Attempt to Rectify Irregular Breeding in *Surti* Buffalo Under Village Condition. 1—Estrus Synchronization*

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ABSTRACT

An experiment had been conducted to find ways and means to rectify irregular breeding performance of the *Surti* buffaloes at village level. As a first step in this direction attempt was made to amplify and synchronize heat. Animals, both heifers and buffaloes, known to be irregular breeders were put on this experiment. Resul: indicated that out of 104 animals treated with melengestrol acetate (MGA) 97 came in heat, 73 were synchronized. Buffaloes responded better than heifers. The treatment involved oral administration of MGA in 2ml of pea-nut oil for 14 days, once a day.

INTRODUCTION

It is not uncommon to find *Surti* buffalo heifers looking apparently normal without any reproductive disorders and remain not conceiving upto the age of five years or more. Buffaloes not returning to heat even two years after calving and buffaloes not settled even after many repeated inseminations are a reality under village conditions. These animals on clinical examinations do not show any abnormality of the reproductive tracts also. Encouraged by the previous work done at this centre (Anonymous, 1970) and by the successful use of MGA under controlled experiments by Shukla, Mithuji and Buch (1971); it was decided to conduct the studies at village conditions using the synthetic progestagen (MGA)‡ to induce and amplify heat symptoms in buffaloes with apparent irregular breeding history. Further, this study was planned to cover summer months during which the breeding performance of the buffaloes is known to be at the lowest ebb (Shukla, Mithuji and Buch 1970, 1972).

METHODS

A preliminary experiment was planned to try ways and means to rectify the irregular breeding performance of the *Surti* buffaloes under village conditions. As a first step in this direction it was decided to bring the irregular breeding buffaloes and heifers into heat at a time desired by us. A total of 161 animals (78 heifers and 83 buffaloes) were taken up for this experiment from

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TABLE—1

Previous history of the buffaloes.

Village	*Animals*			*Mean age (year)*		*Parity*	*Insemination*		*Natural service*		*Animal Dropped*	
	H	*B*	*T*	*H*	*B*		*H*	*B*	*H*	*B*	*H*	*B*
Control												
V1	2	4	6	5 (4-6)	7 (6-9)	2.25 (1-4)	—	6[1]	2	—	—	3
V2	4	4	8	3.87 (3-5)	11.75 (7-17)	3.25 (2-5)	1[1]	5.0[2] (3-7)	—	—	3	2
V3	4	3	7	5.25 (4-6)	8.33 (7-11)	2.66 (2-4)	1[1]	1[1]	1	—	2	2
V4	2	3	5	5.25 (2.5-8)	9.66 (7-12)	3.66 (3-5)	—	3[1]	—	—	2	2
Treatment												
V1	6	20	26	5.42 (3.5-8)	8.0 (5-17)	2.90 (1-6)	4.0[1]	3.80[10] (1-6)	2	1	3	9
V2	21	17	38	5.98 (3-9)	8.87 (6-15)	2.75 (1-5)	2.33[3] (1-4)	2.55[7] (1-5)	1	—	17	10
V3	21	16	37	5.93 (3-14)	7.75 (5-12)	2.56 (1-4)	3.0[3] (2-4)	3.11[9] (1-6)	6	1	12	6
V4	18	16	34	4.61 (2.5-8)	9.20 (4-14)	3.53 (1-7)	1[5] (1-1)	3.77[9] (1-8)	2	2	11	5

Fig ures in the parenthesis indicate range. Superscripts indicates number of animals.

four villages. These animals had following categories of irregularities in their breeding performance : (1) heifers not conceiving for a long period inspite of repeated inseminations, (2) heifers not coming into heat with visible symptoms because of which many heifers were not brought for A.I. for a period of many months, (3) buffaloes not in heat for a considerable period after calving, (4) buffaloes not settled inspite of repeated services, (previous history Table 1).

These animals (heifers and buffaloes) belonging to four villages, under Amul Co-op; were classified at random into control and treatment groups (Table 3). 16 per cent of the total animals were given one millilitre of pea-nut oil in about 200 gms. of concentrate, Amul dan, for 14 days. The day of starting the treatment was irrespective of the cycle—day in a particular animal. The treatment group received the same amount of oil for the same period of 14 days with one mg. of synthetic progestagen MGA in it. The treatment was given once a day only. This treatment was stopped on day 14 and the animals were watched for heat. All the animals (control and treated) that came in heat were infused with streptopenicillin twice (once a day) during this heat. Wherever the cervix was not clearly open the treatment was confined to external cervix and vaginal cavity only. Then the animals were allowed to go the second cycle and were bred during the second post-treatment heat. Those that repeated were covered during the third heat. The number of animals that returned for second service were very few. Certain number of animals taken for natural service could not be ruled out. The experimental animals were also divided into heifers (H) and buffaloes (B) to pick up any difference in response.

