

Organic livestock husbandry: An approach to welfare & sustainability

SANJITA SHARMA^{1*} and VISHNU SHARMA²

Post Graduate Institute of Veterinary Education & Research (PGIVER)
Rajasthan University of Veterinary & Animal Sciences
Jaipur-302004, Rajasthan

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Organic term primarily and simply reflects something very close to nature, ethics and tradition in general and involves principles that generate products of high quality, coherent with environment in particular²³. According to the Codex Alimentarius Commission and all existing national regulations, "*organic production is a holistic production management system that avoids use of synthetic fertilizers, pesticides and genetically modified organisms, minimizes pollution of air, soil and water, and optimizes the health and productivity of interdependent communities of plants, animals and people*". Organic farming is being promoted as an ideal practice in addressing the environmental protection, food safety and sustainability concerns. The thought of organic farming is to establish and maintain soil-plant, plant-animal and animal-soil interdependence and to create a sustainable agro ecological system based on local resources. The most important characteristic of organic farming is the emphasis on the production process rather than the product itself.

ORGANIC LIVESTOCK PRODUCTION

Farm animals make important contributions to organic farming systems¹³ and animal agriculture is an integral part of most organic farms. Organic livestock husbandry is based on the harmonious relationship between land, plants and livestock, respect for the physiological and behavioural needs of livestock and the feeding of good-quality organically grown feedstuffs⁹. Organic animal husbandry has developed slower than organic plant production since organic movement has developed primarily from environmental concerns, with an

early focus on soil fertility and human health. The situation for organic livestock farming has however changed radically during the past decade even though; organic livestock production faces major challenges with regard to harmonization and successful integration of organic animal husbandry into the whole organic production system⁷.

Livestock farming is an integral & important part of organic farming systems²⁷ both as a part of the concept and in practice, forming a system with harmony between the land, the animals, and the people. Good animal health and welfare are important parts of an organic animal system whereas main aspects of criticism were the increasing use of chemical substances, especially mineral fertilizers and pesticides. The guidelines have been formulated and developed by the International Federation of Organic Agriculture Movements⁸ and meanwhile have found application all over the world. Furthermore, the basic standards of IFOAM have been used as the baseline for developing the regulation. These standards are then elaborated into more detailed standards by national or local certification organizations.

ORGANIC LIVESTOCK UNDER NPOP – INDIAN SCENARIO

Government of India has launched the National Programme on Organic Production (NPOP) in the year 2000 which provides information on standards for organic production criteria and procedures. The standards and procedures have been formulated in harmony with international standards such as CODEX and IFOAM. A number of improvements have been made in the NPOP document keeping international requirements in mind. NPOP standards also take care of the organic livestock production. Salient features covering organic livestock production standards are as follows-

1* Corresponding author: Professor and Head, Post Graduate Institute of Veterinary Education & Research (PGIVER), Rajasthan University of Veterinary & Animal Sciences, Jaipur

2 Professor and Dean (PGIVER), Rajasthan University of Veterinary & Animal Sciences, Jaipur

- Animal husbandry management should be governed by physiological and ethological needs of the farm animal so that animal is allowed to conduct basic behavioural needs.
- Flock size should not adversely affect behavioural pattern and sufficient free movement should be allowed.
- Land less animal husbandry system shall not be allowed.
- Herd/ flocked animals shall not be kept individually.
- Animal product may be sold as organic only after the farm has been under conversion period for at least 12 months and standards have been met for appropriate time.
- Appropriate time for dairy and egg production is 30 days and for meat production organic standard should be followed for 12 months.
- All organic animals should be born and raised in organic holdings however when organic livestock is not available, the certification programme brought- in conventional animals.
- Breeds should be chosen which are adapted to local conditions.
- A.I. is allowed but ETT is not allowed in organic standards.
- Hormonal heat treatment and induced birth not allowed.
- Mutilations not allowed except castration, tail docking of lambs and dehorning.
- The livestock should be fed 100 % organically grown feed of good quality.
- Agro-products from organic feed processed industry should be used.
- At least 50 % of the feed should come from the farm itself
- Synthetic appetizers, preservatives, colouring agent, urea, abattoir waste, droppings & dung, solvent extracted meal and genetically engineered organism or products shall not be included in feeding programme.
- Fodder preservatives as fungi and bacteria may be used. Molasses are allowed.
- Management practices should be directed to the well being of animal for achieving maximum resistance to the disease and preventing future infections
- Use of natural medicines and methods should be emphasized.
- Use of conventional medicines is allowed when no other justifiable alternative is available.
- Vaccination shall be used when diseases are known or expected to be a problem in the region and cannot be controlled by management practices. In such cases it needs to be clearly defined.
- Transport and stress should be minimized to slaughter the animal and preferably stunning should be employed before being bled to death.

The standards and procedures have been formulated in harmony with international standards such as CODEX and IFOAM. Government of India has launched the National Programme on Organic Production (NPOP) in the year 2000 which provides information on standards for organic production criteria and procedures. National centre for organic farming (NCOF) established at Ghaziabad with its 6 regional centers (RCOF) at Bangalore, Bhubneshwar, Hisar, Imphal, Jabalpur & Nagpur. Few states like Uttarakhand, Mizoram, Sikkim & Nagaland declared intention of the states to go totally organic.

