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Achievements and constraints of successful women dairy farmer: A case study

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Abstract

To promote the women dairy farmers, the present study was conducted on dairy farm to know the constraints and achievements of successful women dairy farmers in Banka district. The successful women dairy farmers of Banka district were interviewed personally using standard procedure with pre-module questionnaires. In 2007 Smt. Savita devi purchased one three-month pregnant cow yielding 7 kg/day from nearby villages. But in two days cow came in heat. They contacted with Veterinary doctor and applied deworming and regular feeding of 50g mineral mixture then after two consecutive AI cow became pregnant. It is first step of moral boost up and successful step for starting dairy farmers. Then the cows were regularly dewormed/3 month and feeding mineral mixture 100g and 200g /day/animals cow yielding up to 20 kg and more than 20kg milk/day, respectively. For more milk production she started balanced feeding and all standard managerial practices with the help of expert. After achieving milk production more than 40kg/day she linked with milk cooperative society, Banka with 9 female farmers. Today collection of this society is more than 275kg and out of 53 households 39 household having 1 or 2 cross bred cow. They regularly applied spray of potassium permanganate solution after milking to prevent from mastitis. Today, having 14 lactating cow lactation period and calving interval (month) was 11.4 ± 0.4 and 13.4 ± 0.4 , respectively yielding average 4923 kg/lactation, cost of milk production, concentrate feeding, dry feeding, total feeding, treatment and labour/kg milk yield was Rs 17.00, 9.88, 2.14, 13.84, 0.33 and 2.79 respectively and net income (Rs) farm/year and cow/month was 5, 75,412 and 3,4,25, respectively. Average concentrate feeding was 2209 kg/ inter-calving period (ICP), 5.54 ± 0.17 kg/day/animal and 41 % of total feed intake. She was fed 4kg concentrate to last 2 month pregnant cow. Urea treated straw feeding was 6.8 ± 0.2 kg/ day/animal with Concentrate and roughage ratio was 41: 59. Total feed intake was 13kg/day/animal. Urea treatment of straw (UTS) costing average 0.84 Rs/kg and feeding of UST decreased the concentrate requirement by 20% saving average 8503Rs/Inter calving period/cow. UTS also prevent the decrease in milk yield by 10% when green fodder was not available. Costing of Silage making was 0.72Rs/kg and feeding of silage increased the milk yield and net income by 10% and 10,516Rs/Animal/ year, respectively. Cost of calf and heifer rearing up to first parturition was Av. 25295Rs. From this study it can be concluded that the dairy farming could be a profitable entrepreneurship for rural women when farming with technology of deworming, feeding mineral mixture, UTS, silage and regular marketing with cooperative societies.

Keywords: concentrate feeding, Urea treated straw, silage, milk production cost

Introduction

The prosperity and growth of a nation depends on the status and development of its women as they not only constitute nearly half of the population, but also positively influence the growth of remaining half of the population. The contribution of women to national development in the current context and its potential is of greater significance. To promote the women dairy farmers, the presentation of story of successful women dairy farmers is needful.

In India, the dairy sector is important for various reasons. Among these, complementarily with agriculture and a capacity to enrich the protein diet of the vegetarian population is well documented. A contribution which is not well recognized is its role in balancing the rural inequity. In India, small and marginal farmers accounting for 77 percent of total holdings cultivates only 33 percent of operated area; they, however, accounts for around 60 percent of female cattle and 56 percent of female buffaloes in the country (Jha, 2003). In recent decades, the dairy sector has emerged as an important source of rural employment and income in the country. Income from dairying contributes nearly a third of the rural households' gross income and in the case of landless wage earning households, nearly a half (Pankaj, et al., 2005). The present study was undertaken with the objective of analyzing the costs and returns in milk production system and technology used for successful dairy farming in Banka district.

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Methodology

The study area had mixed farming, comprised of crop, livestock including goat and other domesticated animals. Banka district is located in between latitude 24.7757° N and longitude 86.8220° E at an altitude of 85 - 247 meters above Sea level having annual average rainfall of 1200 mm and area 3,019 km². The successful women dairy farmer of Banka district were interviewed personally using standard procedure with pre-module questionnaires.