RESULTS

1. Out of the total of 161 animals from four villages the total of 41 animals were dropped from the study during the course of the experiment. This happened either due to the owner did not bring their animals or they were diagnosed pregnant during the course of the experiment. Out of the remaining 120 animals, 109 came in heat, during the period of 2½ months (Table 3). Those of the treated that did not come in heat were having infantile tracts.

2. Almost all the heats in the treated group were detected by the owners. Symptoms reported were either bellowing or mucus discharge. Except one, heat in controls was detected by rectal palpation since the owners could not report it.

3. Certain number of animals which were diagnosed pregnant during the course of the experiment were holding pregnancy. These animals might have been covered a few days before they were put under MGA. This probably indicated the non-interference of treatment with pregnancy.

4. Those of the control animals that came in heat, the occurence of heat was spread over the entire period of experiment. However, 75 per cent of the treated animals were synchronized for heat between day 3 and 7 of post-treatment (Table 2).

5. All animals that came at the second heat after the treatment were inseminated. Only a few animals were reported to return for subsequent insemination.

6. Overall buffaloes responded better than heifers (chart B, fig. 1).

DISCUSSION

The experiment conducted at village level has proved that it is possible to bring appreciable number of buffaloes in heat at a given time. If such first synchronized heat is even utilised for treating the animals for genital diseases the subsequent heat can profitably utilised to breed them. The treatment not only helps to synchronize the heat occurence but the heat symptoms are much amplified.

For some reason or the other buffaloes respond better than heifers to this treatment. Overall 59/61 buffaloes and 50/59 heifers responded to treatment. In the control group 12/16 animals came in heat (heifers 6/9 and buffaloes 6/7-Table 3). However, except one, none came in heat with visible symptoms of heat to be detected by the owner. The heat occurence was also scattered althrough the experimental period. But this gives an important clue that certain appreciable percentage of animals under village conditions do come in heat but go silent without detection. These animals do not have any apparent abnormalities. May be critical endocrine

TABLE—2

Details of estrus synchronization.

Village	*Animal brought**			*Animal Selected§*			*Animal synchronized†*		
	H	*B*	*Total*	*H*	*B*	*Total*	*H*	*B*	*Total*
V1	10	37	47	8	24	92	3(3)	15(15)	18(18)
V2	28	30	58	25	21	46	11(13)	8(14)	19(27)
V3	35	34	69	25	19	44	10(15)	11(12)	21(27)
V4	19	36	55	20	19	39	8(13)	7(12)	15(25)
Total	92	137	229	78	83	161	32(44)	41(53)	73(97)

* Animals brought by the farmers to the village dispensary.

§ Animals in milk, animals suspected to be pregnant and animals whose owners were not willing to put them in the experiment were left out and the remaining selected.

† Number of animals came in heat between day 17 and 21 of the treatment (synchronized for heat). Figures in paranthesis indicate total number of animals that came in heat from treated group.

H-heifer;

B-buffaloes.

TABLE—3

Detailed break up of experimental status.

Groups Villages	*Number of Animals*																	
	a Selected			*b* dropped			*c* not in estrus			*d* in estrus			*e* inseminated			*f* left out		
	H	*B*	*T*	*H*	*B*	*T*	*H*	*B*	*T*	*H*	*B*	*T*	*H*	*B*	*T*	*H*	*B*	*T*
Control																		
V1	2	4	6	0	3	3	1	—	1	1	1	2	1	1	2	—	—	—
V2	4	4	8	1	1	2	—	1	1	3	2	5	3	2	5	—	—	—
V3	4	3	7	1	2	3	1	—	1	2	1	3	1	1	2	1	—	1
V4	2	3	5	1	1	2	1	—	1	—	2	2	—	1	1	—	1	1
Total	12	14	26	3	7	10	3	1	4(33%)	6	6	12(67%)	5	5	10	1	1	2
V1	6	20	26	2	5	7	1	—	1	3	15	18	1	12	13	2	3	5
V2	21	17	38	6	3	9	2	—	2	13	14	27	11	9	20	2	5	7
V3	21	16	37	5	4	9	1	—	1	15	12	27	12	12	24	2	—	2
V4	18	16	34	3	3	6	2	1	3	13	12	25	8	10	18	5	2	7
Total	66	69	135	16	15	31	6	1	7(6.7%)	44	53	97(93.3%)	32	43	75	11	10	21
Grand Total	78	83	161	19	22	41	9	2	11	50	59	109	37	48	85	12	11	23

(a) Please see foot note Table: 2 (b) Animals diagnosed pregnant during the course of experiment or the owners did not bring them for treatment. (c) Animals failed to show heat during a period of 2½ months. (d) Total number came in heat (for synchronization, please see Table: 2). (e) Animals bred at 2nd heat through A.I. (f) Animals not brought to A.I. centres during 2nd heat.

Fig. 1 : Occurence of estrus and synchrony.