WELFARE MANAGEMENT

Animal welfare has been a concern in organic farming^{1, 14, 17, 20} and included in standards dealing with transport and slaughter⁹. In spite of this, the welfare status of animals in organic farming has been debated. In several countries critics have questioned whether organic production methods imply good animal welfare^{4, 10}. Transport and stress should be minimized to slaughter the animal and preferably stunning should be employed before being bled to death. Organic animal standards may be used as the yardstick to measure animal welfare

even in conventional non-organic forms of livestock production systems. Based on available literature the actual welfare situation in organic systems was scrutinized¹² and concluded that animal health is as good or better than in conventional farming—with the exception of parasitic diseases. Organic farming systems have a welfare potential, but organic farmers must deal with the dilemmas and take animal welfare issues seriously. Generally, except for parasite-related diseases, health and welfare in organic herds are better than in conventional herds. Dam-rearing, which is compulsory in organic farming can improve carcass quality and affect animal behaviour, which, in turn, is a widely used welfare indicator¹⁶. Equally important, proper handling, comfortable transport and humane slaughter assures better meat quality from small ruminants

The objective of organic livestock management, though not yet achieved, is to create a nearly closed nutrient cycle. Animal husbandry management should be governing by physiological and ethological needs of the farm animal so that animal is allowed to conduct basic behavioral needs. Flock size should not adversely affect behavioral pattern and sufficient free movement should be allowed. The number of animals per holding and the stocking density are limited in organic farming, both for ethological reasons and in order to prevent nutrient losses⁶. These confined and intensive livestock systems lead to high nutrient excess on the farm level. Landless livestock production systems can rarely be found in organic agricultural systems. Land less animal husbandry system shall not be allowed. The concept of organic animal farming can fulfill the criteria for sustainability and to diminish environmental pollution of agricultural production²⁶. Herd/ flocked animals shall not be kept individually. Mutilations not allowed except castration, tail docking of lambs and dehorning. Management practices should be directed to the well being of animal for achieving maximum resistance to the disease and preventing future in infections.

ENVIRONMENT AND SUSTAINABILITY

Organic farming puts emphasis on the interconnectedness among all living beings and

between them and their environment. Nature is perceived as providing good models for human action, and humans should cooperate with nature^{2,21}. Interventions in nature's processes should be kept to a minimum³.

The concept of organic animal farming can fulfill the criteria for sustainability and to diminish environmental pollution of agricultural production²⁶. Greenhouse warming potential in organic systems is 29 to 37 percent lower, on per ha basis, because of omission of synthetic fertilizers and pesticides as well as less use of high energy feed. Methane emissions of organic rice and ruminants are equal to conventional systems but the increased longevity of organic livestock is favourable on methane emissions. Practical approaches for organic farming should be based on locally existing animal production systems which already have close resemblance to prescribed organic practices²⁴. Organic livestock management is an option for maintaining grasslands, which have a high carbon sequestration potential²⁵. In an experiment¹⁹ higher soil carbon with livestock grazing as compared to non grazing land was observed. Pasture and grassland-based livestock systems can simultaneously contribute to carbon sequestration & biodiversity protection. Organic livestock system favours mixed crop livestock system where animals have to keep essentially on grazing. Organic farming shows a 28% higher sequestration rate (carbon storage) than non-organic farming in northern Europe. Organic livestock farming can facilitate the lowering of GHG emissions by increasing the organic matter retention capacity of soil (which enables further carbon store) and avoiding the use of mineral fertilizers (which reduces N₂O emissions). However, potentially lower yields can jeopardize the positive contribution of organic farming. The quantity of methane emitted per product unit depends on the animal diet and the cow breed's performance. In organic systems, ruminants are kept to make productive use of fodder legumes, which play an important role as nitrogen source in organic crop rotations. In developing countries, where two thirds of the enteric methane emissions occur, organic systems achieve higher milk yields, as more

careful management improves the relatively low performance of traditional systems¹⁸. Greenhouse gas emissions were definitely lower per hectare in organic farming systems and were attributed to no input of chemical N fertilizers, less use of high energy consuming feedstuffs, low input of P, K mineral fertilizers, and elimination of pesticides, as characteristic of organic agriculture¹⁵.

Organic farming strives to build humus in the soil in order to improve soil fertility. Humus formation increases soil stability and water retention capacity and thus reduces the soil's susceptibility to erosion. Improving manure management and application techniques (e.g. better slurry storage facilities, enhanced spreading techniques and appropriate timing of applications) can reduce emissions and make best use of valuable resource for the soil. Using farmyard manure, slurry, compost, and other organic fertilizers to fertilize the soil can contribute to increasing soil organic matter.

Organic agriculture strongly relies on the farms' own resources and seeks to eliminate, as much as possible, reliance on external inputs. For this reason, organic farming requires significantly less primary energy, and energy use per unit area in organic crop and livestock production is significantly lower than it is in non-organic agriculture^{5, 11, 22}. Moreover, in dairy farming the breeding focus is on life yield, lowering the ratio of non-productive juvenile phase to total lifetime. Organic agriculture is likely to emit less nitrous oxide (N₂O). This is due to lower N inputs, less N from organic manure from lower livestock densities; higher C/N ratios of applied organic manure giving less readily available mineral N in the soil as a source of denitrification; and efficient uptake of mobile N in soils by using cover crops.

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