

Memnaprash: A boon to sheep farmers

for harnessing higher lamb weight

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Sheep farmers earn their livelihood mostly by selling lambs as profitable enterprise. Many a time, lambs are undernourished due to deficit milk from the dam and multiple births (twins/triplets). In that scenario, lambs failed to attain the required body weight at weaning. Undernourished lambs are more prone to diseases and thus encounter increased morbidity and mortality. Therefore, sheep farmers face economic setback due to loss of lambs or due to the lower market price. ICAR-CSWRI, Avikanagar has developed Memnaprash - a liquid milk formula, which is reconstituted milk powder.

Key words: *Memnaprash*, Reconstituted milk, Undernourished lamb

LIVESTOCK sector plays an important role in Indian economy. About 20.5 million people in the country depend upon livestock for their livelihood security. Livestock not only provides livelihood security to two-thirds of our rural community but also acts as best insurance in a stress situation. It generates employment for about 8.8% of the population in India. Overall contribution of the livestock sector in country's total GDP is 4.6% and in agriculture sector 25.8%. These figures indicate that animal husbandry and livestock sectors are crucial for India's rural economy. The total livestock population consisting of cattle, buffalo, sheep, goat, pig, horse-pony, mules, donkeys, camels, mithun and yak in the country was 512.05 million in 2012. If we see figures of sheep population alone, it was 65.06 million. Andhra Pradesh has the highest share (40.57%) of sheep population in the country followed by Karnataka (14.73%) and Rajasthan (13.95%).

A sheep farmer in India earns money by selling lambs, old and diseased animals, surplus animals and by selling sheep manure and wool.

Farmers generally retain the female lambs and sell out the male animals. The female lambs are reared by the farmers and grown into mature ewes which are used for future breeding purposes and wool production. Price of lambs at market age is highly variable and depends on its body weight, health status and physical appearance. If a lamb fails to attain optimum body weight at market age, it cannot fetch a good price, which ultimately results in monetary loss. Therefore, in order to achieve maximum weight during the time of marketing, farmers adopt different

practices like; feeding of mother's milk, increasing the grazing hours and including various feed supplements in their diet. Despite such practices, many lambs remain undernourished and fail to attain optimum body weight due to several factors like; dam's low milk yield, twinning, breed specificity or clinical issues (mastitis).

Keeping all the above situations in mind, ICAR-Central Sheep and Wool Research Institute, Avikanagar, developed a milk powder which was named as *Memnaprash*. It is a reconstituted milk powder which is a

Table 1. Experiment of lambs feeding plan under the *Memnaprash* diet

Lamb: Grazing + suckling of mother's milk + <i>Memnaprash</i>	Number of lambs	Average age of lamb at the start of experiment (Day)	Average age of lamb at the finish of experiment (Day)	Duration of experiment (Day)
Treatment group	31	21	87	66
Control group	10	21	87	66

Table 2. Body weight gain by lambs during the experimental period

	Body weight gain (kg)			
Age of lambs (Days)	21	40	62	87
T1 (Treatment group)	5.7	11.4	15.1	19.0
Control group	5.7	9.6	12.8	15.6
Difference	0	1.8	2.3	3.4

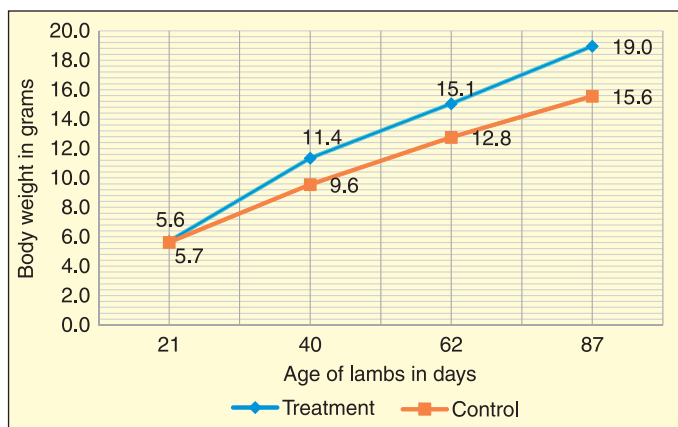


Fig. 1. Effect of *Memnaprash* supplementation on growth of lambs: Body weight difference

