

*Review Paper*

## **ORGANIC ANIMAL FARMING IN INDIA**

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In recent days there has been an increased health concern over quality of milk, meat and egg products due to the presence of various pesticides, insecticides, chemicals, drugs and hormone residues. Due to this the concept of organic livestock farming is increasing at rapid pace with demand of organic milk, meat and egg products. Organic livestock farming is most suitable to our Indian conditions because of indigenous technical knowledge and practices followed by Indian farmers. In order to make organic livestock farming successful there is a need to take care of certain issues like health management, record keeping, breeding strategies, certification, cost of production and cost of inputs etc.

Organic farming is a system of farming which aims to promote animal health and environment sustainability through holistic management for positive health based on a biologically active soil. On the other hand, Organic animal husbandry is defined as: a system of livestock production that promotes 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. It also promotes biodiversity, biological cycles and soil biological activity.

Organic livestock production differs from conventional systems. In organic systems the animals are allowed a larger housing area (including outdoor access), have obligatory straw bedding, and are fed organic feed and roughage. The use of antibiotics is restricted, the waiting times before delivery of products after medical treatments are longer, weaning periods (pigs) are longer, tail, teeth and beak clipping are prohibited and broiler systems use slower growing breeds. These measures ultimately lead to a product (milk, eggs, meat)

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obtained from animals grown under higher welfare conditions and containing fewer residues (pesticides, medical drugs) than the products from conventional rearing systems.

Livestock on an organic farm play a key role in:

- Nutrient cycling – a process in which nutrients are returned to the soil through manure and compost. Amending soils with animal manures can increase microbial biomass, enzymatic activity and alter the structure of the microbial community.
- Incorporation of feed crops, such as alfalfa or grasses into crop rotations helps to build soil organic matter.
- Increasing cropping options, adding diversity to the agro-ecosystem.
- Weed control – feed crops can be used to suppress and control weeds and animals can be used to graze out weeds on crops or pastures.
- Preparing the ground for cropping- Livestock such as pigs can ‘plough’ rough or new land before planting vegetables or grains, reducing tillage and weed control costs.
- Interrupting insect and disease cycles by taking land out of cropping.
- Adding value to grass-lands and promoting the use of green manures.
- Reducing the financial risks of farming by converting lower quality grain crops and screenings into profit and spreading income more evenly over the year.

**Key considerations in organic livestock production:**

Although changes in consumption patterns will continue to result in an average net increase in the demand for animal products, the major challenge in organic livestock production systems is to ‘think the organic principles’ into a wide range of diverse systems, under a wide range of circumstances and conditions, including systems which are not certified ‘organic’ at present. Developing and applying the principles of organic animal husbandry at all times requires a thorough analysis of the problems and opportunities involved and existing local knowledge. Some key considerations in organic animal husbandry that producers and other stakeholders need to take into account are listed below:

**Origin of livestock:** All livestock (and all products from these livestock) that are sold, labelled or advertised as organic must be raised under continuous organic management from the last third of gestation or at hatching.

**Livestock feed:** As a general rule, all natural feed substances are allowed in organic production and all synthetic substances are prohibited. The total rations of livestock that are produced under organic management must consist of agricultural products that have been organically produced and handled organically. This includes pasture, forage and crops. All

young animals must be fed on natural milk for a minimum period depending on the species (3 months for cattle, 45 days for sheep and goat and 40 days for pigs).

**Living conditions:** An organic livestock producer must create and maintain living conditions that promote the health and accommodate the natural behavior 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. All animals must have access to pasture or an open air exercise area which may be partially covered.

**Waste management:** Organic livestock producers are mandated to manage manure so that it does not contribute to the contamination of crops, soil or water and optimizes the recycling of nutrients.

**Health care:** Organic livestock production requires producers to establish preventive health care practices. These practices include: – selecting the appropriate type and species of livestock – providing adequate feed – creating an appropriate environment that minimizes stress, disease and parasites – administering vaccines and veterinary biologics – following animal husbandry practices to promote animal well-being in a manner that minimizes pain and stress. Producers cannot provide preventive antibiotics. Producers are encouraged to treat animals with appropriate protocols, including antibiotics and other conventional medicines when needed, but these treated animals cannot be sold or labeled as organic. Producers cannot administer hormones or other drugs for growth promotion.

**Record keeping:** Organic livestock operations need to maintain records for a number of reasons. Certainly, records are important for the financial management of any organic livestock enterprise. However, records are also important to verify the organic status of the animals and the production, harvesting and handling practices associated with them and their products. Organic production generally requires more record keeping than conventional crop production, it can seem onerous to producers in developing countries. Almost all countries which are investing in their organic agricultural sector are taking note of the changing import environment in industrialized countries, and making the required changes to their production standards to enable them to export to the major consumer countries in the North. Developing countries in Asia, such as China, India, Thailand, Malaysia, Sri Lanka; in Africa, such as Kenya, Tanzania and Ethiopia; and among the South American countries, such as Argentina and Brazil, have already developed regulations, standards and certification procedures for organic livestock production. The number of such countries is increasing, mainly due to

improved prospects for their exports, as well as a slowly growing domestic market for environmentally friendly food products.

