



A Monthly e Magazine  
ISSN:2583-2212  
Dec 2023 3(12) 4196-4207

Popular Article

## Nurturing Production, Welfare, Health, and Ethical Practices in Sustainable Organic Livestock Farming

\*Dr. Argana Ajay K<sup>1</sup> and Dr. Remya M<sup>2</sup>

<sup>1</sup>PhD Scholar, Livestock Production and Management, ICAR-IVRI, Bareilly, UP, 243122.

<sup>2</sup>MVSc Scholar, Division of Veterinary Medicine, ICAR-IVRI, Bareilly, UP, 243122.

<https://doi.org/10.5281/zenodo.10428131>

### Abstract

Organic farming epitomizes a holistic approach that places greater emphasis on biodiversity, biological cycles, and soil biological activity rather than merely focusing on production efficiency per unit area. When integrating livestock production into the organic framework, paramount consideration must be given to animal health and welfare. Every aspect of farm activities, from breed selection to marketing, adheres to distinct recommendations and ethical standards in organic livestock production. Activities conflicting with natural animal behavior should be avoided, and any management practices causing distress must be eliminated. The progression of organic livestock production aligns with fundamental principles rooted in land-based activities, prioritizing good animal health and welfare, optimizing production efficiency, and maintaining lower stocking density and production levels. Despite widespread initiatives promoting organic livestock production, significant constraints persist. These challenges necessitate concerted efforts to overcome barriers hindering the widespread adoption of organic principles in livestock farming. Achieving the goals of organic livestock production requires a comprehensive and scientific approach. Efforts should focus on refining practices to harmonize with natural systems, fostering optimal animal well-being, and addressing existing challenges to unlock the full potential of organic farming systems.

**Key words:** Organic farming, livestock, sustainability, production

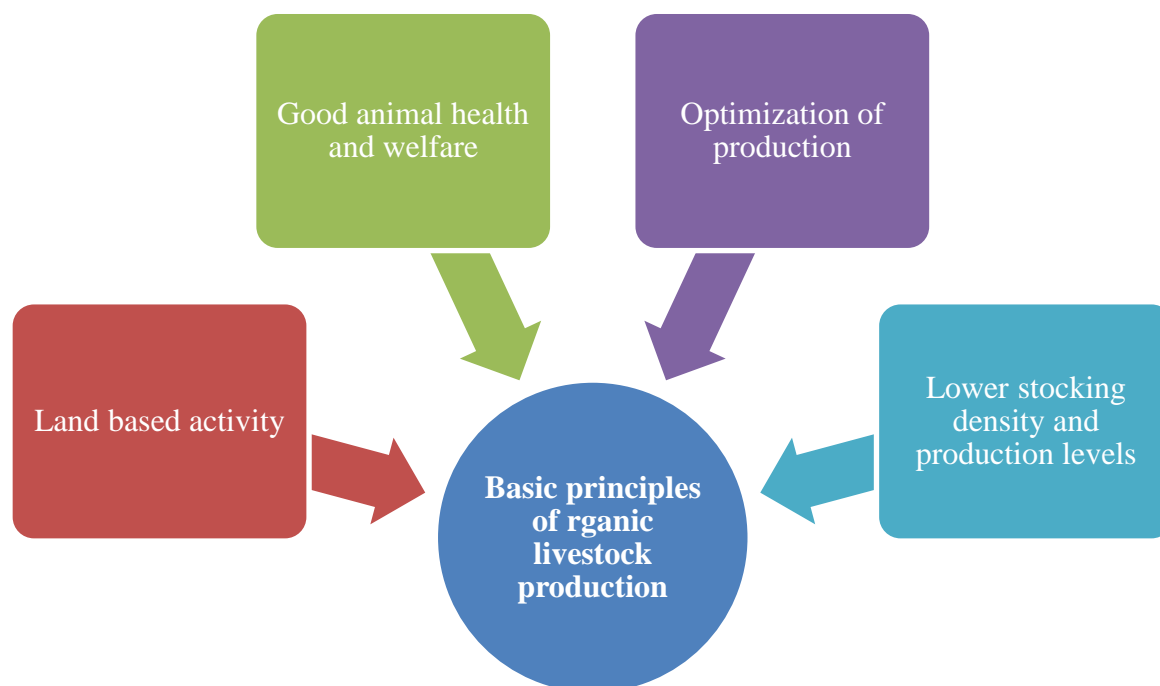
Organic farming stands as a comprehensive production management system, diligently fostering the health of agro-ecosystems through its profound commitment to biodiversity, biological cycles, and soil biological activity. This approach emphasizes the utilization of farm practices as the preferred means, prioritizing them over off-farm inputs. The ethos of organic farming lies in its holistic approach, wherein it intricately intertwines ecological well-being with agricultural productivity. By championing the intrinsic harmony of natural processes, this



system not only sustains but enhances the delicate balance within ecosystems. In doing so, organic farming embodies a scientific dedication to sustainable agriculture, promoting resilience and vitality in the agricultural landscape.

