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On

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ORGANIC LIVESTOCK FARMING: CONCEPT & PRACTICES

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Introduction

Organic farming is a holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity. It emphasizes the use of management practices in preference to the use off- farm inputs; taking into account that regional conditions require locally adopted systems. This is accomplished by using, where possible, agronomic, biological and mechanical methods, as opposed to using synthetic materials, to fulfill any specific function within the system" *(FAO/ WHO Codex Alimentarius commission,1999) or* it 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. It promotes biodiversity, biological cycles and soil biological activity *(Anon., 1995).*

Organic livestock farming means raising livestock on organic feed (i.e. pastures cultivated without the use of fertilizers or pesticides), have access to pasture or outside, along with the restricted usage of antibiotics and hormones *(Oruganti, 2011).* Organic farming is based on closed agricultural systems and minimal use of non-renewable energy sources (e.g. artificial fertilizers). Livestock, and particularly ruminants, play an important role in maintaining the fertility of grasslands. The basic principles of organic livestock production can be summarized thus:

- Land-based activity (homegrown feed; manure returned to the same land that produces the feed);
- Good animal health and welfare (outdoor, free-range, maximum access to pasture etc.);
- Optimization rather than maximization of production (breeding for traits other than yield or growth rate, feeding species-specific diets etc.);
- Lower stocking densities and production levels than in conventional systems

Role of Animals in organic farming system

The agricultural cycle is incomplete without the input of domesticated animals that play a predominant part in the cycle under the organic management of livestock. Livestock is often the central point around which the organic farm operates and a major factor contributing to its success. Animal husbandry is important to organic agriculture, since it stabilizes the agro-ecological system and makes this more productive as it;

- Contribute - towards closing the nutrient cycles and also towards higher yields.
- Convert - organic matter, and are thus major contributors to soil fertility.

- Utilize - crop residues, unutilized agricultural areas, by-products of agricultural production.
- Diversity - with different species, variety in breeds.
- Growing forage crops improves the crop rotation, the diversification and balance of the farming system.
- Used - for draught purposes.
- Growing forage crops improves the crop rotation, the diversification and balance of the farming system.

Characteristics of an ideal organic livestock farm

Ideal organic farm should have the following characteristics:

- Geographically located near to the market outlets, to sources of feed stuffs and bedding materials, in order to minimize the time and costs involved in transport.
- A mild climate and free draining soil, with good access to shelter and water sources.
- A mix of grassland, cereal crops and a range of other arable crops including forages that provides pasture for grazing, conserved herbage, cereals to supply concentrated energy, straw for bedding, and feed sources from other arable crops.
- A mix of livestock species in order to dilute the disease challenge to susceptible stock.
- A self-contained flock or herd - i.e. animals are to be born, reared and finished on the same farm so as to eliminate the stress in farm to farm transfer and also as a protection against entry of new disease organisms into the farm.
- Calving and lambing pens be arranged separately with more ventilated housing to minimize the risk from summer mastitis and also to meet the maternal nutrient requirement with the seasonal grass growth.
- Good nutrition to balance energy, protein and mineral supply as well as to ensure supply of fiber to ruminants for efficient rumen function
- Good livestock infrastructure like fencing, outdoor watering and feeding facilities, good handling facilities.
- Trained and experienced stockmen with good powers of observation, and also with the ability to take care for livestock with the minimum of stress in terms of grouping, feeding, and handling.

The concept of organic livestock farming can only fulfill the criteria for sustainability if all requirements on animal health and welfare, together with product quality and ecological soundness, are strongly considered and controlled. Sustainability lies at the heart of organic farming and is one of the major factors determining the acceptability or otherwise specific production practices". It is even suggested that sustainable is a polite word for organic farming.

Feeding:

- The general principle of livestock feeding in organic systems is that animals have to be fed species-specific diet in a way suited to their physiology;
- Grazing should be maximized and supplementation of minerals, trace elements and vitamins is permitted when the requirement cannot be met by husbandry practices;
- As a rule, 80% of feed should be from organic sources, however, at times of difficulties and emergencies feed from conventional farms may be given with a dry matter content of 15% which has to be gradually reduced to 10% within 5 years;
- When formulating rations, diet of animal should be balanced by adjusting the protein percentage to complement the forage levels. For example, when rations are based on high protein forage, care should be taken to ensure that energy levels are met by straw or hay to balance the excess protein;
- Nutrient supply must be based on the animal's requirements in order to avoid metabolic disturbances, and to maintain fertility and overall health;
- The energy supply in organic agriculture could not be met through the use of higher amounts of concentrates (maximum of 40% in the daily ration), hence, in organic agriculture forage quality plays a major role when milk performance potentials are high. Low forage quality causes the concentrate requirements to increase significantly.
- Supplementation with protein-rich concentrates is necessary in the moderate performance range mainly to fulfill the nitrogen requirements of the rumen microbes;
- Energy requirement can be met through concentrate components like grain. Protein concentrate components with low protein degradability and high energy content would be necessary in early lactation and for high performance;
- Greatest attention must be paid to the quality of the component (free from weed content, mould or mildew);
- The incorporation of legumes into farming systems provides many beneficial effects and plays a key role in the management and sustainability of small ruminant organic livestock systems.

