



Review Paper

Strategies for Sustainable Dairy Farming in India: A Review

Shahi Sudhir Kumar¹, Singh Rajvir², Mishra U.K.³ and Mishra D.J.⁴

¹Dept. of A.H. and Dairying, Janta College, Bakewar, Etawah, UP, INDIA

²Dept. of Agronomy, Janta College, Bakewar, Etawah, UP, INDIA

³Dept. of Ag. Botany, Janta College, Bakewar, Etawah, UP, INDIA

⁴Dept. of Soil Science and Ag. Chemistry, Janta College, Bakewar, Etawah, UP, INDIA

Available online at: www.isca.in

Received 17th August 2012, revised 27th August 2012, accepted 29th August 2012

Abstract

Livestock production is the vital sector which action a major source of income to the impoverished rural households throughout the world. Live stock equip people with food, income, draught power and fertilizer and act as the major livelihood means of millions of our country, where crop farming faces challenges India is one among the fastest growing economics of the world and mainly depends on the agrarian sector as a tool for progress. Dairy sector is emerging as the highest contributor to the agricultural wealth of India, surpassing even cereals. India is the highest milk producing country in the world contributing 17% of the world production. The annual milk production in India has reached 121.50 million tones in 2011 against the 17 million tonnes in 1951 and the annual growth rate in this sector is 4 % which is nearly three times that of the world. Sustainable dairy farming is an interaction of many factors that influence production and reproduction environment, longevity of live and input management.

Keywords: Dairy farming, livelihood, livestock, sustainable.

Introduction

The contribution of dairy animal is widely recognized. Our country is blessed with vast dairy resource. Dairy farming involves a group of interaction of many factors that influence production and reproduction, environment and management. Dairy cooperatives cover about 60,000 villages all over India and only 12-14 per cent of total milk production is canalized through organized sector¹. Concerted efforts should, therefore be directed towards unorganized dairy farmers by providing necessary inputs and make them to adopt newer milk production technologies. India has become the world's largest milk producer but its share in the world milk trade is very minimal. An attempt to identify problems of the farmers and to resolve the same for improving the export earning and higher returns to dairy farmers is discussed in this paper. Various tips have also been given for efficient identification and formulation of dairy husbandry. Ever since the creation of mankind, the major thrust has been on the search for food for existence. Thus, for human population, the nature provided a continuous supply of food. Plants and animals were utilized by man as foods during the prehistoric period. Subsequent domestication of animals and evolution of crop raising activities made animals farming as a subsidiary to agriculture. In western countries, animal husbandry is even now referred to as 'Animal Agriculture'. However, of late, dairy industry has shown the ability to sustain itself as a profitable industry in many sphere over-powering the traditional dominance exercised by agriculture. This trend is witnessed all over the world. Fortunately, our country is blessed with vast dairy resources. Cattle and buffaloes population are

the highest in India (Annual report, 2000).

Dairying is acknowledged as the major instrument in bringing about socio-economic transformation of rural poor in our country. Milk is the second largest agricultural commodity produced in our country next only to rice. India's bovine population is about 19.2 per cent of world's and 51.0 per cent of Asia's population with annual production of about 121.50 million tons of milk (2011). Considering the biological value of milk protein, our traditional habit of including milk in daily dietary have been one of the most important factors that had saved millions of children of our country from developing malnutrition syndromes.

Since, ever growing human population is making scarcely available land still more scarce, our aim to improve milk output should be by way of improving productivity of the animals rather than increasing the heads of bovine population². Concerted efforts should henceforth be directed towards the dairy farmers contributing major proportion of our country's milk production to provide necessary input and make them adopt newer technologies in breeding, housing, feeding, rearing and health care to ensure substantial growth in milk output.

Further, even though India has become the world's largest major milk producer with the cost of milk production being very low next only to New Zealand, its share in world's milk trade is very minimal. Exports earnings through ghee, skim and whole milk powders are increasing, while import of special cheeses and

butter oil is also showing an increasing trend. Under the most favorable environment, created by WTO agreement, to improve our export earning through this sector and ensure better returns to dairy farmers, research efforts should be directed towards new product development through biotechnology (genetically modified cultures and convenient packaging, ensuring, higher shelf life). Further, improved compliance to milk food legislation and conforming to international standards will also aid in improving export avenues for dairy products. Indian dairy industry is so well developed on modern lines. It has acquired the technologies and engineering capabilities so well that now it is in a position to even export such technologies to other nations. **Problems Confronting Sustainable Dairy Production:** There is wide variation in (i) agro-climatic condition, (ii) biodiversity and ecology (iii) socio economic and cultural background of people, (iv) types/breeds of dairy cattle reared.