### Basic principles of organic livestock production

Organic farming is anchored in fundamental principles that shape its sustainable ethos. Firstly, it is inherently a land-based activity, recognizing the critical relationship between soil health and agricultural productivity. The use of homegrown feed and the practice of returning manure to the same land that produces fodder exemplify a closed-loop system, fostering nutrient cycles within the farm ecosystem. Furthermore, the principles extend to the realm of animal husbandry, emphasizing good health and welfare. Animals are afforded outdoor access, ensuring free-range conditions and maximizing pasture utilization. This commitment to providing animals with ample space and natural environments aligns with the organic philosophy, promoting both ethical treatment and ecological harmony within the agricultural landscape. The principles of organic farming extend to the optimization rather than the maximization of production, fostering a nuanced approach to agriculture.



This involves breeding for traits beyond mere yield or growth rate, acknowledging the significance of qualities such as resilience and adaptability. Additionally, the commitment to species-specific diets for livestock underscores a holistic perspective that prioritizes the nutritional needs and natural behaviors of animals. Integral to this ethos is the implementation of lower stocking densities and production levels. By avoiding overly intensive practices,



organic farming promotes a balanced ecological footprint, minimizing environmental impact and enhancing the overall sustainability of agricultural systems. This principle reflects a conscientious effort to harmonize productivity with environmental and ethical considerations, embodying the essence of responsible and mindful farming practices.

#### 4 Principles of organic farming

<i>Principle 1</i>	Principle of Health	Organic farming should sustain and enhance the health of soil, plant, animal, human and planet as one and indivisible
<i>Principle 2</i>	Principle of Ecology	Organic farming should be based on living ecological systems and cycles, work with them, emulate them and help sustain them
<i>Principle 3</i>	Principle of fairness	Organic farming should build on relationships that ensure fairness with regard to the common environment and life opportunities
<i>Principle 4</i>	Principle of care	Organic agriculture should be managed in a precautionary and responsible manner to protect the health and well-being of current and future generations and the environment

#### Characteristics of an ideal organic livestock farm

An exemplary organic livestock farm seamlessly integrates scientific principles with practical considerations to create an ideal environment that promotes animal welfare, health, and sustainable production. Market accessibility is paramount, ensuring that the farm operates within a framework that facilitates the ethical and transparent marketing of organic livestock products. This requires adherence to rigorous certification standards and a commitment to organic principles, establishing the farm as a reliable source of high-quality, environmentally conscious products for discerning consumers. Adequate shelter and access to water are fundamental components of optimal livestock husbandry. The farm is meticulously designed to provide livestock with comfortable and protected spaces, accounting for the specific needs and behaviors of different species. This includes strategically located water sources to ensure hydration and overall well-being.

Easy market accessibility

A self-contained flock or herd

Good access to shelter & water resources

Mix of livestock species in order to dilute the disease challenge

Avoid mixed age groups to minimize the risk of spread of respiratory infections



Disease management is a central consideration, addressed through a thoughtfully curated mix of livestock species. By diversifying the species composition, the farm dilutes the risk of disease transmission, utilizing a scientific approach to minimize the impact of potential outbreaks. The avoidance of mixed age groups is a strategic measure to mitigate the spread of respiratory infections, demonstrating a meticulous understanding of disease dynamics within the livestock population. The implementation of a self-contained flock or herd represents a holistic approach to herd management. This strategy involves maintaining distinct and isolated groups, minimizing external influences and potential disease vectors. This scientific approach contributes to the overall health and resilience of the livestock, fostering a sustainable and harmonious system where animal welfare, disease prevention, and market accessibility coalesce in an exemplary organic livestock farm.

### Concept of Conversion period

Farming systems dependent on input of artificial fertilizers and/or chemicals and pesticides or which are not in conformity with the basic standards of organic production is conventional farming systems. The process of changing a livestock farm from conventional to organic system is known as conversion. Also called transition. The time between the start of organic management, and the certification as organic is called as conversion period. Accredited certification program specifies length of time for animal production standards.

