500 kg. It was reported that on average these cows produce 25 kg/day of milk with 45 g fat/kg when fed a diet with metabolisability (q_m) of 0.65. Using your knowledge in dairy animal feeding and the AFRC (1993) system of estimating animal nutrient requirements, advise the UNISWA farm on the following;

a) Individual animal daily energy requirement for maintenance (E_m) and lactation (E_L).

(8 Marks)

b) Efficiency of utilisation of dietary metabolisable energy for maintenance and lactation.

(4 Marks)

c) Metabolisable energy requirement of the cows.

(3 Marks)

d) Importance of developing a different feeding program for the first and second calvers to that of mature cows.

(6 Marks)

e) Energy supplements that could be incorporated in rations of high producing cows.

(4 Marks)

QUESTION 4

Although it is well established that weight rather than age determines when to breed replacement heifers, most dairy farmers in Swaziland still breed their animals based on age. Give a detailed outline on how to feed replacement heifers from birth until they reach the target weight at breeding.

(25 Marks)

QUESTION 5

The dairy unit at UNISWA owns several pasture paddocks and one of them is allocated to weaned dairy calves at 8 weeks of age. Although most of the calves found on this paddock appear to be pregnant (Figure 1), they are far from being bred and some are males.

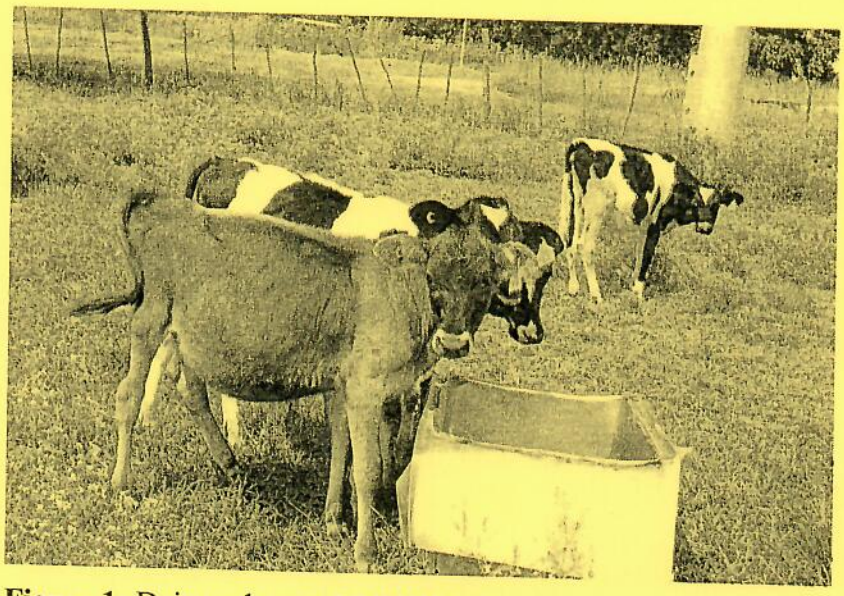

Figure 1: Dairy calves at UNISWA farm

a) Using your knowledge and experience acquired in the past four years of your study as a dairy scientist, diagnose the likely problem with these calves. Also discuss in detail its cause. **(15 Marks)**

b) How can this problem be prevented? **(5 Marks)**

c) Briefly describe the feeding of pre-weaned calves at the UNISWA farm. **(5 Marks)**