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Efficient Dairy Farm Management for Optimizing Milk Production

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ABSTRACT

Dairy farm management plays a pivotal role in the milk production ability of dairy animals. There are many factors like use of quality breeds, feeding management, housing management, health management, culling and replacement of animals, labour management etc., which directly and/or indirectly affect the economics of dairy farming. In this article, the role of those dairy farm management factors in optimizing milk production is briefly discussed which should be strictly followed to increase the production potential of dairy animals, and ultimately, to make the dairy business as a successful enterprise.

INTRODUCTION

Concept of farming the dairy animals was realized much latter than their domestication. At around 8000 B.C., the primary dairy animals were domesticated by man in Turkistan (cattle) and West Asia (buffalo) predominantly because of exploitation of their draught power. Later on, their milk and meat production potential were attempted to be harvested. During the Aryan invasion (2200-1500 B.C.), cattle were introduced to India and the milk had started to become culturally attached. The then nomadic/pastoral animal rearing has been emerged over time as today's animal farming largely due to the rapid growth of human population resulting into the rapid extension of agricultural land and rapid urbanization and forest conservation during British

colonial rule in India. Thus, the animal houses in and around the towns/cities and large unorganized 'village dairies' came into being.

On a dairy farm, the routine farm operations are taken up regularly, completely and judiciously for fulfillment of the basic objectives as have been outlined by the various economic decisions. While the farm activities are mainly associated with the least cost production of clean and quality milk, the farm chores, then, form the dairy farm operations. To run the 'animal machine' successfully and efficiently, the inputs like breed, feed, shelter, health and manpower are required to be aptly orchestrated as regards to their availability, demand, supply and implementation. In every point, the management decisions need be economically viable keeping other sustainability parameters under suitable considerations. Therefore, the effective management of a dairy farm depends on the basic decisions like use of animals with good genetic makeup, feeding management, housing management, health management, reproductive management, labour management etc. which affect the productivity of dairy animals. Though the effectiveness of the management practices is based on 'how best the decisions were' and 'how much the decisions were put into work', the overall success of the dairy farm, at large, depends on the market potential and the changing government policies concerned with market/marketing. Keeping this in view, the whole gamut of managerial inputs is being discussed in detail in this thematic presentation.

INPUT MANAGEMENT

ANIMAL

The dairy farm has various inputs like animal, feed, shelter, labour and health. The animal of a recognized milch breed that can thrive and produce well in the given region/environment should form the basis of the dairy farm. While good and adapted genetic potential for milk production is opted for, the reproductive efficiency of the stock cannot be compromised. The basic unit of production, i.e., animal should possess good health condition and be free from any behavioural anomaly.

FEEDING

While ensuring the animal status, the feed requires to be very palatable, nutritious, wholesome, balanced and should fulfill the requirements of the maintenance and production of the dairy animal and above all, it should be economic. The feed should not be dusty, mouldy or adulterated and the impurities in feed and fodder should be least. The roughage: concentrate ratio should be properly maintained to ensure the required dry matter intake. Thus, the feeding and nutrition of various categories of animals in a dairy farm should be optimum based on the physiological state, production requirements, maintenance needs and other physical factors like age and body weight. While quality of the feeds and fodders is ensured, their quantity should be optimum by adopting suitable rotations of fodder cultivation. Provision of ample, fresh, clean and potable drinking water should also be ensured.

SHELTER

The selection of good animals along with the sufficient feeding does not result into the efficient farm management if the shelter requirements for the protection from the weather inclemencies are not properly met. The housing design and structures of the dairy farm should conform to

basic BIS recommendations along with the seasonal/regional modifications, wherever the manager feels suitable. The shelter should be properly located, aptly constructed, desirably oriented and spaced out and its management should have the basic objectives of keeping the production units (animals) comfortable, providing protection from extreme weather conditions, taking comparatively less man-hours and ensuring a micro-environment that is conducive for clean and quality milk production.

