

Constraints on dairy cattle production from locally available forages in Bangladesh

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Introduction The productivity of milk producing animals in Bangladesh is low because of low individual yield and poor fertility. The reasons for the low productivity are complex but, in order of priority, appear to be (a) the imbalanced nature of the nutrients that arise from the digestion of the forage resources, (b) the incidence of disease/parasitism, and (c) the often harsh climatic circumstances. Thus, the purpose of this study was to find out the practical constraints on dairy cattle production from locally available forages under small holding village conditions of Bangladesh.

Materials and methods One typical village – Boira, which is about 2 km from Bangladesh Agricultural University, Mymensingh, was chosen for this study. The villagers were mostly resource-poor farmers. The cows of the villagers were used for multipurposes such as draught, dairy and meat. Rice straw was the main roughage source for the animals. Limited seasonal cut and carry grasses were also used. Animals were mainly stall fed. Sixty seven post-partum cows were taken from 65 smallholder farms. Nutrient metabolites were measured by FAO/IAEA Nutritional Metabolite kits according to Kaneko (1989) and concentration of milk progesterone (P4) for calving to first ovulation were measured using the solid-phase Radioimmunoassay (RIA) kits supplied by FAO/IAEA according to Plaizier (1993).

Results Among the blood metabolites studied, a considerable change in plasma urea values were noticed as shown in Table 1. It represents an important nutritional constraint to productivity. The spring value was low enough to suggest a shortage of RDP in the rations at that time. The calving to first service was higher than that of calving to first ovulation as shown in Table 2. It means that farmers were unable to detect heat of their cows at the proper time. The calving to first service interval was lower in autumn than in the other three seasons. It would be tempting to relate this to the urea levels which were highest in the autumn. Average parasitic egg counts were 54/g and were mainly of *Fasciola gigantica*.

Table 1 Group metabolite means within each season

Seasons	BHB (mmol/L)	SEM	Globulin (g/L)	SEM	Albumin (g/L)	SEM	Urea (mmol/L)	SEM	Pi (mmol/L)	SEM
Summer	0.342 ^a	0.05*	37.00 ^b	7.40**	38.00 ^c	2.34**	4.52 ^b	0.98**	1.33 ^c	0.12*
Autumn	-----	-----	36.67 ^{ab}	7.80**	33.67 ^c	2.78**	7.20 ^a	0.09*	1.61 ^a	0.12*
Winter	0.362 ^a	0.06*	-----	-----	35.00 ^b	2.74**	5.46 ^b	0.93**	1.42 ^b	0.09*
Spring	0.292 ^b	0.04*	35.00 ^a	5.00**	38.18 ^a	3.85**	3.25 ^c	1.08**	1.46 ^b	0.13*

* p<0.5; ** p<0.01, ^{abc}Figures with dissimilar superscript in the same column differ significantly (p<0.05)

Table 2 Reproductive intervals by seasons (days)

Seasons	Calving to 1st ovulation	SEM	Calving to 1st service	SEM	Calving to conception	SEM	Calving interval	SEM
Summer	66	42 NS	272	147 NS	283	148 NS	544	162 NS
Autumn	67	25 NS	120	60 NS	136	67 NS	419	72 NS
Winter	187	105 NS	191	81 NS	197	92 NS	489	84 NS
Spring	51	14 NS	216	38 NS	223	38 NS	501	39 NS

NS p>0.05

Conclusions Feed protein deficiency, improper heat detection and parasitic infestation were the constraints on dairy cattle production from locally-available forages in Bangladesh.

References

- Kaneko, J. (1989). Biochemistry of Domestic Animals. Third ed., Academic Press, New York.
 Plaizier, J.C.B. (1993). Validation of the FAO/IAEA RIA kits for the measurement of progesterone in skim milk and blood plasma. In: Improving the Productivity of Indigenous African Livestock, IAEA-TCDOC-708, IAEA, Vienna. 151-156.