(*all expressions are relative to hundred*)

Actual values are rounded off to the nearest per cent

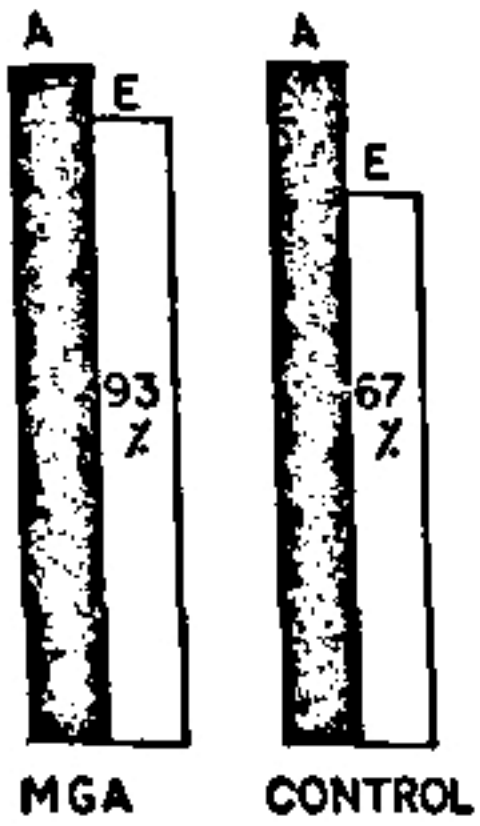

Chart A: Animals came in heat. A Total No. of animals in the group. E-Per cent animal came in estrus.

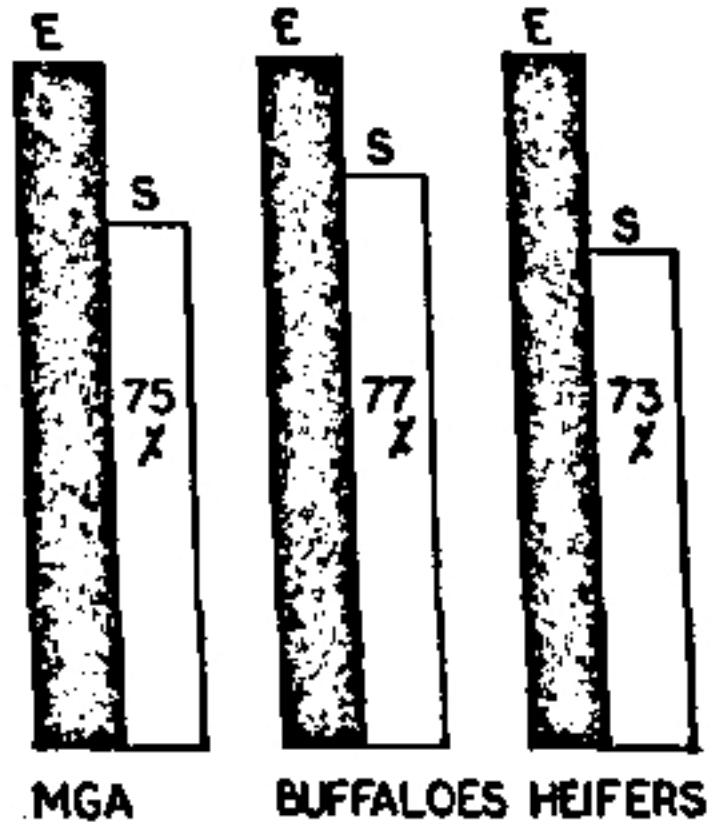

Chart B: Per cent synchronizations in MGA treated group for total animals, Buffaloes and heifer's given separately.

studies on these animals would help to tract the reason.

In the treated group 97/104 animals came in heat (heifers 44/50 buffaloes 53/54). Out of the 97 animals that came in heat on withdrawal of the treatment 73 were synchronized for heat (32/44 heifers & 41/53 buffaloes). This brings the overall percentage to 75.2 for synchronization (heifers 72.7 per cent and buffaloes 77.4 per cent. (Table 2 and Fig. 1).

The awareness of the owner, his social background and the awareness of the entire village to co-operative dairy and farming also counts. We had much less trouble in convincing the farmers of the villages which are ranking above average in dairy co-op: once the farmer is convinced of the importance to keep a vigil on heat occurrence then the approach to the task becomes easier.

The progestational compound used in this experiment is very effective. It has brought out 93.3 per cent of the treated animals into heat (chart A, fig-1) out of which 75.2 per cent were synchronized (chart-B, fig-1). Further more, the heat symptoms like bellowing,

mucus discharge, swollen vulva and frequent urination were all crearly exhibited. The treated animals were in full blown heat and the farmers could detect without any doubt.

Some of the buffaloes put on the treatment were found to be pregnant midway. These animals might have been in very early stages of pregnancy and the owners did not even know about it. However, the pregnancy was intact and the treatment did not interfere with early pregnancy.

Thus the experiment revealed the treatment had broughtin expected results and it can be done at the farmer's surroundings. Second point to ponder is the population of appreciable number of breedable animals which do come in heat, apparently normal and healthy, but do not reproduce regularly, sooner the causes of such failures are detected either husbandry or hormonal, the rural milk production can be enhanced and the economy be boosted.

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