**Challenges:**

Organic livestock farming is still evolving and it will take some time to become sustainable on its own, using organic methods without depending on the artificial or chemical products used in conventional livestock production. This underscores the need for more research on organic alternatives, including medications, feeds and feeding practices that are compatible with organic management practices and standards. For instance, how can organic animal production be managed efficiently without some of the routine supplements, such as synthetic amino acids, considered essential in poultry and pig feeding? Alternatives must be developed so that neither production nor the animals suffer. The production factors cited as reasons to supplement with amino acids may be addressed by changes in animal and land management practices, novel feed sources and better feed handling. Methionine can be obtained from natural sources, since it is also found in naturally occurring proteins. Other options include improved pasture management and a balanced supplemental ration, composed of organic grains, legumes and oilseed meals. Temporarily confined poultry can be fed practical organic corn/soybean rations. Depending on how market conditions and organic standards evolve, novel organic products can be developed as supplements. Likewise, other alternatives must be researched and developed for organic livestock production.

**Problems in developing organic animal husbandry:**

While many tropical countries are making concerted efforts to boost organic production, especially of high value commercial crops, with considerable success, some serious problems are still restricting growth in organic farming. Some of these potential obstacles, especially when exporting livestock products are lack of knowledge, small farms, problems in livestock feeding, sanitary regulations, traceability, disease, lack of training and certification facilities.

**Lack of knowledge:** In general, there is inadequate awareness about organic production practices, animal welfare issues and the requirements of importing countries, especially by individual organic trainers/advisers and farmers. Organic production calls for an in-depth understanding of the principles, standards, production practices and requirements of the organic certification agencies. Most of the literature on organic farming is available in English, through the print medium and the Internet. Much of this material is inaccessible to small-scale farmers where illiteracy is common and most do not speak English.

**Small farms:** In our country small scale farmers generally depend on livestock production for their livelihood. However, the landless animal husbandry system, which is common in India, is not allowed under organic systems of livestock production. Small farms are generally not suitable for the development of organic livestock production, especially for exports. Small farms mean small volumes, coupled with a lack of processing infrastructure, which results in poor quality. Milk production in tropical countries is largely the domain of small producers producing small volumes. Dilution, contamination and traceability are common problems with this small scale. Therefore, both technical and policy interventions are crucial to resolve these issues. Governments must support added-value initiatives and product marketing to help make the small farm production system more sustainable. Various essential goods and services, including credit, insurance and improved technologies, must be made available to improve the efficiency of small producers. Contract farming may be a potential solution. Under this system, many small farmers can contract their farms out to companies that produce organic food products on consolidated holdings. Such contract farming may be mutually beneficial and organic farming would be easier to pursue under such arrangements, for obvious reasons.

**Livestock feeding:** Animal breeds with high productivity levels have high nutrient requirement that are difficult to meet by using 100% locally grown organic feeds. The probability of problems with feeding, health and welfare increase with higher level of production. Livestock feeding has been a matter of much debate in the EU and particularly in the USA, where it has recently been resolved. The USDA has published new regulations addressing the use of pastures in organic livestock production. These rules strengthen the existing standards and clarify the USDA's emphasis on pasture-based livestock production for producers, consumers and certifiers. An important requirement of the final regulation is that: 'animals must obtain a minimum of 30% dry matter intake from grazing pasture during the grazing season'. This ruling establishes that not only must animals be outside, but that the pasture must be well managed, so that it makes a significant contribution to their nutrition. The organic alternative may help these farmers to reap greater benefits without intensifying their production systems, instead relying on the free-range, grazing-based systems.

**Sanitary regulations:** Disease control regulations are strictly monitored when it comes to organic livestock products. Governments are taking the initiative in this regard by emphasizing their adherence to the guidelines for clean milk production, good manufacturing practices (GMP), hazard analysis and critical control points (HACCP) and International

Organization for Standardization (ISO) certification among others. These efforts must continue if access to international markets for organic livestock products is to be improved. This may be difficult but not impossible, especially since some developing countries, such as Argentina and Brazil, can already export organic livestock products to the EU. Massive efforts are needed to improve hygiene and disease control measures, especially during the production, processing and packaging stages. In addition, projects may be submitted that seek international help to develop good quality organic animal products for consumers who are ready to pay a little more for such items.