Results and Discussion

History of success

In 2007 Smt. Savita devi was purchased one cow three-month pregnant yielding 7 kg/day having female calf from nearby villages. But in two days cow came in heat. They contacted with Veterinary doctor and applied deworming and regular feeding of 50g mineral mixture then milk production increased to 9 kg/day within 15 days and after two consecutive insemination cows became pregnant. It is first step of moral boost up and successful step for starting dairy farmers. Then the cows were regularly dewormed/3 month and feeding mineral mixture 100g and 200g /day/animals cow yielding upto 20 kg and more than 20kg milk/day, respectively. Because of feeding mineral mixture and deworming she has got early calving and calf became cow in 27-28 months. There was a schedule of parturition in her farm that in January month cow became pregnant and calving in October. For more milk production she started balanced feeding and all standard managerial practices with the help of expert and presently average milk production/day/animal is 14.56 kg. Upto 2011 she was sold milk in local market @ 20Rs/kg but after achieving milk production more than 40-45 kg/day, she was linked with milk cooperative society, Banka with 9 female farmers. Today collection of this society is more than 275kg and out of 53 households 39 household having 1 or 2 cross bred cow. In 2012 they have got training on Dairy farming in NDRI, Karnal after this she change the farming practices to as animals free to move in day time (loose housing). In 2014, she started feeding urea treated straw to cow, but discontinued after 3 months. Because neighbours and relative said that urea damage the cow internally. In year 2015, Krishi vigyan Kendra, Banka organised one day training on benefits of feeding urea treated straw and gave concept of digestion and others benefits, also clear the query of farmers for moral boost up. Then again she started feeding of urea treated straw and at present situation they have not fed straw to animal without urea treatment. Also calf of her farm started feeding of dry fodder with urea treated straw at 1 month age. She was found that when green fodder is not available, due to feeding of urea treated straw (UTS) milk production decreased by only 10% and when both are not available then by 20%. She said that proper amount of water feeding is also essential for high milk production, she provided average 5 litre water/kg milk production to cow. She had measurement of bucket of 10 litre capacity for providing water to cow. She suggested that salt feeding to cow is essential for drinking adequate amount of water. Donna Amaral-Phillips, (2010) reported that milking dairy cows consume 2.5-3 litre of water per kilogram of milk they produce. Of this amount, drinking water provides 80 to 90% of these needs, with the remainder coming from moisture found in feeds. In present study more amount of water intake is due to less green fodder feeding to animal. They regularly applied spray of potassium permagnet solution after milking to prevent from mastitis. Presently she was using Safkit spray

(Indian immunological) costing 10Rs/month for post milking spray of udder. If some initial stages of mastitis like curdness in milk have seen then she fed multivitamin to control mastitis. There was not any animal affected by mastitis in last three year in this farm. Janeja (2015) reported economic losses due to sub-clinical mastitis per animal were Rs 1,390. Similarly, Kvapilik, *et al.* (2014). reported that economic loss due to mastitis per animal was Rs.1976/year. The milk yield reduced by 1.3- 21%/animal/year. Mastitis lower pregnancy rates, longer service period (SP) and higher insemination index. Hence, she was saving 1390-1976 Rs/animal/year by management of mastitis.

Production and productivity of animals: Farm having 14 lactating cross-bred H.F cow yielding (Table 1) average 4923±134 kg/lactation and 14.56 ± 0.53 kg/day. Milk production was decreased when cow came in heat at 3rd or 4th month either they became pregnant or not. In contrast to this result Lopez *et al.*, (2004; 2005) reported that milk yield shows a tendency to increase during post estrus period when compared by estrus period. The reason for the decreased milk yield during estrus could be the increase in estrogen levels both in milk and blood and this reduction might be caused also by a decrease in feed intake. Similar to present finding Geetha and Lavanya (2013) reported that the per day per animal milk production on an average of cross-bred cows was ranging from 10.24 to 19.63 litres per day in all farm groups. The lactation period and calving interval (month) was 11.4±0.4 and 13.4±0.4, respectively. Calf became mature and start producing milk in 27 month. It was due to regular deworming and mineral mixture feeding. Geetha and Lavanya (2013) reported that lactation period of cross bred cow were 292 days for medium farmers. An average Holstein Friesian (HF) cow gives 10,000-12,000 litres of milk in a 10-month lactation cycle, whereas the yields from a desi cow are only 3,000-3,600 litres. Also, an HF calf takes just two years to mature and start producing milk.

