

## Organic Dairy Farming

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### Abstract

India is world largest milk producer country. However, indiscriminate and intensive use of chemical fertilizers, pesticides and other technologies over decades had adverse consequences for the quality of milk and milk products due to the presence of contaminants and pollutants and residual effects of these chemicals. Due to this, the interest in organic dairying is increasing at a rapid pace worldwide. Around 40% of the farmers had favourable beliefs towards organic farming because of its sustainability, health benefits and non-permissibility of chemical fertilizers and herbicides. On comparing with the nutritional quality between conventional versus organic products, it is found that organic dairy products contain significantly higher protein and unsaturated fatty acids than those of conventional types.

### Introduction

India is world largest milk producer country. However, indiscriminate and intensive use of chemical fertilizers, pesticides and other technologies over decades had adverse consequences for the quality of milk and milk products due to the presence of contaminants and pollutants and residual effects of these chemicals. Due to this, the interest in organic dairying is increasing at a rapid pace worldwide with faster growth in demand of organic milk and milk products. In many regions of the country the dairy farming practices where green revolution technologies have not reached in a big way are already organic by default. Therefore, the conversion to organic dairy farming mode will be much easier in India.

The word organic signifies food or farming methods practiced without using artificial chemicals i.e. something natural and inherently good. The primary goal of organic agriculture is to optimize the health and productivity of independent communities of soil life, plants, animals and people. In organic

farming not only the final product but whole production process should comply with organic rules (Chander, 2001). The primary goal of organic agriculture is to optimize the health and productivity of independent communities of soil life, plants, animals and people.

### Potential of organic dairy farming in India

India has a huge potential of organic milk production. Dairy production practices in India are not highly intensive as is the case with other developed countries in dairying. Some of the agro-climatic regions of the country are best suited for organic milk production. These areas include the rain-fed areas of Rajasthan, Gujarat, Madhya Pradesh, the hilly areas of Himachal Pradesh, Uttarakhand, Jammu and Kashmir, Tamil Nadu and whole of North-Eastern region. Some areas in the country (especially mountain areas and communities (certain tribes) where the green revolution technologies have so far not reached and did not adopt the use of agro-chemicals. These areas classified as Organic Zones (Singh, 2007). The north eastern region provides considerable scope and opportunity for organic farming due to least utilization of chemical inputs where it is estimated that 18 million hectares of such land is available which can be exploited for systematic organic production (Ghosh, 2006). The Trans-Gangetic plains region of Punjab, Haryana, Western U.P. and parts of Rajasthan have witnessed the most intensification of crop husbandry by way of intensive crop rotations and the heavy use of inorganic fertilizers and agro-chemicals. The organic dairy farming has a good scope in the country as it is the small holder low input, crop residue/fodder-based production system contributing 70% of total milk production.

### Farmer's perception towards organic dairy farming

Good knowledge about organic farming, positive perception towards environmental

conservation and ability to spend more time on farming contributed to develop a favourable attitude towards organic farming (Herath and Wijekoon, 2013).. Around 40% of the farmers had favourable beliefs towards organic farming because of its sustainability, health benefits and non-permissibility of chemical fertilizers and herbicides (Singh and George, 2012).

### **Conventional dairy versus organic dairy**

In organic farming cost of organic food is higher, higher veterinary cost per cow and low average milk production were observed in contrast to conventional dairy farming (Berentsen et al., 2012). On comparing with the nutritional quality between conventional versus organic products, it is found that organic dairy products contain significantly higher protein and unsaturated fatty acids than those of conventional types (Palupi et al., 2012). Cows in organic herds had lower production and better fertility than cows in conventional herds. Milk fat, proteins yields were lower in Organic production. The total number of inseminations was lower and the conception at first insemination was higher with conventional production.

### **Constraints faced by dairy farmers in adopting organic dairy farming**

Cent percent of cattle owners reported high cost of cattle feeds as the main problem in adoption of recommended organic dairy practices, followed by lack of information, low rate of milk, loan sanctioned by the bank is inadequate and untimely, lack of veterinary clinic nearby the village, lack of green fodder availability due to poor irrigation facilities, shortage of labor, lack of dairy co-operative societies for milk sale, lack of milk processing facilities and lack of transport facilities (Pawar, 2010). Exhaustive paperwork for the certification process and high compliance expanses as well as procuring organic inputs such as grains and forages, feed additives, high production costs etc. (Orungati, 2011). The primary barriers to organic practice adoption were a lack of financial facilities, technical advice and timely availability of organic inputs (Reddy et al., 2012). Milk producers facing a lack of knowledge about recommended quantity of feed and fodder, repeat

breeding of milch animals in breeding constraint, milk co- operative societies located at remote locations in milk marketing constraints and un availability of animal insurance facility in infrastructural constraint. Lack of scientific housing in housing constraints (Meena et al., 2020).