It is therefore necessary to plan for dairy development specific to each micro level, viz., a block, a village, a taluk and a district. This planning not only would result in optimum utilization of local resources, but will also ensure better viability of the programs and higher cost benefits ratio³. Before embarking on planning and formulation of dairy development programs, it is necessary to consider environmental impact (water bodies' pollution, over grazing of grasslands, degradation of watersheds, deforestation). Nowadays, environmental aspect is very much stressed by the private parties and multinational agencies while funding the

animal husbandry projects. Notwithstanding above consideration, it is essential to adopt the following tips for efficient identification and formulation of animal husbandry and veterinary projects:

Need for identifying such technologies, which demand less capital, less time and minimum operations. Need to explore the possibilities of providing loans at the lowest interest rates with subsidies for dairy development activities. Need for Gradual improvement of existing indigenous breeds of animals. Need for Gradual removal of useless stock and replacement with high yielding superior quality animals. Need to Gradual manipulation in husbandry practice for improving animal productivity and adoption of biotechnological interventions in feed and fodder, reproduction and growth aspects. Need for Government role in improving the supply of inputs and service to dairy farmers / beneficiaries at their doorsteps with minimum cost. Need Contribution from various nongovernmental agencies/organization to ease the problems of farmers in association with the governmental agencies. Need for developing viable farmer's cooperatives societies / federations like, milk producers cooperative societies at village and district levels, federations, boards and corporations. Need for simultaneous development of cold chain storage and marketing facilities especially for milk and milk products. Need for extensions services from the Government, Agriculture Universities, R&D institutions, federations and corporation, besides mobilization of various input services from various agencies.

Table -1
Per Capita Availability and Production of Milk in India

Year	Per Capita Availability of Milk (g/day)	Production (Million tones)
2001-2002	222	80.9
2002-2003	234	85.9
2003-2004	237	89.4
2004-2005	240	92.2
2006-2007	246	100.9
2007-2008	252	104.8
2008-2009	258	108.5
2009-2010	263	112.5
2010-2011	281	121.80

Source: Economic survey 2011-12, ministry of Finance Govt. of India

Planning a Sustainable Dairy Project: It may be useful to consider the following information for planning and development of new dairy husbandry and veterinary projects which would be sustainable throughout⁴.

Dairy Cattle Population: First step is to know the existing number position of dairy animals in the different dairy sub zones of the country through available records such as Census report of both human and dairy cattle populations, reports of survey conducted, actually conducting a sample survey, with these records, we can obtain the appropriate information for identification and development of suitable dairy development projects and schemes at grassroots level.

The information can be classified as follows: Number of cattle, buffalo, total males and females, females in milk, dry and pregnancy, males as breeding bulls, young males and females, etc.

Work animals: regional requirement and availability of drought animals.

Productivity-high yielder, low yielder, etc. in respect of milk Breed-Non-descript, indigenous, exotic upgraded or crossbreed etc.

Feed Resources Available: Pasture grazing land Green fodder available and short falls in supply Availability of dry fodder Concentrate, type and cost, quality, brand Mineral mixer.

Categories of Holdings: One is landless agricultural workers, marginal, small, medium and large farmers. Other is extent of Usage of Natural Resources like Land, Human (labor), Capital and entrepreneurship.

Existing Infrastructure facilities: Veterinary hospitals, dispensaries, and rural veterinary dispensaries (veterinary primary health centers).

AI centers- AI breeding facilities with liquid or frozen semen.

Semen banks – semen collection, evaluation and freezing, facilities with adequate facilities for storing, of frozen semen.

Cooperatives – primary / secondary societies for meeting the farmers demands and provision of inputs inclusive of soft term, short term and medium term loans.

Extension services – Animal husbandry and dairying.

Chilling centers – Milk collection and chilling units and transportation to processing units.

Feed plants – manufacturing of compounded feed.

Availability of manpower.

Drought Power: Worldwide, animals are stills very important source of power for agriculture operations and for transportation of goods and people. It is widely used in developing countries like ours. Bullocks, buffaloes, horses, mules and camel are very widely use in our country for drought purpose and their role in saving of energy and there by the most precious foreign exchange⁵. It is estimated to be Rs. 45,000 crore per year. It should be emphasized that depleting levels of fossils fuels may slow down or even reverse the mechanization trends witnessed even in developed countries.

Conclusion

Dairy industry is poised to play a major role in our nation's economy in the years to come. The value of milk is set to achieve a new boom. The industry's major contribution in providing newer avenues for employment, both direct and indirect, and its role in improving the nutritional standards of our people also add to the importance that needs to be attached to this sector during the 21st century.

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