Feeding of animals: Average concentrate feeding was 2209 kg/ inter-calving period (ICP), 5.54± 0.17 kg/day/animal and 41 % of total feed intake. She was fed 4kg concentrate to last 2 month pregnant cow. They were feeding Green fodder 4200 kg/ ICP and 10kg/day/animal which was available for the period of January to July month only. Urea treated straw feeding was 2741 kg/ ICP and 6.8± 0.2 kg/ day/animal with Concentrate and roughage ratio was 41: 59. Total feed intake was 13kg/day/animal. Similarly, Khanal *et al.*, (1999) reported that Urea treated straw feeding were 7.80kg and total dry matter intake 13.42 kg in Buffalo. Dairy cow yielding average daily milk yield 11.65±1.86kg milk significantly increased the milk production on 50:50 concentrate roughage than 40:60 and 30:70. (Beyero, 2015). But in present study better performance on 41:59 concentrate: roughage ratio due to UTS feeding. Average mineral mixture feeding was 100g and 200g /day /animal for animal giving less than 20kg and more than 20kg milk/day and it was 52.71kg/ ICP. There was feeding of 100g/day/animal calcium supplement calsgar for 10days each month. The quantity (kg) of concentrate, UTS, mineral mixture fed to calf and heifer up to calving was 780, 1260 and 22.5kg, respectively.

Economics of farming: Total cost of milk production was Rs.83485. cost of milk production, concentrate feeding, dry feeding, total feeding, treatment and labour/kg milk yield was Rs 17.00, 9.88, 2.14, 13.84, 0.33 and 2.79 respectively and net income (Rs) farm/year and cow/month was 5, 75,412 and 3,4,25, respectively. In Mathura a Sahiwal cow can earn Rs 85/day but an unproductive cattle can loss of Rs 60/day.

(Jitendra, 2017). Cost of rearing calf and heifer up to parturition was 25295 Rs in which Rs. 24030 was expended on feeding and only 1265 Rs. on treatments and medicine.

Feeding urea treated straw

Urea treatment of straw (UTS) costing average 0.84 Rs/kg and feeding of UTS 6.8kg/day/animal, decreased the concentrate requirement by 20% and saved concentrate and cost of feeding 492± 0.2 kg, Rs.8503±428/inter calving period/cow. Similarly, Mallik, *et al.*, (2013) reported cost of urea treatment was 0.96Rs/ kg and animal fed 8kg UTS/day/animal. This may be due to increased crude protein through added non-protein nitrogen (NPN) digestibility of treated straw. Urea treatment increases microbial protein synthetic activity (Garg, 1998) in the rumen making more microbial protein yield available in the lower gut for higher milk production. UTS also prevented the decrease in milk yield by 10% when green fodder was not available. Similarly, Khanan *et al.* (1999) reported significant ($p<0.05$) increase in milk yield of lactating buffaloes fed UTS. Calf of this farm started feeding dry fodder with UTS. Milk production increased by 10.3-11.9% and milk fat content increased by 3-5%, therefore, profit for farmers increased by US \$0.55-0.73 per cow per day Vu *et al.*, (1999).

Silage feeding

Costing of Silage making was 0.72Rs/kg and feeding of silage increased the milk yield and net income by 10% and 10,516Rs/Animal/ ICP, respectively. Halden *et al.*, (1995) reported not any effect on milk production or milk composition on grazing cows yielding 32 kg of milk received 2.3 kg/d of corn silage DM.

Table 1: Production, productivity and feed intake of cow

Parameters	Performance
Production and productivity	
Milk yield (kg/day/Animal)	14.56±0.53
Milk yield (kg/lactation/Animal)	4923±134
Lactation period (M)	11.4±0.4
Calving period (M)	13.4±.4
Feed intake (Kg/day/Animal)	
Concentrate	5.54±0.17
Dry fodder	6.80±0.2
Total roughage	7.80±0.3
Concentrate %	41
Roughage %	59
Total feed intake	13.0±0.36