#### *Length of conversion period for different species*

- *Organic meat may be sold when organic standards met for 12 months*
- *Dairy cattle and buffaloes - 90 days during implementation and after that 6 months*
- *Small Ruminants: Meat- 6 months*
- *Small Ruminants: Milk- 90 days during implementation and after that 6 months*
- *Pig – 6 months*
- *Poultry for meat from 2nd day to entire life span*
- *Poultry for egg - 6 weeks*

### Organic livestock farming -Major considerations and implications

#### 1. Origin of stock

The origin of livestock is a critical aspect in ensuring the success and sustainability of agricultural practices in organic production. The selection of breeds or strains plays a pivotal role in this process, with a strong emphasis on the preference for local breeds. Local breeds are inherently adapted to the specific environmental and climatic conditions of their region, showcasing a remarkable resilience and adaptability that contributes to their overall vitality. One of the key factors in the selection process is resistance to disease, a trait that is crucial for



maintaining the health and well-being of livestock populations. Local breeds often exhibit a natural resistance to diseases prevalent in their native environments, reducing the reliance on medical interventions and minimizing the risk of disease outbreaks. Furthermore, selective breeding can be employed to avoid specific diseases or health problems, ensuring that the chosen livestock possess robust genetic traits that enhance their overall productivity and longevity.

## **2. Brought in animals**

The rearing of organic livestock involves a holistic approach, from birth to maturity, within an organic holding. A fundamental principle in this paradigm is the implementation of a closed herd/flock policy, ensuring that the livestock is born and raised on the organic farm without external introductions from conventional raising systems. This closed system not only maintains the organic integrity of the livestock but also promotes a sustainable and self-sufficient farming model. In the exchange or trading of livestock, a preference is given to transactions between organic farms or as part of a long-term cooperative arrangement between specific farms. This approach fosters a sense of community and shared values among organic producers, facilitating the exchange of genetic material and promoting the overall sustainability of organic livestock production systems. However, recognizing the practical challenges of availability, the certification program allows for the introduction of brought-in conventional animals under specific conditions and age limits when organic livestock is not readily accessible. This strategic flexibility is designed to address potential shortages while maintaining a commitment to organic principles.

The integration of non-organic animals into organic livestock systems requires a judicious approach to prevent potential dilution of organic integrity. To address this, a restriction is imposed on the introduction of non-organic females into the breeding cycle, with careful consideration given to the percentage of adult equine or bovine, as well as porcine, ovine, and caprine animals. Specifically, the allowance is up to a maximum of 10% for adult equine or bovine and 20% for adult porcine, ovine, and caprine animals. Furthermore, a nuanced strategy is implemented to regulate the breeding dynamics within smaller units. For units with fewer than 10 equine or bovine animals, and fewer than five porcine, ovine, or caprine animals, the restriction is set at one non-organic animal per year. This tailored approach acknowledges the unique circumstances of smaller farming operations while upholding the principles of organic livestock management.



### 3. Breeds and breeding

The breeding of livestock within organic farming systems is guided by a set of principles that prioritize the adaptation of breeds to local conditions, with a strong preference for local, native, and pure breeds. This emphasis on local adaptation contributes to the resilience and vitality of the animals within their specific ecological contexts. Breeding goals are aligned with the natural behavior of the animals, ensuring that the selected traits do not contradict their inherent instincts and well-being. The overarching objective is directed towards promoting good health, acknowledging that a healthy and robust livestock population is essential for sustainable organic farming. In the realm of reproduction techniques, organic farming encourages natural methods, and while artificial insemination is permitted, it is strictly regulated, allowed only upon veterinary necessity. However, advanced reproductive technologies such as embryo transfer are prohibited, aligning with the principle of naturalness that underpins organic livestock management.

Similarly, hormonal heat treatment and induced birth are restricted to instances of medical necessity and must be carried out under veterinary advice. Crucially, the use of genetically engineered species or breeds is strictly prohibited within organic breeding programs, reinforcing the commitment to maintaining genetic integrity and natural diversity. Breeding activities are ideally conducted within the organic chain, separate from conventional sectors, to prevent potential contamination and ensure the adherence to organic principles. Breeding strategies within organic systems encompass a multifaceted approach. They aim to ensure farm profitability, safeguard animal health and welfare, and focus on the conservation of genetic diversity. By promoting genetic diversity, organic farming contributes to the resilience of livestock populations in the face of environmental challenges and evolving agricultural landscapes. Moreover, the emphasis on human health is evident in the careful regulation of reproductive technologies and the exclusion of genetically engineered species, aligning organic breeding practices with broader goals of sustainability and holistic well-being within the farming ecosystem.

