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KVK GIVES IMPETUS TO DAIRY FARMING AMONG TRIBAL FARMERS OF GUJARAT

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Abstract

Dairy production is considered to be an important tool for self-employment and socio-economic transformation of rural folk, especially for small farmers, landless labor's, educated unemployed youth. It provides substantial employment opportunities and supplementary income to the rural farmers. Livelihoods options are shrinking in rural areas in general more so in eco-fragile regions, such as drought, desert prone, hilly areas and tribal dominated districts. Hence it is more imperative to transfer the technologies to the door step of tribal farmers in the field of feeding, breeding and health care management of livestock. Apart from the capacity building through vocational training, Krishi Vigyan Kendra assessed many technologies which solve the location specific problems of cattle owner. Feeding cattle with balanced diet and Sync protocol treatment has reduced inter calving period. Acceptance of artificial insemination technology has increase the productivity of indigenous animals. California Mastitis treatment provides safeguard against mastitis disease. All these technologies lead to increase per capita milk production.

Keywords: Breed improvement, California Mastitis Test, Heat synchronization protocol, Artificial Insemination.

Introduction

The dairy sector is still characterized by small-scale, scattered and unorganized milch animal holders, inadequate and inappropriate animal feeding and health care, inadequate basic infrastructure procurement, transportation, processing and marketing of milk and lack of

professional management are some of the key constraints causes the low productivity of milk. Krishi Vigyan Kendra (KVK), is an integral part of the National Agricultural Research System (NARS), aims at assessment of location specific technology modules in agriculture and allied enterprises, through technology assessment, refinement and demonstrations. Gujarat Vidyapith KVK, Valsad situated in southernmost tip of Gujarat is tribal dominated hilly area having undulating land with steep slopes. About 69 per cent agriculture is rainfed. Livestock production play vital role in the economy of the tribal dominated district. With a view to boost dairy farming Vigyan Kendra carried out wide-range of extension activities such as skill training, technology assessment through On Farm Testing, method and result demonstrations etc. has produced the tangible impact on dairy farming in the district.

Dissemination of technology

Short and long duration skill oriented vocational programs on dairy management was conducted by the KVK- Valsad through which the interventions listed below were taken up to the door step of farmers.

Technology assessed and extrapolated

- ❖ Multi cut perennial fodder grass variety
- ❖ Artificial insemination
- ❖ Automatic timely drinking water supply system
- ❖ Prevention of mastitis (California mastitis test)
- ❖ Heat synchronization protocol
- ❖ Feed supplement (Mineral mixture, Calf starter, Enriched paddy straw with Urea treatment)

Nutri rich Fodder - varietal demonstration



Field day on Demo plot

A fodder demonstration unit having different high yielding varieties of perennial grasses such as NB-21, APBN, Co-1, Co-2, Co-3 and Co-4, BNH-10 etc. having salient features like profuse tillering, non-lodging, high crude protein content, broad green leaves, less water requirement and less content of oxalate were developed at KVK farm which serves as mother plant nursery. KVK laid down demonstrations in 147 ha area covering more than 4500 farmers of 278 villages. The area under the variety increase by two folds in subsequent years following **Farmer- lead-Farmer approach**. Improved fodder varieties gave an average yield of 180-210 t/ha/year under moderate management practices. It saves cost of cultivation as it is perennial in nature and helpful to cure the deficiencies developed as a result of malnutrition caused by the poor feeding.

Breed improvement through Artificial Insemination

To improve livestock production, introduction of improved cattle breeds is necessary. In this context, artificial insemination activity has been initiated by KVK with the help of Vasudhara milk cooperatives and state dept of Animal Husbandry. An artificial insemination (AI) centre was established at KVK to provide door-to-door AI service in surrounding villages. KVK scientist treated more than five thousand cows (HF- 2710), Jersey (505), Desi cows (615) and buffaloes (522) during last ten years. Capacity building of as many as 142 para vet AI workers .Trained para vet AI workers act as catalytic change agents in the village. As a result of intensive efforts cent percent cross breed milking animals of the district were treated with the AI technology. It has increased the productivity of indigenous animals at large.



F1 generation



F2 generation

Automatic water delivery system for cattle

Scarcity of water is one of the the major hurdles in the development of dairy farming in the district. Availability of drinking water is utmost important to improve the dry matter intake ,improve health and the milk production especially at time of heat stress. KVK introduce water bowl technology to facilitate continuous supply of clean drinking water for cattle.



Automatic water delivery system installed by the farmer

Technology details

- Stored water flows gravitationally from over head tank fitted at appropriate height above the manger through the PVC pipe of about 1 inch diameter.
- The other end of the pvc pipes attached with the water control valve that fitted horizontally with the bowls.
- The bowls are fitted on the wall of manger between two animals. The second water bowl fitted at the same level and at equal distance.
- Maximum 10 bowls can be operated at a time with one water control valve. Thus maximum 20 animals can be watered at the time.
- Due to gravitational force, water flows with pressure from the overhead tank that fills the bowl automatically.

Regular cleaning of water bowl can be done by removing water through outlet valve.

