Organic Dairy Farming for Sustainable Livestock Production

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Abstract
Organic Dairy farming involves raising animals on organic feed (i.e. pastures cultivated without the use of fertilizers or pesticides), have access to pasture outside, along with the restricted usage of antibiotics and hormones. Organic livestock must be fed with organic feed except under very unusual circumstances like national, state or local weather emergency or a fire or flood on an organic farm. Among the allowed (acceptable) materials are: feeds produced through organic production practices, natural vitamin and mineral supplements, and fresh water from sources where contamination is unlikely. In organic dairy farms breeding goals should not be at variance with the animal’s natural behaviour and should be directed towards good health. The organic approach to animal health care focuses on prevention of disease through diet, shelter, breeding and husbandry practices, rather than treatment. Organic certification of the farm is important for producers of organic food and other organic agricultural products. In India “National Standards for Organic Production” is governed by “APEDA”, which provides standards for organic products. Though market price for organic products like milk is considerably higher, the consumers are willing to pay for the food quality, and hence there is an advantage over conventional milk.

Keywords: Organic, Dairy farming, Sustainable Livestock.

1. Introduction
Organic farming was practiced in India since thousands of years. The great Indian civilization thrived on organic farming and was one of the most prosperous countries in the world, till the commencement of British rule. The organic movement is built on a fundamental principle: healthy soil leads to healthy crops, healthy animals, healthy humans, and a healthy planet. Organic crop and livestock production focuses on building soil organic matter and biology to create a sustainable, dynamic environment for producing healthy food and feed. Organic dairy surged into the organic market place in the 1990s, establishing itself as a major category.

Organic dairy farming is, raising the animals with the use of organic and biodegradable inputs from the ecosystem in terms of animal nutrition, animal health, animal housing and breeding. It deliberately avoids the use of synthetic inputs such as drugs, feed additives and genetically engineered breeding inputs.

2. Objectives of organic Dairy farming
- To raise animals in a system that takes into consideration, the wider issues of environmental pollution, human health on consumption of animal products allowing them to meet their basic behavioral needs and reduce the stress.
- To produce healthy animal products which are free from toxic chemical residues.
- Exploit the natural behavior of animals in their production systems to reduce stress.
- Use of low external input which lessens the cost of production and allows for a sustainable system of production since most materials can be recycled in the farm and also made locally available.
- Bridging the nutrients gap in soil, crops and animals i.e. animals feeding on crops and cultivated crops by products.
To promote animal welfare by using humane methods of production and utilization of farm animals.

3. Process of Organic dairying
To have the paradigm shift to the organic animal husbandry system, a specific conversion period is essential before it is certified. The conversion period from a conventional to an organic livestock may be a combination of three synergic types of actions, which include Fodder / feed conversion, Animal husbandry system conversion and Ideological conversion of the farmer.

3.1 Transition / Conversion Period
The time between the start of organic management and certification of crops and animal husbandry is known as the conversion period. For 12 months prior to first sale of organic milk, all production animals on the farm, (milking cows, dry cows and young heifers) must be fed either certified organic feed or feed grown on land that is part of the farming operation and is in its last year of conversion to organic-in other words, it is between 24 and 36 months that the land has been free of prohibited materials.


4.1 Brought-in Animals / Origin of Animals
All animals intended for organic milk production must be born and raised on organic farm. When organic animal is not available, certification programme shall allow calves up to 4 weeks old that have received colostrum and are fed a diet consisting mainly of full milk (Thirumurugan and Singh, 2008).

4.2 Living conditions (Housing)
Living conditions should promote good health and accommodate the natural behaviour of the animal. These living conditions must include access to the outdoors, shade, shelter, fresh air, direct sunlight suitable for the particular species and access to pastures for ruminants and appropriate clean, dry bedding – if the bedding is typically consumed by the animals, it must comply with the feed requirements (should be organic only). Manure must be managed in ways that do not contaminate crops, soil or water by plant nutrients, heavy metals, or pathogenic organisms; also management should include maximum recycling of nutrients.

4.3 Mutilations
The animals’ distinctive characteristics should be respected; species shall be chosen which do not require mutilation. Mutilations shall be allowed only in exceptional cases and shall be kept to the minimum to reduce suffering of animals. Dehorning and castration should be performed in a way that causes the least amount of stress to the animal. Tail docking is not allowed in dairy cattle unless there is a health problem that cannot be cured any other way, such as incurable wound.

4.4 Breeds and Breeding
Disease prevention in organic livestock production is preferably based on the principle that appropriate breeds or strains of animals should be selected. Breeds should be chosen which are adapted to local conditions and breeding goals should not be at variance with the animal’s natural behaviour and should be directed towards good health. Breeding systems are based on breeds that can both copulate and give birth naturally. Artificial insemination is allowed but embryo transfer techniques, hormonal treatment and induced birth are not allowed in organic dairying unless applied to individual animals for medical reasons and under veterinarian advice. The use of genetically engineered species or breeds is not allowed and bulls do not need to be managed organically unless they are to be sold as organic slaughter animals.

4.5 Nutrition and Feeding
The animals should be fed 100 per cent organically grown feed and fodder without use of chemical pesticides or artificial fertilizers and is free from genetically modified organisms, and manure/fertilizer should come from organically kept animals and more than 50 per cent of the feed shall come from the farm unit itself or shall be produced within the region except under very unusual circumstances such as a national, state or local weather emergency or a fire or flood on an organic farm. Among the allowed (acceptable) materials are: feed raised by organic production practices, natural vitamin and mineral supplements, and fresh water from sources where contamination is unlikely. However, in some cases 15 per cent of total feed could be obtained from conventional farms. The use of conventional feeds, synthetic growth promoters or stimulants, synthetic appetizers, preservatives, artificial colouring agents, urea, farm animal by products to ruminants, all types of excreta, feed subjected to solvent extraction or the addition of other chemical agents, pure amino acids, and genetically engineered organisms or products thereof are not allowed. Synthetic milk replacers are prohibited. Calves must be fed on organic milk only.