Table 2: Economics of farm

Parameters	Performance
Economics of farm (Rs)	
Milk cost /cow/day	293±7.70
Dung cost/animal/year	1500
Total Receipt /cow/Lactation	1,24,586±3,354
Concentrate/kg milk	9.88±0.03
Dry fodder/kg milk	2.14±0.07
Green/kg milk	0.86±0.02
Supplements/kg milk	0.98
Cost of feeding/kg milk	13.86±0.11
Cost of medicine	0.33±0.01
Labour cost	2.81±0.08
Cost of milk/kg	17.00±0.17
Total expenditure/cow/ICP	83485±1726
Net profit farm/year	5,75,412±1741
Net profit /cow/ICP	41101±1741
Net profit /cow/month	3425±145
cost of calf rearing	25,295

Table 3: Economics of urea treated straw and silage feeding

Parameters	Performance
Urea treated Straw feeding	
Cost of UST (Rs)	0.84
Reduced Concentrate requirement (kg) /lactation	492±22
Net income cow/lactation	8503±428
Silage feeding	
Cost of silage (Rs/kg) preparation	0.72
Net income/ cow/lactation	10516±322

Conclusion

From this study it can be concluded that the dairy farming could be a profitable entrepreneurship for rural women when farming with technology of deworming, feeding mineral mixture, UTS, silage and regular marketing with cooperative societies.

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References

1. Anju Agnihotrichaba. Punjab Dairy farmers see no economic benefits in switching from Holsteins to Sahiwal. <http://indianexpress.com/article/india/india-others/punjab-dairy-farmers-see-no-economic-benefits-in-switching-from-holsteins-to-sahiwal/>
2. Beyero Netsanet, Kapoor V, Tewatia BS. Effect of different Roughage: Concentrate Ratio on Milk Yield and Its Fatty Acid Profile in Dairy Cows. *Journal of Biology, Agriculture and Healthcare*. Online, 2015, 5(13).
3. Donna Amaral-Phillips. Water intake determines a dairy cow's feed intake and milk production. <http://www.progressivedairy.com/topics/feed-nutrition/water-intake-determines-a-dairy-cows-feed-intake-and-milk-production>, 2010.
4. Geetha KT, Lavanya VL. Economics analysis of dairy farming in vellalore village in Coimbatore district. *Journal of Economic & Social Development*. 2013; 9(1):25-37.
5. Holden LA, Muller LD, Lykos T, Cassidy TW. Effect of corn silage supplementation on intake and milk production in cows grazing grass pasture. *Journal of Dairy Science*. 1995; 78(1):154-60
6. Jha Brajesh. India's Dairying in the Emerging Trade Order, Un Unpublished report submitted to Indian Institute of Economic Growth, Delhi-7. 2003.
7. Jitendra. Down to earth fortnightly on politics of development, environment and health. <http://www.downtoearth.org.in/news/how-expensive-is-it-to-maintain-unproductive-cattle--57410>. 2017.
8. Khanal RC, Gurung DB, Kadariya RK. Effect of feeding Urea treated rice and wheat straw on intake and milk yield of lactating buffaloes under farmer's. *Conditions. Asian-Australian. Journal of Animal Science*. 1999; 8:1200-1204.
9. Kvapilik J, Hanu OS, Syrucek J, Vyletelova M, Klimesov RP. The economic importance of the losses of cow milk due to mastitis: a meta-analysis, *Bulgarian Journal of Agricultural Science*. 2014; 20(No 6):1483-1497
10. Loepez H, Caraviello DZ, Satter LD, Fricke PM, Wiltbank MC. Relationship between level of milk production and multiple ovulations in lactating dairy cows. *Journal of Dairy Science*. 2005; 88:2783-2793.

11. Loepez H, Satter LD, Wiltbank MC. Relationship between level of milk production and estrous behavior of lactating dairy cows. *Animal Reproduction Science*. 2004; 81:209-223.
12. Pankaj Prabhat Kumar, Singh Anshaj, Roy Biswajit, 'Animal Husbandry and Dairying', 'Kurukshetra', 2005, 30-35.
13. Malik PK, Anandan S, Rajendran D. Urea Treatment of Straw and Stover for Quality Improvement folder No. 28. 2013; National Institute of Animal Nutrition and Physiology Adugodi, Bangalore-560030
14. Vu DD, Cuong LX, Dung CA, Hai PH. Use of urea-molasses-multinutrient block and urea-treated rice straw for improving dairy cattle productivity in Vietnam. *Preventive Veterinary Medicine*. 1999; 27-38(2-3):187-93.