Title: To study the role of Nutraceutical supplementation in enhancement of milk production, quality of milk and prevention of Mastitis.

ABSTRACT: Mastitis is the most prevalent disease in dairy herds world-wide and is responsible for several production effects. Mastitis leads to significant changes in milk composition and thus, considerable changes in milk fat percentage and solid not fat (SNF) content of milk which renders milk quality deterioration. Economic losses associated with mastitis derive mainly from a reduction in milk production, discarded milk, veterinary services, cost of veterinary treatment, drugs costs, reduced cow sale value, culling of continually infected cows, labour and penalties on milk quality. Management of lactating animals has quite a significant role in prevention of mastitis at a dairy herd. Awareness of dairy farmers can help to regularly monitor and ultimately reduce the number of cases of mastitis resulting in decrease in economic losses due to it, thereby enhancing of overall profitability. In our experiment we feed a special nutraceutical to cows for observing the milk yield and prevention to mastitis. We started giving this feed supplement from second month of lactation period for up to 24 weeks and found that milk yield increased and quality of milk improved subsequent to reduction in SCC count.

OBJECTIVES OF STUDY:

To evaluate the effect of Nutraceutical supplementation on milk production, milk quality and prevention of mastitis**.**

1.1 INTRODUCTION: Dairy cows are vital for milk production, cheese, cream, and so much more. Healthy udders and teats are necessary to keep production levels at their highest. Mastitis is one of the most prevalent and common diseases affecting dairy herds worldwide (Halasa et al., 2007). Most of the farmers are market-oriented, there is need for them to monitor and ensure maximum and steady milk yield from their cows. Occasionally, most dairy farmers may experience sudden or unexpected drop in milk yield during the lactation period. This is usually due to various factors affecting the cows directly or indirectly. This drop may go unnoticed especially during the early lactation period (Tanner et al., 1998). This eventually ends up affecting the farmers negatively financially.

Drop in milk yield is also one of the symptoms of mastitis, especially subclinical mastitis that does not show clinical signs. Daily per head milk losses increases the somatic cell count increases (Gillespie et al.,1998). Nutrition has the most influence on the amount of milk any cow produces (Omore et al.,1996; Staal et al.,1998) Nutrient needs in dairy cows vary with the amount of milk produced. If the cow is not fed well, milk production goes down (Gillespie et al.,1998). Nutrition should be adequate in quantity and quality e.g adequate dry matter intake, right amount of concentrate supplementation and provision of clean water ad-libitum. Milk yield also varies along the lactation period due to hormonal changes. As the lactation period proceeds, the milk yield also decreases. In individual cases, yield frequently reaches a peak earlier in lactation and the fall thereafter is much sharper (Macdonalds et al.,1995). It is therefore

important to take note of the stage of lactation and the amount of milk the cow is producing at each stage.

1.2 TECHNICAL PROGRAMME

1.2.1 MATERIALS AND METHODS:

Animals: Dairy cows

No. of animals for trial: 18 Cows

Duration: The entire study carried out for 24 weeks.

Place: Dairy farm, College of Veterinary Science, Faizabad India.

Supervisor: The trial done under the supervision of Dr S.V. Singh, Head, Department of clinics**.**

Dose: 150 gm per day from the second month of Lactation.

Experimental Trial Design:

The 18 dairy cows randomly divided into two groups. Each group contains 9 dairy cows. Group II supplemented with Auromilk and group I was non supplemented group as show in table 1. Nutraceutical supplementation (Auromilk) was given from 2nd month of lactation and observation was done on 1st, 4th, 12th, 20th, 24th weeks. Other feed and condition were remaining the same for both groups.

Table 1

Group 1	**Control healthy group without supplementing with Auromilk**
Group 2	**Healthy group supplemented with Auromilk**

Following parameters were recorded:

- Peak Milk yield
- Total milk yield
- Somatic cells count in milk

1.3 RESULTS

1.3.1 Effect of Auromilk on total milk yield.

In field trial, milk yield of 18 dairy cows were recorded for 24 weeks. Auromilk supplementation started from 2nd month of lactation, which increased total milk yield during observation period.

The total milk yield increase by supplementation as compared to the control group is shown in fig 1. In control group during 20 weeks cows gave average milk production was 4011 liter per cow while in the supplemented group 4483.5 liter per cow. Over all average 472.5 liter milk production more per cow as compare to control group. 3.375 liter per day per cow more milk as compare to control group.