### 4. Housing conditions

Housing conditions within organic livestock farming systems are intricately tied to the well-being and natural behavior of the animals, with a paramount focus on creating environments that cater to their physiological and behavioral needs. The housing facilities must be designed to provide optimal space and light, ensuring that animals can express their natural behaviors freely. Adequate space is crucial to allow animals to stand naturally, lie down easily,



turn around, groom themselves, assume all natural postures, and engage in all-natural movements, such as stretching and wing flapping. Stocking density is a critical consideration, and it should be species-specific, taking into account factors like breed, age, sex, and behavioral needs of the animals. The housing should provide comfort and assure the well-being of the animals, allowing them access to fresh air and natural daylight while protecting them from excessive sunlight and rain. Access to fresh water is essential for hydration and overall health.

In adherence to organic principles, tethering of animals is generally discouraged; however, if necessary, it should permit free movement to prevent undue stress. Herd animals, in particular, should not be kept individually, as they thrive in social settings. Various environmental factors must also be carefully managed. This includes the heating and ventilation of buildings to ensure adequate air circulation, control of dust levels, maintenance of appropriate temperatures, relative air humidity, and keeping gas concentrations within defined limits (e.g., 170 kg nitrogen per year and hectare). These measures collectively contribute to creating housing conditions that not only meet the organic standards but also prioritize the health, welfare, and natural behaviors of the animals within the organic livestock farming system.

## 5. Feeding principles

Feeding practices in organic livestock management are integral to ensuring the health and welfare of animals, maintaining product quality, and upholding ecological sustainability. A foundational principle is the provision of a nutritionally balanced diet that considers the species-specific physiological requirements of the animals. This involves maximizing grazing opportunities, particularly for herbivores, with a commitment to providing at least 60% of dry matter from roughage, including fresh or dried fodder, and silage. Supplementation of minerals, trace elements, and vitamins is permitted only when these needs cannot be met through regular husbandry practices, emphasizing a reliance on natural sources. The diet's protein content is adjusted to complement forage levels, with a maximum of 40% concentrate in the daily ration. Grain feeding is restricted to 0.3-0.5% of body weight to prevent interference with fiber digestion, promoting a more natural nutritional profile.

For young mammals, a minimum duration of maternal milk feeding is stipulated, ensuring three months for bovine and equine species, 45 days for sheep and goats, and 40 days for pigs. Grazing pasturage is prioritized, with a minimum of 60% of feed for herbivores sourced from the farm unit itself. In cases where this is impractical, cooperation with other organic farms in the same region is encouraged, fostering a collaborative approach to sustainable and local feed production. For pigs and poultry, a minimum of 20% feed from the



farm unit itself is recommended, with cooperation among organic farms or feed business operators in the same region serving as a viable alternative. These feeding practices collectively embody the organic commitment to sustainable, species-specific nutrition, promoting animal welfare, product quality, and ecological soundness within the organic livestock farming system.

---

**Products not to be included in feeding**

---

- **Synthetic growth regulators**
  - **Synthetic appetizers**
  - **Urea**
  - **Farm animal by-products**
  - **Coloring agents**
  - **GMO**
  - **Medicated feeds**
  - **Hormones**
- 

## **6. Developing a cropping pattern**

Developing a sustainable cropping pattern within a comprehensive cropping system is a fundamental aspect of organic agriculture, particularly when it comes to producing high-quality forages. The primary objective is to ensure that the cropping system meets the quantity and quality requirements of forages, providing a balanced nutritional profile that caters to the majority of nutrient needs for livestock. The selection of crops within the cropping pattern is strategically planned to maintain adequate dry matter content, a critical factor in sustaining optimal production and growth of livestock.

A key consideration in this process is the emphasis on maintaining sufficient pasture for grazing. Pastureland plays a crucial role in organic farming systems, serving as a source of diverse forages that contribute to the nutritional well-being of grazing animals. The cropping pattern is designed to provide a continuous supply of fresh and high-quality forages, aligning with the natural feeding behaviors of the livestock. Furthermore, the chosen crops within the cropping system are carefully curated to complement each other in terms of growth patterns, nutrient content, and seasonal availability. This integrated approach not only maximizes the productivity of the land but also supports crop diversity, a factor that enhances the ecological resilience of the farming system.