mixture of flour, mineral mixture, dried milk, powder sugar and oil. From 170 g of *Memnaprash*, we can prepare 1 litre of reconstituted milk by adding water. This reconstituted milk is rich in energy, mineral, protein and vitamins. It is not a replacement of mother's milk but a supplemental diet for lamb. Lambs which are underfed in the field or which do not get sufficient milk from their mother can be given this milk. The original milk price is high and difficult to get sometime. This reconstituted milk can fulfill energy and protein requirements of lambs and thus help their growth during the early stage.

***Memnaprash* under field conditions:** The objective of the present study was to evaluate the effect of supplementation of *Memnaprash* on pre-weaning growth of lambs. We selected five flocks at Chosla, Denchwas and Bassi villages under Farmer FIRST Programme (FFP). A total of 31 lambs (treatment group) were selected from these flocks, which were fed *Memnaprash* daily. The lambs (10 numbers) which were not supplemented *Memnaprash* acted as

which were fed *Memnaprash* were continuously allowed to graze in the field and suck mother's milk after grazing. They were fed 50 ml/day *Memnaprash* until they attained an age of 30 days, thereafter 100 ml from day 31 to 45, 150 ml from day 46 to 60 and finally 200 ml from day

Table 3. Cost-benefit analysis of feeding *Memnaprash*

	Body weight at the start of experiment	Body weight at the finish of experiment	Total <i>Memnaprash</i> fed per lamb	Cost of <i>Memnaprash</i>
Lambs fed <i>Memnaprash</i>	5.7 kg	19.0 kg	1.6 kg	₹ 115 per kg × 1.6 kg = ₹ 184.00

60 to 75 and then reduced up to weaning. Lambs which were fed *Memnaprash* attained a body weight of 19 kg whereas lambs which were not fed weighed only 15.6 kg (Table 2).

It is clear from Fig.1 that lambs which were fed *Memnaprash* gained 3.4 kg of body weight in comparison to those which were not fed, within 66 days of the experiment. In terms of average daily weight gain during experimental period, lambs which were fed *Memnaprash* grew at the rate of 202 g/day as compared to 152

g/day in the control group. Difference in the weight of lambs between the two groups was statistically significant.

Cost-benefit analysis of feeding *Memnaprash* to lambs was also calculated and is presented in Table 3. Lambs which were fed *Memnaprash* were sold at the rate of ₹ 3,400/lamb while lambs which were not fed *Memnaprash* at the rate of ₹ 2,900/lamb. The cost of feeding *Memnaprash* to lambs was ₹ 184/lamb and there was a net profit of ₹ 316/lamb for the *Memnaprash* lambs.

Conclusion

The *Memnaprash* has been acceptable to the lambs and its demonstration and evaluation at farmer's flock have found additional 3-4 kg weight gain in lambs at 3.0-3.5 months of age as compared to

other lambs (19.0 kg vs. 15.6 kg). Therefore, it could be concluded that *Memnaprash* feeding to lambs has positive effect on their early growth during the pre-weaning period and thus can help sheep farmers in fetching more price and increase livelihood by selling *Memnaprash* fed lambs.

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Cropping Season and Fertilizer Requirement

To ensure adequate availability of fertilizers, Department of Agriculture and Cooperation (DAC) assesses requirement of major fertilizers before each cropping seasons. The assessment is made based on requirements projected by State Governments/UTs, past consumption, weather conditions, targeted area, cropping pattern, area under irrigation etc.

Most ideally, fertilizer requirements should be assessed on the basis of nutrient needs of the crops and cropping systems in a particular area (block, district, and state) commensurable with existing nutrient deficiencies. This will ensure balanced fertilization and also ensure availability of needed fertilizers, in particular, secondary and micronutrients which very often farmers do not get at right time and right place. IFFCO has made soil testing service robust and performing to ensure adoption of site specific nutrient management. The Government has rightly initiated the scheme of soil health cards which will help farmers to know about soil health.

— Editor