

TWO YEAR OBSERVATION ON PRODUCTION AND GROWTH OF A HERD OF DWARF GOATS KEPT MOSTLY ON KALLAR GRASS (*LEPTOCHLOA FUSCA*) AT BIOSALINE RESEARCH SUBSTATION LAHORE

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Abstract:- In specific project orientated experimental studies a herd of dwarf goats has been kept at Bio-Saline Research Substation (BSRS), Rakh Dera Chal, Lahore District; of Nuclear Institute for Agriculture and Biology (NIAB) Faisalabad. The major proportion of plant material available as feed for the goats comprised Kallar grass alongwith minor proportions of other fodder materials. Kallar grass is being grown at BSRS with the objective of reclamation and improvement of the salinity affected soil. A two year observation of production and growth of the herd under Substation conditions is being presented. At the beginning of observation period 43 adult population included 31 females, 10 males and two infertile females. Total number of pregnancies during observation period was 97, it included 3 abortions and 94 fullterm deliveries. Kidding included 40 single, 24 twin and 2 triplet births. Maximum number of deliveries were observed in June followed by in the month of October and November. High mortality was observed in winter and inclusively of kids.

INTRODUCTION

In approach of introduction of salt tolerant crops on saline soil to improve such soils and obtain biomass, NIAB has successfully employed a grass, well adapted in saline condition of Pakistan and is locally known as Kallar grass: *Leptochloa fusca*. The grass has been reported earlier as a reclamatory crop for saline land (Khan, 1966 and Hussain and Hussain, 1970).

It can provide 40 tonnes of biomass per hectare per year even when irrigated with brackish water (Malik *et al.*, 1986). Kallar grass has been used as a forage plant. It does not retain most of the takenup salts, thus palatable for farm animals. It maintains a high K^+/Na^+ and high sugar level in its leaves, thus may be a useful forage for maintaining the salt balance of animals kept in salt affected areas (WynJones, 1982). It has been used as a sole source of fodder for livestock and no adverse effects of feeding have been reported (Malik *et al.*, 1986). To investigate the influence of feeding of Kallar grass on different aspects particularly growth and reproduction of farm animals, project orientated studies in collaboration of Zoology Department of the University of the Punjab, Lahore and

NIAB, Faisalabad are being carried out at BSRS, Lahore. A herd of goats was introduced at the Substation for such studies. The present work shows a two year observation on production and growth of the herd at the Substation which has been maintained on grazing mainly at Kallar grass fields.

MATERIALS AND METHODS

BSRS is located at a distance of 26 Km North East of Punjab University, New Campus, Lahore. It is established on 40 hectares. A limited area was made available for free grazing. The goats were allowed to graze from mid-morning to late afternoon daily and at other time were kept in the fenced area, which had a covered structure to protect the animal from the extremes of weather. They were provided with water *ad libitum*. No concentrate feed was supplemented with grazing to the goats at any stage of observation.

The goats were dewormed once a year and provided treatment at the Substation when the animals had been considerably sick. Newborn did not accompany their mothers in the fields during grazing upto about six weeks. However, mothers had access to their young kids for milk feeding.

Two year observation extended from November, 1984 to October, 1986. Goats were routinely weighed after 7-10 days or when necessary. Records of births, abortions and deaths were kept uninterrupted.

OBSERVATIONS

The total number of heads at the beginning of study was 43. It included 31 females, 10 males and 2 confirmed infertile females. Out of these 9 females, one male and one infertile female were two and half to three years old and the rest were 6 to 9 months old at the beginning of the study.

Total number of pregnancies during the period was 97, the details of the births, deaths etc. is presented in Table I. Of the total deliveries 94 were full term and only 3 abortions were noticed. These deliveries refer to 31 females only, introduced at the beginning of the study and the issues of the goats borned at Substation did not include in the total number.

The greater incidence of births was found in the months of June, October and November. Consequently, months of February, June and July were found more favourable for mating (Fig. 1). The percentage of the singleton, twin and triplet was 42, 51 and 7 respectively. The incidence of twin births was found to be greater than singletons (Fig. 2).

TABLE I.- MONTH-WISE DETAILS OF INCIDENCE OF PREGNANCIES, BIRTHS, LITTER SIZE AND THEIR DEATHS IN TWO YEAR PERIOD.

Month	J	F	M	A	M	J	J	A	S	O	N	D	Total
Single	2	2	2	1	2	9	0	1	1	9	8	3	40
Twin	1	1	2	2	1	4	0	3	2	3	3	2	48
Triplet	0	1	0	0	0	1	0	0	0	0	0	0	6
Abortion	0	1	0	0	0	0	0	0	0	1	1	0	3
Total births	4	7	7	6	5	4	20	0	7	5	15	14	94
Mortality	9	2	2	1	3	2	1	0	2	8	10	15	61

TABLE II.- INCREASE IN WEIGHT PER DAY OBSERVED OVER A SIX MONTH PERIOD IN ADULT BUCKS.

Animal coding	7	45	52	53	55	59	61	69	72	73	Average±SEM
Age											
Year:Month:Days	2:1:0	1:5:0	1:2:0	1:1:0	1:1:7	1:0:25	1:0:24	0:9:26	0:10:4	0:10:4	
Increase gm/day	30.0	19.5	15.1	22.9	16.3	28.5	25.4	33.8	42.3	36.2	27.0±8.8

In a period of six months weights of the animals were analysed for average daily increment in the weight of animals. In a group of 10 males aged approximately one to one and half year an average of 27.0 ± 8.8 gm increase/day was observed ranging between 15.1-42.3 gm/day (Table II).