## **7. Soil management**

Effective soil management is integral to maintaining a consistent and nutrient-rich fodder supply in organic farming systems. Key strategies employed for sustaining soil fertility include the systematic rotation of crops, incorporating organic matter, and utilizing specialized





tools such as aerator ploughs and deep ripping techniques. Crop rotation mitigates nutrient depletion by varying the types of crops grown, preventing the continuous extraction of specific nutrients from the soil. Incorporating organic matter, such as compost or crop residues, enhances soil structure and nutrient content, promoting a fertile environment for plant growth.

Aerator ploughs and deep ripping play pivotal roles in soil aeration and structure improvement. Aeration facilitates the exchange of gases and nutrients between the soil and the atmosphere, while deep ripping helps open up the soil profile, enhancing water infiltration and root penetration. The sowing of deep-rooting species, exemplified by Lucerne, further contributes to maintaining soil openness and structure, fostering a favorable environment for plant growth. To supplement these practices, additions of mineral rock and approved organic fertilizers are strategically applied to address specific nutrient deficiencies and sustain soil fertility. This comprehensive approach ensures that the soil remains a resilient and fertile substrate for cultivating fodder crops, ultimately supporting the availability of high-quality forages for livestock.

## **8. Health care of livestock**

Health care in organic livestock systems is predicated on preventive strategies, recognizing the significance of holistic management practices. Preventive measures include the establishment of self-contained herds and flocks, careful selection of appropriate breeds emphasizing resistance to parasites and diseases, and the promotion of natural behaviors such as suckling with the mother and natural weaning. Access to pasture during the growing season and a focus on adequate nutrition are foundational to preventive health. Regular monitoring of feed, physiology, and health is paramount, supported by clean grazing systems characterized by low stocking density, mixed grazing, and alternating species annually. Proper housing, use of hay/silage, and ample bedding contribute to the overall well-being of the livestock.

While vaccinations mandated by local regulations are permitted, therapeutic use of veterinary drugs is considered when no alternative treatment is available. Under the prescription and supervision of a registered veterinarian, drugs can be used, observing mandatory withdrawal periods. Herbal/phyto-therapeutic, homeopathic, or ayurvedic products are preferred for treatment and prevention, excluding antibiotics. The use of allopathic veterinary drugs or antibiotics for preventive purposes or productivity enhancement is prohibited. Hormonal treatment is limited to therapeutic reasons under veterinary supervision, and growth stimulants are strictly prohibited in organic livestock systems. These stringent guidelines embody the organic commitment to animal welfare, preventive health management,



and sustainable practices within the agricultural ecosystem.

### **9. Manure & urine excreta management**

The management of manure and urine excreta in organic farming is a critical component, guided by principles that prioritize environmental sustainability and nutrient recycling. The collection, handling, and disposal of dung and urine are conducted with meticulous care to minimize soil and water degradation. Organic practices strictly prohibit burning or any method inconsistent with sustainable agricultural principles. To safeguard water quality, all manure storage and handling facilities are designed, constructed, and operated to prevent contamination of both ground and surface water. Manure application rates are carefully controlled to ensure they do not contribute to water contamination, and accredited certification bodies establish maximum application rates or stocking densities based on local conditions. This approach reflects a commitment to optimizing the recycling of nutrients within the farming system while preventing adverse environmental impacts.

### **10. Transport of animals**

The transport of animals in organic production is subject to stringent guidelines aimed at safeguarding their welfare and minimizing stress, discomfort, and potential injury. Organic producers are obligated to adhere to the conditions set forth in the laws of the land, with specific standards for Livestock and Poultry transport, as outlined in IS 14904:2007 and IS 5238:2001, respectively. The paramount objective during transport is to prevent stress, injury, hunger, thirst, malnutrition, fear, and other adverse conditions. To ensure the well-being of animals, the journey's length is minimized, and the means of transport, loading, and unloading facilities are designed and operated to prevent injury and suffering. Animals must be fit for the intended journey, and trained personnel handle them to guarantee safety and minimize stress.

The transport process must be swift, without delays, and the welfare conditions of the animals are regularly checked and maintained throughout the journey. Providing sufficient floor area, height, and other spacing requirements is mandated, and animals must have access to water, feed, and rest at suitable intervals. Importantly, the use of electric stimulation or allopathic tranquilizers during loading and unloading is strictly prohibited, reinforcing the commitment to humane and ethical treatment of animals throughout the transportation process. These guidelines underscore the organic commitment to animal welfare and ethical practices, recognizing that the conditions during transport significantly impact the overall well-being of the livestock in organic production systems.