Breeds & Breeding:

Organic farming prefers to the use of local, native and pure breeds. A choice of breeds account must be taken care of the their capacity to adapt to local condition in terms of it's disease resistance, maintenance and adaptability.An organic farm in case of cattle, can maintain with local desi cattle who's genetic and production potential can be up-graded with bulls of good producing records if necessary. Organic farmers should pay attention to fitness characteristics, persistence and forage intake potential when breeding or making genetic choices. The animal's production record is important, but there are other characteristics which are equally important for

adaptation to an organic environment such as mothering ability, hardiness and thriftiness, resistance to disease and parasites, and ability to forage.

Health care:

Health care in organic farming starts with selection of suitable breeds, raising the livestock according to its natural requirement; feeding good quality feed along with required grazing to strengthen the immune system of the animal and providing suitable housing to avoid related stress and associated health problems.

Some of the criteria which have been suggested for inclusion in preventive health strategies are:

- Self contained herds and flocks
- Appropriate choice of breed
- Breeding for disease/ parasitic resistance
- Suckling with mother
- Natural weaning
- Access to pasture during the growing season
- Adequate nutrition like high forage, limited cereal
- Regular monitoring of feed, physiology and health (e,g. silage, milk and urine, faecal worm egg counts)
- Establishment of a clean grazing system

Record Keeping:

Record keeping is of utmost important for organic production & certification. It is also a valuable tool for assessing the performance of herd and flock and making management decisions. A careful record of the steps undertaken, observations made and the diary of events would help to build consumer confidence and product reliability. To maintain records, individual identification of animals is necessary. Records must be kept for all stock movements, disease events and mortalities. All veterinary and non-veterinary treatments must be recorded in detail, including statuary and organic withdrawal periods.

Organic Management Practices:

<u>Conversion period:</u>

One year is necessary to bring conventional dairy herds to certified organic status. Successful conversion of a herd will depend on the successful conversion of land and the soil building practices employed. Herd health is a direct reflection of the soil.

Grazing:

Rotational grazing is of best choice to maximize grazing, lengthen the grazing season, and to reduce cost. In organic farming, the ration for dairy cattle during the housing period mainly consists of grass silage. Organic dairy cows have to be given some concentrates in order to fulfill the genetic potential for milk production, even if they are fed high quality silage.

Housing:

Loose housing system should be practiced. Good ventilation helps to reduce lung problems and the inborn fly population. Weaning period: depends on certification agencies. Studies indicate that the suckling has a beneficial effect on both mother and calf as it increases the level of oxytocin in blood and as a long lasting effect of this, the growth rate of calves enhanced. It has also been reported that artificial rearing of animals and their early separation from mothers has detrimental effects on their welfare.

Health problems:

Successful cure can be achieved if systemic sanitation methods combined with appropriate homeopathic remedies are followed. Drying off the cows should not be done abruptly.

Genetic selection:

Genetic selection for mastitis resistance is one preventative management strategy that can be implemented in conjunction with other steps. It may be argued that breeding for disease resistance is important regardless of whether the farm is organic or conventional, but it is likely that the relative economic value of mastitis would be greater in organic than conventional systems.

Certification & certification standards:

It is necessary to codify commonly accepted production practices and in order to create a differentiated market for organic products; different agencies have developed different standards for organic production. Clear production standards have also required the introduction of processes of farm certification and inspection, to ensure the standards.

Certification is essentially a seal of approval to assure customers for the production methods used by organic farmers follow strict quality standards. In some cases, the term organic has been loosely used in the market place and there is potential for fraud. Certification and the use of the label 'certified organic' adds confidence and reduce the possibility of misleading advertising. It has proven to be a valuable marketing tool both domestically and internationally.

Steps required for certification:

- Local certification agency has to be contacted to know their standards as they vary from area to area and type of production.

- Study the standards and check with the certification agency if there is anything that is not clear.
- Submit a completed application and fees to the certification agency. Confidentiality is assured.
- The certification agency's certification committee will consider the application and if anything is in order, will hire a third party inspector to make an on-farm assessment periodically.
- The inspector submits a comprehensive report and committee members make a decision based on the report and sell products as 'certified organic'. Some agencies charge licensing fees and have official stickers or labels, which may be purchased.

Certification Standards:

Most of the countries have national certifying body or agencies who certify the production management system as Organic. Without their certification, products cannot reach the consumers as organic. A lot of organic standards exist at present. In India, in 2000 the National Programme for Organic Production (NPOP) was launched and in may, 2001, the National Accreditation program was notified by the Ministry of Commerce. Agricultural and Processed Food Products Development Authority (APEDA), Tea Board, Coffee Board and Spices Board have been designated as the accreditation agencies for organic certification.

Problems in development of organic animal husbandry:

Sanitary regulation:

Only a few developing countries are able to export even the conventional livestock products due to strict sanitary requirements imposed by importing countries. These sanitary regulations are further strictly monitored in case of organic livestock products. The GOI is taking initiatives in this regard by emphasizing the Clean Milk Production (CMP), Good Manufacturing Practices (GMP), HACCP, ISO certification, best practices etc.

Traceability:

Importing countries emphasize farm to table traceability and there is an increasing attention on this in recent times. 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 Indian conditions, where, milk and meat is sourced from numerous small farmers, the traceability may be a difficult option.

Existence of diseases:

Prevalence of infectious/ zoonotic diseases also adversely affects trade in livestock products. More controlled animal health environment is needed especially in case of organic livestock production. Thus, FMD control is number one priority for India. The Diseases Free Zones (DFZs) may be created, where; organic livestock production may be encouraged.