HEALTH

Apparently healthy animals, tested negative for major diseases/ conditions of dairy farm like tuberculosis, brucellosis and mastitis, should be the initiation point in dairy farm business. The management of animal health and ensuring proper and timely veterinary care would lead to a disease-free dairy stock that is a basic requirement for production of clean milk. The daily schedule of detection of illness like milk fever, pneumonia, diarrhoea, joint-ill, naval ill and other diseases should not be compromised with the occasional attendance by specialist doctors. The more delay in treating the animal, the more loss incurred in the enterprise. A routine testing for prevailing diseases like Foot and Mouth Disease (FMD), Johne's disease (JD) or paratuberculosis, tuberculosis, brucellosis and Campilobacteriosis and conditions like mastitis and malnutrition; vaccination, quarantine, isolation, sero-surveillence and keen observation for illness or abnormal behaviour are the key to effective dairy farm management. For eradicating the endo- and ecto-parasites, regular deworming and spraying should be performed. Maintenance of proper health register should not be irregular and casual as that forms the basis of future perfection in management of health of dairy stock. Today's emerging trend for using animals that are genetically resistant to the common/prevailing diseases may be integrated, if possible, into the selection of healthy animals.

LABOUR

Among different managemental inputs, the labour/manpower component is the most critical one while the economic effectiveness of a dairy farm is judged. The vast Indian population, though gives an option for exerting a more intense selection pressure, is a liability in the sense that choice of skilled and efficient manpower is a difficult task in itself largely due to skewed unscrupulousness of middleman involvement as an employment option. However, to ensure the right person at the right place in the right time is the utmost necessity while managing personnel for an effective dairy farm. The sense of belonging, feelings of possession and owning the dairy farm should be the basic *mantras* if the dairy farm is to become economically sustainable.

RECORDS

For the efficient input management in a dairy farm, the most important but often disregarded aspect is keeping proper and exact records. The maintenance of farm as well as business records should be as meticulous as possible for enhancing the effectiveness of management of a dairy farm. The records, if kept properly and referred timely, lead to avoidance of the management situations that have tendency of incurring unnecessary loss to the enterprise.

REPRODUCTION MANAGEMENT

To ensure the ability to reproduce as per the desired management option, the selection of stock with best reproductive efficiency is a must. The usual practice of 'get a calf a year' is the best for the effective running of dairy farm but the problem lies with planning of the said practice that requires other inputs to be streamlined properly to the desired direction. Thus, the maintenance of scheduled running of production-reproduction axis by appropriating heat detection, exacting the insemination time, inseminating with good quality semen and maintaining breeding records is to be assured for outlining the strategic management decisions involving the inputs of production. The higher expected breeding value (EBV) in females and the more sire index value (SIV) in males definitely ask for the basis of selection to reach the fundamental goal of required reproduction/genetic make-up.

Reproduction is the conjecture between the 'non-productive' and 'productive' on a dairy farm and thus is a very critical point to appeal considerations while the economic management decisions are taken. The changes in physiology, behaviour and attitude of the animal, that occur while animal reproduces, should be properly guarded by providing nutrition, micro-environment and other factors so that the comfort and production levels are properly balanced. Thus, the reproduction management in terms of maintenance of sexual health, managerial intricacies during parturition and ensuring neonatal survivability, helps in effective running of a dairy farm.

LACTATION MANAGEMENT

Based on the knowledge of milk biosynthesis, the feeding and nutrition of the milch animal should be such that the same could support the constant and ample supply of the precursors of milk constituents, that too at the lowest cost. The standard lactation length of 305 days should be maintained by employing suitable 'drying off' technique avoiding any further chance of exposing the animal (that is already under stress of pregnancy or, may be growth) to any specific or non-specific health hazards. The old adage 'milk is from the mouth of the cow' should always be kept in mind while feeding a lactating animal. The persistency of lactation as well as lactation yield should be at the recommended level. The provision of clean environment while milking and the quality ensuring measures during subsequent milk handling are the pre-requisites for the availability of clean and quality milk. This would, on the other hand, enable the farm management to obtain various marketing opportunities as the clean and quality milk is the basic requirement for increasing shelf life of this very perishable commodity and manufacture of quality dairy products.

SELECTION AND CULLING

The desired stock should be maintained on a dairy farm based on the production performance as has been discussed in earlier sections. On the other hand, the undesired stock, surplus heifers and replaced old cows require to be culled from the farm and suitably disposed of through the conventional ways as per management options available. While the selection is mainly based on the lactation and reproduction performance of the stock, the culling largely regulates the herd strength and maintains the same level of herd performance. The culling should done regularly as per the concerned management decision at an optimum rate for proper reasons otherwise there would be a fair chance of losing a better animal by retaining inferior one.

CONCLUSION

Thus, to conclude, the practices involving dairy farm management for its effective running should ensure a healthy stock of high genetic potential for milk production that is fed well, bred in time and adequately sheltered. The stock should be of high reproductive efficiency and have optimum lactation length with desired persistency and yield to make the farm running in efficient and economic way, provided that the labour issues are desirably addressed.

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