

# Livestock management interventions

## for improving livelihood security and doubling farmer's income

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*Under 'Farmer FIRST' programme, livestock health related intervention programmes were carried out which brace farmer's upliftment. The selected villages come under Doddaballapura Taluk, Bengaluru; which suffered from dearth of water availability, green fodder availability, awareness about livestock health and nutrition, and preventive measures. The baseline data of each individual were carried out through face-to-face interview and group discussions for formulating the required module. Distinct modules were tailored according to the needs of livestock holders. A regular check and follow-up was made on animal fertility and health management which aided in resolving repeat breeding and anestrus disorders. Area specific mineral mixture (ASMM) was given to increase the fat percent of milk, while to curb lack of availability of green fodder, fodder seeds were provided, imbibed the skills of azolla cultivation and silage preparation techniques were taught. Awareness about quality milk production, lameness and mastitis were campaigned to enhance the importance of quality milk and animal health besides providing them with mastitis kit and rubber mats. Under enterprise module, folks were encouraged to rear goat and grow mushroom for financial independence. There is a need of high-quality animal products in today's world. Ensuring farmers with necessary tools and knowledge of advanced techniques in livestock would help in mitigating the odds and reaching the essential goals.*

**Key words:** Doubling farmer's income, Farmer FIRST, Livestock management

LIVESTOCK plays a core role in Indian economy. Small household income of the rural sector solely depends on the livestock sector. Animal health management is directly concerned with its effect on productivity, mortality of livestock herd, and weight gain or milk production, or even quality of animal products. Besides the positive effects of livestock to human welfare, livestock production and consumption can also be associated to some risks, namely the transmission of important diseases that are transmitted from animals to humans (zoonosis). The rigorous control and restrictions to animal movement and to exportation of animal products, associated with the existence of animal disease, make the

existence of national animal health programs indispensable in order to allow international trade. Monitoring animal health and preventing animal disease outbreaks are vital to the economy and safety of the country's food supply. Production of healthy livestock helps to ensure a safe food supply and keep consumer prices stable. Though significant progress has been made in reducing the prevalence of animal diseases of economic importance, there is still an increasing concern over the losses associated with diseases that cause reduction in production efficiency and loss of income for rural people. Farmer FIRST Project (FFP), implemented by NIANP, had many modules in which foremost importance was given to livestock

health component. Ten villages in Doddaballapura Taluk, Bengaluru Rural district, were selected under the program.

Participatory Rural Appraisal (PRA) method was carried out by a multidisciplinary team of scientists in the selected villages for collecting baseline data of the village pertaining to production systems, technologies followed by people, to identify technological gap, management strategies, technological requirements needed and constraints faced by villagers. After PRA and primary survey data, necessary livestock technological modules were framed and the required action plan was carried out. Some of the technological modules include like area specific mineral mixture, balance

feeding, feed/fodder conservation, quality milk production and reproductive animal health management. All relevant and feasible technologies were introduced by NIANP and other collaborating organizations. Awareness and training programme were arranged based on need and situation of selected villages. Primary data were collected through face to face interview.

Most prevalent livestock's found in the selected area were Holstein Friesian and Jersey crossbred cattle while only 2 buffaloes were found however few farmers rear hen's, sheep and goats but not on a commercial venture (only for domestic purpose). For dairying, naturally available green fodder material, weeds from cropping areas, roadside grasses and debris of cultivated crops are fed as feed. Feeds were also purchased like concentrates, rice husk and groundnut cake.

Main source of income for households is from dairying, agriculture followed by fattening of sheep and goats. The major problems found in the village were inclement weather conditions, dry spell which lead to scarcity of water, lack of knowledge on technology about storing green fodder and feeding habits about cattle, preventive measures about animal health management, dearth information about animal house keeping and its maintenance. Rodents were an added trouble in the fodder stock. Owing to erratic weather condition green fodder availability was meager and problematic, which compelled them to purchase feed at high cost.

In order to combat the challenge faced by villagers due to livestock health and production issues, many inter-related livestock modules were framed which aspired or promised towards healthy livestock production with availability of fodder year round.

As a part of Animal Fertility and Health Management program, monthly regular health camp was organized through a group of veterinary doctors. The problem identified were repeat breeding, anestrus, underdeveloped genitalia, endometritis, cystic ovary, skin

lesions or wart, blood protozoan disease-babesiasis, respiratory lesions, anorexia, eye problem, bloating of stomach and indigestion issues; 200 animals were covered in eight villages by organising animal health camps. The process or intervention followed were curative treatments for major diseases, double synch estrous synchronization protocol to address repeat breeding issues, oxytetracycline for intra-uterine wash. After each treatment, second and third follow up were done in the same villages. Ninety percent of the repeat breeding and anestrus disorders were solved in single intervention. Attainment of puberty at the right age of cow was also one of the identified issues due to underdeveloped genitalia as villagers were lacking knowledge on qualitative feed for heifers as they were giving good feed only to milch animals, henceforth, in all the villages awareness was raised to give qualitative feed even too heifers.