## 11. Slaughter of animals

The slaughter of animals in organic production is a process guided by ethical considerations to minimize stress and suffering. It is mandated that the slaughter adheres to national rules, with specific guidelines outlined in IS 1982:1971 for Livestock and IS 7049:1973 for Poultry. For Livestock, the by-products must come from animals subjected to proper ante-mortem and post-mortem inspection, and the handling, storage, and transport of slaughterhouse by-products follow IS 8895:1978.

In the case of Poultry, facilities must include separate rooms for live poultry receiving and holding, washing and disinfection of coops, slaughter and bleeding, feather removal, evisceration, chilling, packing, and an inedible products room. Water supply must meet the requirements of potable water, and ventilation and illumination should be properly situated to avoid causing glare. Ensuring personnel hygiene is integral, requiring the use of special working clothes and providing proper training on hygiene and disinfection practices. The overarching aim is to conduct slaughter operations in a manner that prioritizes animal welfare, adheres to national regulations, and upholds high standards of hygiene and sanitation throughout the process, reflecting the ethical and humane values inherent in organic farming practices.

## 12. Other management practices

In organic livestock management, certain management practices are strictly regulated, allowed only when they are explicitly aimed at improving animal health, enhancing welfare, or promoting hygiene on a case-by-case basis. Anesthesia is permitted, but only at the most appropriate age and administered by qualified personnel to minimize suffering. Physical castration is allowed under specific conditions, primarily to maintain product quality, emphasizing the importance of animal welfare considerations even in such practices. Traditional production practices are permitted within prescribed conditions, ensuring that they align with organic principles and contribute positively to the health and well-being of the animals. Loading and unloading of animals are conducted without electrical stimulation, prioritizing humane handling during transportation. However, certain practices are unequivocally prohibited in organic livestock management, including the use of allopathic tranquilizers prior to or during transport. Additionally, practices such as debeaking, tail docking, needle teeth cutting, castration, and dehorning are strictly forbidden, reinforcing the commitment to animal welfare and natural behaviors.



### ***Organic Livestock Production – Major Constraints in Indian Scenario***

1. Lack of awareness about the guidelines of organic livestock and poultry production.
2. Very few organic certifying agencies in India have accreditation for organic certification.
3. More labour intensive compared to traditional farming systems.
4. Documentation of all the processes and activities, and marketing of the produce under NPOP system is cumbersome for ordinary farmers.
5. Lower productivity compared to conventional farming systems
6. Organic production and certification is costly
7. Organized market for organic livestock products yet to evolve in the country

### **Conclusion**

Organic livestock farming represents a holistic and ethical approach to animal husbandry, guided by principles that prioritize sustainability, animal welfare, and environmental responsibility. The emphasis on natural behaviors, access to pasture, and species-specific diets reflects a commitment to fostering a harmonious relationship between animals and their environment. Organic livestock systems integrate preventive health strategies, thoughtful breeding practices, and meticulous attention to housing conditions, recognizing that the well-being of the animals is intrinsically linked to the success of the farming enterprise. Furthermore, organic farming places a strong emphasis on responsible management practices throughout the entire production cycle, including manure and urine excreta management, transportation, and slaughter procedures. By adhering to strict standards and regulations, organic livestock farming seeks to minimize stress, prevent suffering, and ensure the humane treatment of animals at every stage of their lives. Ultimately, organic livestock farming goes beyond mere adherence to regulations; it embodies a philosophy that values the interconnectedness of agricultural, environmental, and ethical considerations.

### **Suggested readings:**

1. IFOAM (International Federation of Organic Agricultural Movement) The IFOAM Basic Standards for Organic Production and Processing. IFOAM; Bonn, Germany: 2005.
2. National Programme for Organic Production: A Training Manual by APEDA. [https://apeda.gov.in/apedawebsite/Announcements/NPOP\\_Training\\_Manual\\_English\\_E\\_Book.pdf](https://apeda.gov.in/apedawebsite/Announcements/NPOP_Training_Manual_English_E_Book.pdf)
3. Sutherland, M. A., Webster, J., & Sutherland, I. (2013). Animal Health and Welfare Issues Facing Organic Production Systems. *Animals : an open access journal from MDPI*, 3(4), 1021–1035. <https://doi.org/10.3390/ani3041021>