4.6 Grazing management
Mixed grazing of a pasture by different species such as cattle and sheep (but not sheep and goat) together may reduce the infection as a very little cross infection of parasites occurs between animal species. There are certain species of worms that affect only a particular ruminant species. Alternate grazing of two or more ruminant species has been shown to be of value in controlling some species of parasites (Patra, 2007). Grazing management incorporating varying grass pasture species, forage crops containing condensed tannins and rotation may offer a challenge towards a system whereby parasites can be controlled without the use of anthelmintics.

4.7 Animal Health and Welfare

The organic approach to animal health care focuses on prevention of disease through diet, shelter, breeding and husbandry practices, rather than treatment. It is not possible to eliminate all animal disease, but when disease does occur a healthy animal is in a better position to cope with it. Organic dairy farming aim is to minimize physical or psychological stress in livestock in order to promote well-being and reduce the incidence of disease and has an explicit goal of improved animal health and welfare. Herd health problems on organic dairy farms are similar to those seen on conventional farms and important objective of organic dairy farming is to avoid use of routine and/or prophylactic use of conventional veterinary medicines and to use only natural medicines and methods like homeopathy, ayurvedic medicine and acupuncture (Neeson, 2007).

The use of conventional veterinary medicines allowed when no other justifiable alternative is available with the withholding period being twice the legal period. Organic certifiers require written verification from a veterinarian to confirm the presence or threat of disease infection prior to approving the application of the treatment. Where conventional veterinary medicines are used, the withholding period shall be at least double the legal period (National Program for Organic Production, 2005). The regulation states that animals lose their organic status if they are treated 3 times or more with chemical-synthetic allopathic drugs or antibiotics within one year and full records of all the treatments must be kept.

Vaccines shall be used only when diseases are known or expected to be a problem in the region of the farm and where these diseases can’t be controlled by other management techniques. However, all synthetic medicines and genetically engineered vaccines are prohibited (Thirumurugan and Singh, 2008).

Records must be kept on all feeding and health care practices for each animal or flock, and there must be a verifiable audition to trace any animal or flock back to the farm. This includes where all animals were acquired, and some records on the conditions of the farm where animals were born and how they were raised. There are specific requirements for different livestock species. Producer must maintain adequate records to preserve the identity of all organically managed animals, edible and non-edible animal products produced in the operation.

5. Organic Certification

A written assurance is given by the Certification Agency that a clearly identified production or processing system has been methodically assessed and conforms to the specified requirements. APEDA (Agriculture and Processed Food Products Export Development Authority) and NSOP (National Standards for Organic Products) are the important certifying agency. For Indian condition in case of small farmers, Group Certification is convenient as this step is investment intensive and there are 20 Accredited Certification Agencies (ISO-17011) in India.

5.1 How to get certified

Farmers must first register with an acknowledged inspection body or authority in their country and according to an agreed conversion plan they have to undergo a conversion period of a minimum of two years before they can begin producing dairy products that can be marketed as organic. During this time, the farm is said to be ‘in-conversion’. If farmers wish to produce both conventional and organic products, these two operations must be clearly separate throughout every stage of production. They must be subject to inspections by acknowledged inspection bodies or authorities to ensure their compliance with organic legislation and the successful operators are then granted organic certification and are allowed to have their goods labeled as organic. To certify a farm, the farmer is typically required to engage in a number of new activities, in addition to normal farming operations:

- Study the organic standards, which cover in specific information about what is and is not allowed for every aspect of farming, including storage, transport and sale.
- Farm facilities and production methods must comply with the standards, which may involve modifying facilities, sourcing and changing suppliers.
Extensive documentation is required, detailing farm history and current set-up, and usually including results of soil and water tests.

Written annual production plan must be submitted, detailing everything from origin of animals to sale of milk, feed sources, farm locations, disease and parasite control activities, market locations, etc.

Annual on-farm inspections are required, with a physical tour, examination of records, and an oral interview.

Annual inspection/certification fee (currently starting at $400–$2,000/year, in the US and Canada, depending on the agency and the size of the operation).

Record keeping of day-to-day farming and marketing records, covering all activities, must be available for inspection at any time.

In addition, short-notice or surprise inspections can be made, and specific tests (e.g. soil, water, plant tissue, milk test) may be requested.

6. Marketing

According to the Organic Alliance (www.organicalliance.org), organic premium prices range from 20 per cent to 400 per cent above conventional prices, depending on the season and availability of the product. Four different types of organic labeling for the products are as follows:

Reference


Milk labeled “100 percent Organic” must contain 100 percent organically produced ingredients.

When labeled “Organic” must contain at least 95 percent organic ingredients.

Packages that state, “Made with Organic Ingredients” must contain at least 70 percent organic ingredients.

Packages that claim their products have some organic ingredients may contain more than 30 percent of conventionally produced ingredients and other substances.

Added water and salt are not counted as organic ingredients. The use of the USDA Organic Seal can only be used on the 95% and 100% organic products.

7. Conclusions

India has some excellent breeds of indigenous cattle and buffaloes possessing natural resistance against many diseases. These breeds are well adapted to Indian climate and food availability situations. Most of the dairy husbandry practices are traditional with a close resemblance to prescribed organic practices. It is an opportunity to convert our advantages into fruitful gains. Small holding, low level of literacy, lack of information, high stocking density, inadequate food and fodder, high cost of certification, absence of marketing facilities are some hindrances in the way of conversion from traditional to organic.


