



# Milk production in Gir cows without green fodder during monsoon

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**ABSTRACT :** Eighteen Gir cows of similar body weight and stage of lactation were randomized into three groups of six each and were offered one of the dietary treatments ( $T_1$ : Green jowar@5 kg per day per animal and ad lib feeding of wheat straw,  $T_2$ : Green jowar and wheat straw mixed in the ratio of 30:70 offered ad libitum and  $T_3$ : 4% urea treated wheat straw offered ad libitum) along with concentrate mixture to meet protein requirement for a period of 70 days. Body weight losses in experimental cows in all the groups were non-significant.  $T_2$  group cows produced significantly ( $p<0.01$ ) higher milk and FCM yield and also consumed higher DMI with narrow R:C ratio than control and  $T_3$  group of cows. However, cost of feeding was significantly ( $p<0.01$ ) lower in urea treated wheat straw offered group of cows compared to control with 135 per cent higher return over feed cost.

**KEY WORDS :** Gir cows, Wheat straw, Milk, FCM production

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During monsoon season in South Saurashtra agro-climatic region, green fodder production, harvesting and feeding to lactating animals is a major concern among dairy farmers. Milk production in the region is the lowest during this season (Anonymous, 2008) compared to other seasons. Main agricultural byproducts available in the region include groundnut haulms and wheat straw. Wheat straw is not fed to cattle in the region as there is prejudice against this crop residue which is burnt in the field after harvesting.

Groundnut haulms though a good source of protein and calcium (13.45% CP and 1.54% Calcium, Murthy *et al.*, 2006) are not available in the entire region. Wheat straw being a non-maintenance roughage cannot sustain the milk production. Four per cent urea enriched wheat straw may be a handy for feeding milch cows during monsoon. An experiment was undertaken to evaluate milk production in Gir cows on

the farm without any green supplement during monsoon season.

Wheat straw was enriched with 4 per cent urea and allowed for 28 days of treatment. Eighteen Gir cows on Cattle Breeding Farm, Junagadh Agricultural University, Junagadh were randomized and into three groups of six each in CRD based on their body weight and stage of lactation. One of the following nutritional regimens was offered to each of the experimental groups:  $T_1$ : Green jowar was offered @ 5 kg per cow per day and wheat straw offered *ad libitum*.  $T_2$ : Green jowar and wheat straw were mixed in the ratio of 30:70 and were offered *ad libitum*.  $T_3$ : Urea treated wheat straw was offered *ad libitum* without any green fodder. All the experimental cows in all the treatment groups received concentrate mixture to meet protein requirement as per ICAR, 1998. The experiment was conducted from 22-7-2008 to 29-9-2008 (Ten weeks) during the peak monsoon season. Rainfall, temperature and humidity were recorded during this period. Body weight, milk and FCM production, DMI C:R ratio and cost of feeding regimens were recorded and analyzed statistically (Snedecor and Cochran, 1998).

Rainfall during the experimental period in Junagadh was 1690 mm with number of 71 rainy days. Temperature ranged from 24 to 37 °C and relative humidity varied from 53 to 94

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**Table 1: Mean dry matte intake in experimental Gir cows**

Treatments	DMI (kg/day)	DMI ( kg /100 kg body wt)	DMI(g/kg W0.75)
T <sub>1</sub>	9.9±0.22	2.8±0.1	120.7±3.8
T <sub>2</sub>	7.8±0.14	2.2±0.05	96.4±1.7
T <sub>3</sub>	8.1±0.16	2.3±0.04	98.3±1.8
C.D.	1.61	0.27	10.3
C.V. %	8.53	5.39	9.5

per cent. Rainfall during the period of study found to be normal and comparable to previous years.

Mean body weight changes during different periods of study and during the entire period were not significantly affected by different feeding regimens. Average body weight gain /loss under three treatment groups were -3.53±0.97, +0.97±4.67 and -10.1±1.4, respectively, under T<sub>1</sub>, T<sub>2</sub> and T<sub>3</sub> groups of cows. Feeding of urea treated wheat straw had no adverse impact on body weight of cows. Milk production and FCM production under different feeding regimens were 3.04 ± 0.38, 3.97 ± 0.29 and 3.37 ± 0.30 kg and 3.29 ± 0.48, 4.30 ± 0.38 and 3.58 ± 0.42 kg/day, respectively, the differences being significant (p<0.01). When green fodder and wheat straw were mixed in the ratio of 30:70 (T<sub>2</sub>) and offered to experimental cows, milk and FCM yields obtained were significantly (p<0.01) higher compared to control (T<sub>1</sub>) group of animals in which limited quantity of green fodder (5kg) was offered and urea treated wheat straw (T<sub>3</sub>) offered groups. Mean dry matter intake of experimental animals is presented in Table 1. Dry matter intake kg/day, dry matter intake kg/100 kg b.wt and dry matter intake g/metabolic body weight basis were significantly (P<0.01) higher in control group (T<sub>1</sub>) than in T<sub>2</sub> or T<sub>3</sub> group of experimental cows. T<sub>2</sub> and T<sub>3</sub> group of cows were at par. Higher DMI did not necessarily increased milk production. T<sub>2</sub> was found to be superior in terms of dry matter intake *vis-a-vis* milk and FCM production. T<sub>2</sub> group of cows had significantly (P<0.01) narrower roughage: concentrate ratio (1.9±0.07:1) compared to T<sub>1</sub> (3.31±0.14:1) and T<sub>3</sub> (2.93±0.13:1), respectively

which were at par. Higher concentrate consumption due to higher milk yield in T<sub>2</sub> was responsible for narrower R:C ratio. Cost of feeding per day and per kg milk production were significantly (p<0.01) higher in T<sub>2</sub> (Rs. 31.89±1.03 and 13.08±0.25) than in T<sub>1</sub> (Rs. 29.41 ± 0.77 and 10.78±0.88) and T<sub>3</sub> (Rs. 25.29±0.78 and 12.21±0.4). Significantly higher cost of feeding was due to high concentrate feeding for higher milk production.

In the present experiment all the experimental cows were past their peak lactation. An attempt was made to utilize urea enriched wheat straw to reduce cost of feeding and to sustain milk production during monsoon. Milk and FCM productions were though significantly lower in urea treated wheat straw group compared to other groups, due to significantly (p<0.01) low DMI compared to control, this group yielded 135 per cent higher return over feed cost and hence found to be economical compared to feeding of ad lib feeding wheat straw and 5 kg green jowar.

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