**Traceability:** Importing countries emphasis farm-to-table traceability and, over recent times, this requirement has become even more important. It may be comparatively easy to trace the origin of products in western countries, where farms are large, with high volumes of production per farm. In the context of developing countries, where milk and meat are sourced from numerous small farmers, traceability is a more difficult option. Traceability tools that are both cost effective and suitable for mixed farming conditions in tropical countries, and, furthermore, that are acceptable to importing countries, will have to be developed. However, product traceability is also an issue in conventional production. Thus, whether developing nations seek to export organic products or conventional products, they will still need to evolve acceptable traceability mechanisms to assure consumers that their food comes from a reliable source, with high standards of food safety, hygiene and animal welfare.

**Existence of diseases:** The prevalence of infectious/zoonotic diseases also adversely affects trade in livestock products. Better animal health conditions are needed, especially in the case of organic livestock production. Foot and mouth disease (FMD), swine fever and Rift Valley fever restrict exports from much of the developing world. Thus, controlling such infectious diseases should be a high priority for these countries. Indian authorities, for example, are focusing on controlling FMD, an economically important disease which has far-reaching implications for production and trade. Such countries can begin with the creation of disease-free zones, in which organic livestock production can be encouraged. For the most part, the animal health services of tropical countries, which are largely under government control, are often criticised for their poor reach and efficiency. In organic livestock production, the focus is on preventing health problems and diseases through better management practices. However, despite the benefits of such an approach for animal welfare and animal-friendly production, the basic standards seem, as yet, to be insufficient to ensure a higher animal health status and a better quality of product, when compared to conventional production.

**Lack of training and certification facilities:** As yet, there are few local training and certification facilities available to small farmers at an affordable cost. Small farmers may find it difficult to pay for mandatory inspections which are often carried out by foreign certification agencies through their affiliates in producing countries. This may deter many farmers from switching over to organic production, especially if the domestic market is weak and export prospects are poor for livestock products. If we are to harness the potential benefits of organic farming, then training in organic production practices for both organic trainers/advisers and farmers is essential. Governments of tropical countries may consider sponsoring certification to encourage environmentally friendly production. In India, such efforts are being made but at present they occur mostly for high value commercial crops, for which a strong export market is already available. In addition to these problems, organic livestock production is not yet developed in Asian countries due to a lack of organic feed and pastures. Limited amounts of certified organic animal products, mainly poultry and pork, are available in some domestic markets. Organic aquaculture (shrimp and fish), on the other hand, is emerging in China, Indonesia, Vietnam, Thailand, Malaysia and Myanmar.

However, organic livestock farming (especially its organic principles than regulations) may be a useful strategy to overcome the challenges of the agricultural sector (sustainability, food security, and food safety) while matching with consumers' tendencies. Furthermore, organic livestock farming could be also an interesting strategy for the eternal rural development issue and the farms' decreasing profitability. However, the combination of complying with organic regulations and objectives and principles of organic farming while increasing overall sustainability is not an easy task. Due to this, it is inappropriate to generalize the benefits of organic livestock farming itself, since the feasibility of implementing organic livestock production systems and their consequences varies greatly, and are site and time-specific.

Moreover, some topics must be addressed in order to increase the organic livestock farm's success. Firstly, it has been observed that most of the farmers do not focus on sustainability nor environmental improvement, and that many farms are easily complying with the organic regulations without carrying out environmentally-friendly management practices in their agro-ecosystems. Due to this, improved education and training of farmers and consultants regarding conservation agriculture and GHG mitigation are really needed. Secondly, there is a need to design feeding strategies that provide adequate nutrition, especially in areas with environmental constraints, such as arid and semi-arid areas. Thirdly, the knowledge of the veterinarians with regard to animal health management must be improved as fast as the sector

is growing. Related to this, more light must be shed on the relationship between animal welfare, "natural living-behavior", and animal health. Furthermore, health care protocols must be developed for each species, including research on alternative and complementary methods of disease prevention. Finally, and more urgently, special attention must be paid on the marketing strategies of organic products since this is the main constraint of the sector, and it is the point where there are more possibilities for improvement for both farm profitability and overall sustainability of the food system.

### **Conclusion**

Livestock production has become far more sophisticated since the days of hunter-gatherers. Today, most production systems are intensive, with a very high per-animal productivity, due to better nutrition, health and housing management. However, the recent focus on and concerns over food quality, animal welfare, traceability, human health and environmental quality have led to the emergence of and growing interest in organic livestock farming, which is gradually spreading across the world. Nonetheless, organic livestock farming is a formidable task, considering the stringent principles, guidelines, practices and standards of organic livestock production, as well as the mandatory certification procedures for such production systems. To benefit from this emerging system of food production, producers must build their capacity and take into account their natural advantages.

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