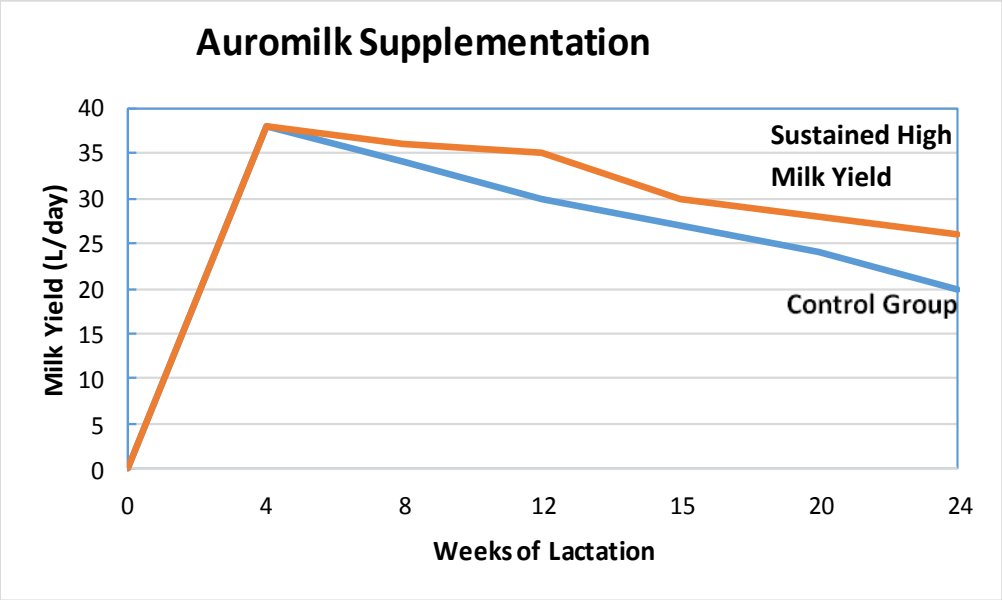

Fig:1 Effect of Auromilk on total milk yield.

Auromilk results in sustained high milk yield throughout the observed lactation days.

1.3.2 Effect of Auromilk on SCC (Somatic cell count) in milks.

In trial, SCC count in milk of 18 dairy cows was recorded on 1st, 4th, 12th, 20th, 24th weeks and found that Auromilk supplementation reduced SCC count in milk during observation period.

Auromilk supplemented group showed significant decrease in the SCC count in milk on 8th week of trial as compared to control group and continuously decline observed up to end of the trial, which enhances the quality of milk by improving milk fat, protein and essential minerals during lactation period as shown in fig 2.

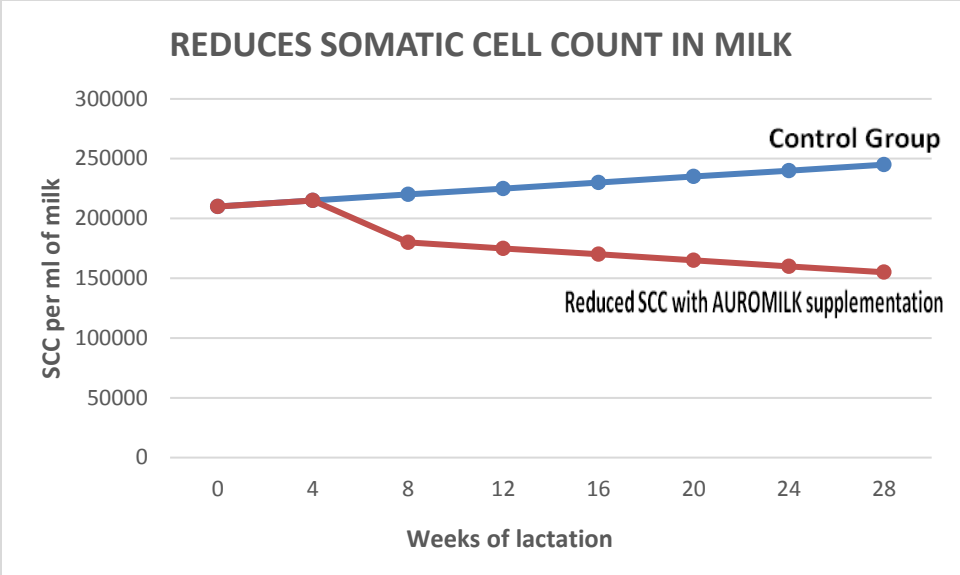

Fig: 2 Effect of Auromilk on SCC (Somatic cell count) in milks.

CONCLUSION: From the above results, it can be noted that Auromilk increases the total milk production during lactation period, enhances the quality of milk and prevents the chances of mastitis. Impact of mastitis on health of the milk producing animals is immense and most common cause of drop in milk yield, therefore, there is a need to develop effective and sustainable measures for its prevention and control. Poor management factors also cause a low milk production. Excessive stress causes a low feed intake and therefore reduced milk production.

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