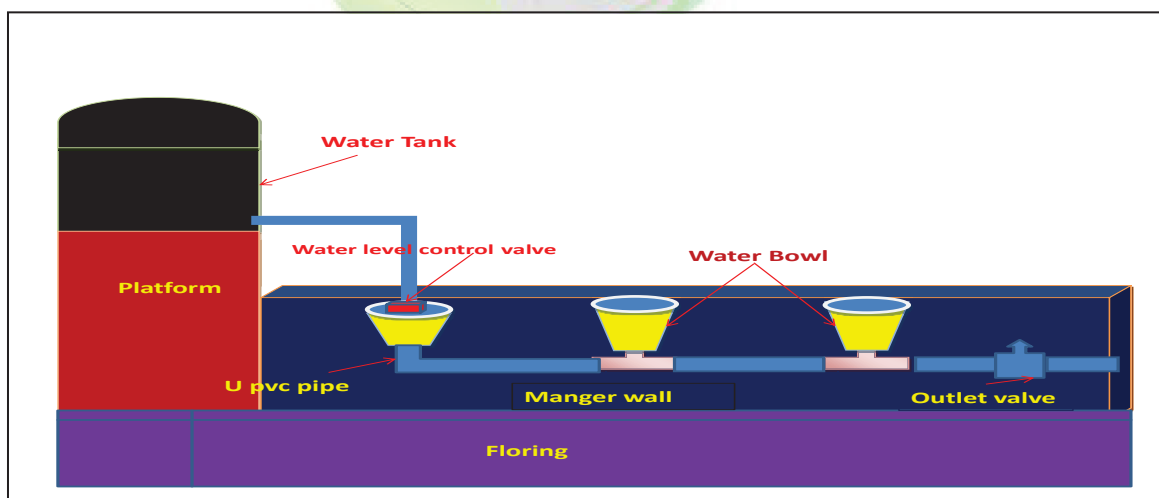


Diagram of automatic water delivery system for cattle

Cost of the technology

The total cost of installation of the system for 4 cattle goes to Rs.15000. System composed of water tank of 500 liters capacity @ Rs.7.00 per lit (Rs.3500/-), one master bowl with valve (Rs.2500/-), two water bowl (food grade ABS material) @Rs.2500 (Rs.5000/-) and UPVC pipe, fitting accessories, labour and transportation etc. (Rs.4000/-). Expected life of the system is about 20 years. The technology was popularized by KVK. In subsequent years 750 farmers of 86 villages of the district adopted the technology as it easy to operate, saves water and time. It also improves milk production and reduced drudgery.

Prevention of Mastitis (California Mastitis Test)

Due to unhygienic condition of cattle shed over 25-30 per cent of the cattle population of the district found to falls in sub clinical stage of mastitis. It is the most common disease leading to economic loss in dairy farming. The California Mastitis Test (CMT) is a diagnostic tool to aid in the quick diagnosis of mastitis in dairy cows, it detects the presence of subclinical infections at the beginning of or during lactation. A four-well plastic paddle is used, one for each quarter of the cow to be tested. After discarding fore milk, a little milk drawn into each well from individual quarter. An equal volume of test reagent is to be added, and gently agitated. The reaction is scored on a scale of 0 (mixture remains unchanged) to 3 (almost-solid gel forms), with a score of 2 or 3 being considered a positive result. A special reagent for the test is marketed under the name 'CMT-Test', was used.

Treatment

The positive case of CMT tested cattle was treated with Tri sodium citrate 10 grams orally per day for 10 days to 30 days until the positive cases converted into negative after 30 days. CMT test positive milk sample animal treated with antibiotics or Mastafat powder 50 grams orally per days for 6 days. After interventions cent per cent cattle's were completely cured from the subclinical mastitis.

KVK randomly surveyed 06 villages and collected milk samples of more than 700 cattle involving 350 livestock owners. Off the 743 samples as many as 359 milk samples found to be infected in first round by mastitis. After treatment as explained above, 260 were cure completely. It indicates that the technology is immense useful for cattle owners.

Heat synchronization protocol

Poor feeding management mainly due to unavailability of green fodder and extravagant use of paddy straw has caused malnutrition to a large extent. The length of period from parturition to first estrous varies greatly in cattle and is influenced by malnutrition. The inter calving period has been increased from 16-18 months to 22-24 months. If the calving interval is more, the total number of calving in her life time will be decreased thus causes higher economic losses. Use of heat synchronization protocol ever advancing technology that available for cattle producer getting cow to come into heat and at the same time AI can be done. Technology is useful in minimizing calving interval.

KVK selected 106 anestrus cattle from Seven villages and treated with synchronization of heat treatment. After treatment (90 days) 80 cattle found positive and only 13 found negative. It indicates that heat synchronization protocol proved to be very effective treatment to reduced inter calving period.

Conclusion

Dairy sector not only supports the tribal economy but also employs rural households. Poor and landless farmers actively engage in dairying as a vital source of income. The area under the green fodder perennial grass variety increase by two folds following Farmer- lead-Farmer approach. Feeding cattle with balanced diet and Sync protocol treatment has reduced inter calving period. Adoption of AI technology has increase the productivity of indigenous animals. Availability of drinking water increased dry matter intake thus improved health and milk production. Reduction in incidence of mastitis from 30 to 10 per cent due to CMT treatment and sanitation of cow shade. Milk yield increased from 3.5 to 5.28 liters per day per cattle.

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