### **Pesticides residues in animal's feed, water and milk**

Prasad and Chhabra (2001) studied the concentration of pesticides residues in animal fodders in India and observed that the use of these chemicals has polluted fodder and animal feed concentrates resulting in contamination of milk and milk products, eggs, meat and meat products consumed by human beings. DDT and BHC residues monitored in samples collected from the states of Haryana, Punjab, U.P and Delhi, clearly indicated that there is definitely a decline in content of above residues in milk but their existence cannot be ruled out because they are persistent in nature and get recycled into the biosystem through soil, water and manure. The organophosphate pesticide compounds are readily decomposed by physio-chemical and enzymatic processes in plant and animal systems, therefore, they are less persistent. However, some of the less popular and fat-soluble organophosphorus pesticides like acephate, diazinone, phorate, chlorpyrifos and malathion have been detected in foods with high fat content including dairy products Residues of OPP (malathion) was detected in animal feed concentrate(0.15mg/kg) and fodder(0.73mg/kg) in samples collected from Ludhiana district of Punjab (Kang et al., 2002).

### **Quality of organically produced milk versus conventional milk**

Studies conducted to investigate the relative presence of pesticide residues in organic as compared to conventional products showed lesser presence of pesticide residues in organic milk although organic milk may not be completely pesticide free. However, some of the studies showed that there were no differences in pesticide content between organic and conventional food of animal origin. The level of conjugated linoleic acid (CLA) which is one of the beneficial fatty acids was 60% higher in organic milk than in conventional milk. Cows that ate grass and

clover instead of grain exhibited higher levels of CLA, alpha linoleic acid (ALA), alpha linoleic acid (ALA), alpha tocopherol (vitamin E) and three carotenoids (beta-carotene, lutein and zeaxanthin) in their milk than conventionally reared cows. However, no major differences have been established in terms of composition between from conventional and organic production. The organic process itself is not a sufficient condition for guaranteeing the absence of contamination from pesticides, mycotoxins, bacteria, parasites etc. Organic farming is a way to protect the environment. This may be the highest quality of organic production systems that will be the future benefit to everybody on earth (Kouba, 2003).

### Organic certification standards

The standards for organic production are basic requirement for organic production of livestock, crops, fisheries etc. since the production of livestock, crops, fisheries etc. Since the production has to be in accordance with these standards. The certification bodies monitor the adherence to these standards by the organic producers. Therefore, most of the countries have national certifying body or agencies that certify the production management system as organic. Without their certification, products cannot reach the consumers as organic.

### Practices in organic animal husbandry in India

#### General principles

Management technique in animal husbandry should be governed by the physiological and ethological needs of the farm animal in question. This includes:

- Animals should be allowed to conduct their basic behavioral needs.
- All management techniques including those where production levels and speed of growth should be concerned, for the health and welfare of the animals.

#### Recommendations

For welfare reasons, the herd or flock size should not adversely affect the behavioral patterns of the animal.

#### Standards

The certification programme shall ensure that the management of the animal environment takes into account the behavioural needs of the animals and provides for

- Sufficient free movement.
- Sufficient fresh air and natural day light recording to the needs of the animals.
- Protection against excessive sunlight, temperatures, rain and wind according to the needs of the animals.

### Length of conversion period

#### General principles

The establishment of organic animal husbandry requires an interim period, termed the conversion period.

#### Recommendations

- The whole farm, including livestock should be converted according to the standards set down. Conversion may be accomplished over a period of time.
- Replacement poultry should be brought onto the holding at the start of the production enterprise.

#### Standards

- Animal products may be sold as organic agriculture only after the farm or relevant part of it has been under conversion for at least 12 months and providing the organic animal production standards have been met for the appropriate time.
- The accredited certification programme shall specify the length of time for which the animal production standards shall have been met. With regard to dairy and animal production this period shall not be less than 30 days.

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