Area specific mineral mixture (ASMM) was fed to selected single milch animals, as in few villages it was found through primary data that fat percent and yield of milk was very low, in addition to reproductive disorders. ASMM was given for continuous 3 months to milch cattle at the rate of 40g/animal/day, which led to an increase of 0.25-0.5% of milk fat, 70% reduction in

reproductive disorders and increase in milk yield by half to one litre which led to the additional income.

Fodder production was a major challenge in selected villages and they faced scarcity of fodder especially in summer due to lack of water resource, less area under fodder, high cost of green fodder and concentrates. Demonstration of use of hydroponic fodder cultivation by using locally available materials through low cost investment was done, along with introduction of multi-cut CoFS-31 fodder variety, sesbania, hedge lucerne and demonstration of the growing techniques of azolla and highlighting its beneficial purpose of feeding to the cattle. Besides providing them with fodder seeds they were taught the preservation of green fodder through silage making by providing them with silage making drums. With these efforts, fodder availability in the area was increased with minimal water use, which also decreased the drudgery of bringing fodder from faraway places and year-round availability of fodder which boosted the milk production as well as fat content of the milk.

Under the enterprise module, goat breeding and mushroom cultivation were propagated to engage the farmers in marketing sector for additional source of income. Dual purpose goats were introduced as it



Training program on HACCP based QMP and mastitis management



Cow mat for lameness management

has higher percentage for twins or triplets and rearing of goats are easier than sheep. Oyster mushroom cultivation was introduced as now-a-days there is a high demand for mushroom for its medicinal properties. This led to the increase in employment and economic empowerment of women.

In case of quality milk production, mastitis and lame management, it was found that farmers in the selected villages were not aware of quality milk production. There were increased somatic cell count in milk samples and high incidence of mastitis, which reduced the income due to loss of productivity. Restricted movement of lame animals caused reduced productive and reproductive efficiency. The method followed was

to organize awareness workshops and hands-on-trainings on clean milk production practices, introduction of quality milk production kit with a detailed folder prepared in the regional language.

Hands on training was provided to farmers for using California Mastitis Kit (CMT) for detection of mastitis through regular check up by themselves while curative approach was followed for mastitis by administration of tri sodium citrate. Rubber cow mats were provided for lameness management in addition to curative approach through oral supplementation of biotin and zinc sulphate. With these entire endeavor, we could achieve around 50% reduction in somatic cell count, 60% drudgery reduction in cleaning, 41%

of animals were recovered by mastitis, 11% reduction in reproductive disorders associated with lameness.

### SUMMARY

Livestock play a vital role in rural livelihood earnings and indirectly in the economy of developing countries. Along with the suffering of animals themselves, animal diseases wreck the rural area and dent the economical trade. Preventing and controlling diseases grows economies, bolsters local communities, and improves the health of vulnerable populations, especially the young and elderly. Managing the required intensification and the shifts to new value chains is essential to avoid a potential increase in zoonotic, food-borne and other diseases. Securing a safe, sufficient and nutritious food supply at a time of rapidly increasing population depends on healthy, productive animals. Increasing the efficiency of the livestock sector through sustainable intensification practices presents a real opportunity where research and development can contribute to provide more sustainable solutions. New diversification options and improved safety nets will also be essential when intensification is not the primary avenue for developing the livestock sector. These processes will need to be supported by agile and effective public and private institutions.

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### Ensiling in polythene bags to combat winter feed scarcity

At high altitude areas, where yaks are reared by the pastoral nomads for their livelihood and nutritional support, the scarcity of fodder during winters is one of the major problems affecting animal health and production. Yaks lose around 25% of their live body weight owing to non-availability of fodder during winter. To mitigate the winter feed crisis and supplement green fodder in the form of silage to yaks in winters, *Salix* silage was prepared in polythene bags (500 kg capacity) at an altitude of 2,800 m above msl. Green leaves along with tender twigs of a fast growing *Salix* tree were lopped and conserved through ensiling in polythene bags. The quality and acceptability of the *Salix* silage. Therefore, *Salix* silage making in polythene bags is an alternative way of conservation of green fodder to address the winter feed scarcity. This method is also superior over the traditional silo method owing to ease of carry and flexibility in making small batches of silage as per the availability of green fodder.