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Effect of Frequency of Milking Local Sudanese Cows (Kenana-Butana) on Total Yield

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Abstract: Thirty two Sudanese local cows (Kenana and Butana) were kept for study under the same conditions in zero grazing. Sixteen cows from each breed at the third milking season and the fourth month post-partum were separated into four groups. Each group included four Kenana and four Butana separated from each other, fed in the same ration. The average daily milk yield was 14 and 12 lbs for kenana and Butana, respectively. Before the trial and after the trial group one let as control group and milked once a day, group two twice a day, group three, three times a day and group four, four times a day. The result was 14, 18, 23 and 25 Lbs for the groups, respectively. So far the yield of Butana was 12, 16, 19 and 22, respectively. From the sequences kenana seems to give better performance than Butana although milking twice a day appeared to be significant and benefited and better than the frequencies of the other groups.

Key words: Milking frequency-udder-milking local breed, kenana-butana-Increase production

INTRODUCTION

One of the factors that affect milk production and quality is the frequency of milking cows per day. Increasing the frequency of milking dairy cows results in increasing milk production (Amios, 1985). Increased milk frequency results in increasing levels of milk production, this increase is fixed and not proportional to level of milk production at the time of increase, (Capuco, 2002).

Once day or skipping milking is not acceptable with high producing dairy cows under intensified dairy system, while twice a day milking interval of 10-14 h and 12-14 h are acceptable, while 3 times a day milking will increase milk up to 12-15%. Furthermore, four times a day milking increase milk production from 8-12% over, (Dennis, 2002).

The endocrine glands play a major role in maintaining the normal homeostasis of the dairy animals, in addition they provide the stimulus to regulate estrus cycle, maintain pregnancy, initiate parturition, promote mammary development and initiate and maintain lactation, (Depeters, 1985).

Potential hormones used in dairy cow management in order to produce multiple ovulation from superior cows, to synchronize in time span of a few hours, confirm pregnancy, to provide an index of reproductive and lactational performance and to stimulate milk synthesis (Reaves, 1985). Lactation is a biological process consisting of three phases which are milk synthesis, milk secretion and milk let down in specific duration and interval season (Dinar, 1992).

Milking season usually comes after successful delivery, when the udder completely grown and full of soluble substances like lipids, proteins, vitamins and antibodies (colostrums), in addition to the concentration of (RNA), (Mahassin and Byomi, 1991). The mammary gland is

composed of four compartments separated from each other to anterior and posterior and contains alveolus, lobules, udder, milk cistern and cavities, (Richerd, 1978).

Circulatory and nervous system play an important role in milk synthesis, secretion and let down which is affected by neurohormonal effect and synchronization (Tagelsir, 1991).

Progesterone, estrogen, prolactin and oxytocin hormones lead to contraction of the cells of secretion of ducts, veins, glands, cisterns and cavities, then the ejection of milk will be initiated (Ipomea, 1987). This phenomenon is called condition reflex which occurs in the presence of stimulants like the milking machine, buckets, ration, the milker and the calve (Siddig, 2002). So any evacuation of the udder lead is to excess milk yield that is why frequency of milking is important for dairy profit. Hence this research is going to deal with milking frequency and its effect on total yield. In the Sudan traditional calves are usually used for stimulating milk let down and to evacuate the milk left in the udder after milking (Siddig, 2000). Calves management usually depends upon the traditional systems which are nomadism and transhumance in case of nomadism after suckling calves often kept in separated fences made up of thorny branches and then given chances for exercising so they begin to taste some grasses then kept again before the cows come back again to campus but in case of transhumance calves given some additives weaning of calves usually up to one year and this for the poor management of calves and cows (prolonged milking interval) males usually bought but most of the females kept for replacement orphan calves given another mother (cow) to suckle (Abu Azaym, 1995).

Table 1: Effect of milking frequency on the yield of the breeds

Breed	Frequency of milking/day				Increase or decrease %	Increase or decrease %	Increase or decrease %
	1	2	3	4			
Kanana	14	17	15	16	3%	-2%	1%
Battana	12	7	9	8	-5%	2%	-1%

MATERIALS AND METHODS

- 32 Sudanese cows (Kenana and Batana) were kept for study for 6 weeks in zero grazing and under the same conditions .
- 16 milking cows from each breed at the third milking season and fourth month postpartum were used.

The initial yield was 14 and 12 Lb for kenana and Butana respectively.

- The cows were separated into four groups (8 in each).
- Every fence to be divided into two fences (16 fences) each fence includes four Kenana and four Butana.
- The previous ration to be given as a basal ration 12 kg (50% concentrates and 50% green fodders.
- Hand milking is used.
- Hanging balance and Buckets were used for weighing the milk and the product was recorded daily.
- Milking frequency was once , twice , three times and four times a day for the groups respectively.
- for the group respectively.
- Comparison and percentage increase to be calculated
- Significance tests was found .
- The interval between milking should be as follow 10-12, 8, 6 and 4 h for the groups respectively.

RESULTS AND DISCUSSION

The result shows that the more frequency of milking per day is the more increase in milk yield and that means there is significant increase when the cow is milked twice a day but there is insignificant increase between two, three and four times a day. Although there is significant increase when compared 3 and 4 with once a day, because of the cost of other inputs like labor and failure in marketing usually lead to loss when milking is carried 3 or 4 times a day.

The research concluded that frequency of milking per day increases the milk yield especially twice a day and recommended to adopt it and reject the other frequencies in case of local breeds of Sudan for the sake of the farmers and the sustainability and the profitability of the production. Also the research recommends to carry out further studies to confirm the result.

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