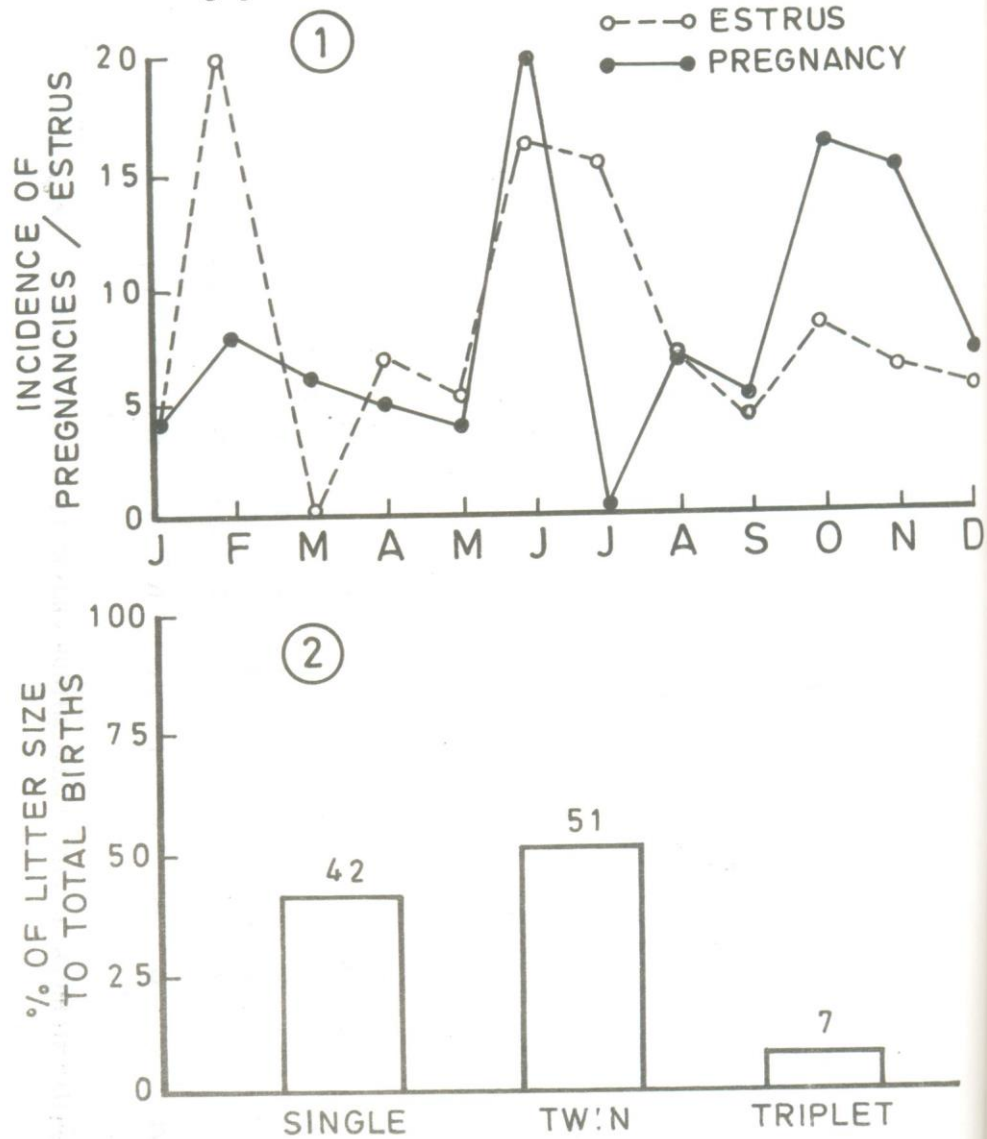


Fig. 1. Incidence of estrus cycles and pregnancies during the period of study.
 Fig. 2. Incidence of litter size in births during the period of study.

High rate of mortality prevailed (Table I) and it was inclusively the kid mortality. High incidence of death was observed during winter and when Kallar grass was in poor growth condition. Whereas it was significantly lower during summer or in good growth condition of the grass.

DISCUSSION

The observations of present study clearly demonstrated that the dwarf goat could be kept on Kallar grass fields at salinity soil area without any significantly adverse effect on their productivity. This was obtained without supplementation of any concentrate ration and with meagre health facility. The number of births within the period was more than thrice the number of fertile females present at the beginning of study. In a sample group of adult bucks daily increase of 27.0 ± 8.8 gm/day in the body weight was observed.

Litter size mainly included singletons and twins. Greater ratio of twins was recorded in this study compared to reported figure for this breed kept in ideal condition. Incidence of twin at 49% has been reported (Husnain, 1985) compared to 51% in this study. It also indicate that under such farming conditions, functional status of female and male reproduction is not adversely affected, so is with the fertilization mechanism.

In the analysis, however, adverse situation is clearly found in kid mortality which is considerably higher and detrimental in the proportional increase of the herd of the goat. This may be due to certain reasons during the pregnancy and at lactating period when young kids are mainly dependent upon the mother milk. The kids which survived beyond the weaning period showed low mortality.

The present study suggest that highly encouraging results may be obtained in such farming of dwarf goat, if pregnant does and lactating mothers in particular and weaning kids as well are provided with some amount of concentrate ration. Reasonable health care of the herd as well may add to significant growth of herd with decrease in mortality.

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