

Organic Livestock Production, Technical Concept, Status and Possibilities in Sudan

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Abstract-The livestock sector is playing a crucial role in the sustainability of rural economics and other ecosystems; however it also has an important environmental impact, and food security. The increasing numbers of the population increase the demand for animal products (animal protein), which is in turn necessitate establishment of new livestock production system that fulfill the combination of food security and production of safe natural animal product. Organic livestock production represents a deliberate attempt to make the best use of natural resources and create integrated, humane, environmentally and economically viable livestock production system that rely on farm renewable resources and management of ecological and biological process. In Sudan, the livestock are raised mainly on open range pastures in a traditional production system, while organic livestock production needs knowledge and management intensive adopting organic production principles, standards and practices. No such regulations are found in Sudan, and the existing Sudanese agricultural legislations had no effect on organic production especially in the storage and the transfer stages. The present work aims to highlights the concept of organic livestock production and providing strategies and insights that will help stakeholders and policy makers in Sudan to improve the sustainability of both the organic sector itself and that of the whole food system.

Keywords-regulations; organic; livestock; pasture; policy maker; Sudan

I. INTRODUCTION

Sudan area is estimated by 1.865.813 Km². It was stated that the area currently cropped is estimated at over 17 million hectares, about 20% of the potential arable land. The government gives usufruct rights to farmers in rain-fed surveyed and registered lands. Conversely, the land used for pasture and for substances cultivation is unregistered and communally owned under customary land laws [1].

Sudan has the second livestock inventories in Africa, next to Ethiopia. Good natural pastures cover almost 24 million hectares and the nomadic pastoral sector accounts for more than 90% of the huge animal population. Cattle, sheep and goods provide an important capital asset and a risk management tool for pastoralists and farmers in times of drought, and they are increasingly important in agricultural irrigated areas as well [1].

The animal wealth of Sudan in the period from 1956-1998 is estimated at 34 million of cattle, 42 million of sheep, 37 million of goats and 3 million of camels [2] all of which are raised under natural grazing systems, in addition to 6000 tons of fresh fish annually produced [3].

The organic production is more than a system of production that includes or excludes certain inputs. Sustainable agriculture could be achieved through using low-input methods and skilled

management, [4]. Therefore, organic agriculture is a holistic system based on a set of processes resulting in a sustainable ecosystem, high quality of food, animal welfare and some economic and social aspects.

Where livestock is concerned, meat and poultry is regulated with particular concern for animal welfare and by using natural foodstuffs. Organic agriculture differs from other farming systems in number of ways; it favors renewable resources and recycling nutrients to the soil. Thus, organic fertilizers used for sustainable production include: animal manures, plant debris, industrial wastes, intensified rotations, green manures, reduced fallow lands, bio-fertilizers (nitrogen fixers and all sorts) [4].

Organic livestock production is a mean of food production with a large number of rules directed towards a high status of animal welfare, care for the environment, restricted use of medical drugs and the production of a healthy product without residues (pesticides or medical drugs). The intentions of organic livestock production have been formulated by the International Federation of Organic Agriculture Movements (IFOAM) and were further implemented by EU regulation 2092/91 in the year 2000. The most notable characteristic of organic production is the emphasis on the production process rather than a product itself (milk, meat, or eggs). Organic does not refer to the term used in (chemistry). The primary aim is to find out ways to grow or produce food in harmony with nature.

Under organic livestock production system consumer expects organic milk, meat, poultry, eggs, leather products that produced from farms that have been inspected to verify that they meet rigorous standards. But organic livestock production is not a production method meant to solve the problem in livestock production, it is primarily a production method for a specific premium market, demanding high quality standards during the entire production process and advanced management qualifications [5].

II. CHARACTERISTICS OF ORGANIC LIVESTOCK PRODUCTION SYSTEM

Organic livestock production mandate the use of organic feed, prohibit use of prophylactic antibiotics and other medical agents (except in medical emergencies) and give animals access to the outdoors, fresh air and sunlight. All other health regulations including vaccination programs should work in harmony with the environment, animals are finally marketed as having been raised without the use of persistent toxic pesticides, antibiotics or parasiticides.

The major characteristics of organic livestock production systems are:

- Adoption of well-defined standards which can be verified.
- Greater attention to animal welfare.
- No routine use of growth promoters, animal offal, prophylactic antibiotics or any other additives.
- At least 80% of the animal feed grown according to organic standards, (the USDA established a new regulation that animals must obtain a minimum of 30% dry matter intake (DMI) from grazing pastures during grazing season) without the use of artificial fertilizers (can use animal manure instead) or pesticides on crops and weeds.

III. AREA OF CONSIDERATION OF ORGANIC LIVESTOCK PRODUCTION

Organic livestock production (sometimes referred to as 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 [6].

Origin of Livestock

In poultry farms, the birds must be under continuous organic management no later than the second day after hatching. In dairy cattle farm, animals must be under continues organic management from the third of gestation, while the farm itself must be under continues organic management beginning no later than one year prior to production.

Livestock Feed

100% Organic feed required.
Exemption for distinct dairy herd conversion.
Feed storage must ensure organic integrity.
Feed processing must ensure organic integrity.

Prohibited Feed Items and Additives:

Animal drugs and synthetic hormones.
Plastic pellets.
Urea.
Manure.
Slaughter by-products.
Feed supplements and additives.
Excessive feeding levels prohibited.
Emergency provision for milk replacer.

Living Conditions:

Must accommodate natural behavior.
Outdoor access.
Fresh air and sunlight.
Exercise areas.
Shelter (Must allow natural maintenance and behavior, exercise, adequate temperatures, ventilation and safety).
Access to pasture for Ruminants.
Adequate bedding required (bedding must be organic if consumed).
Temporary confinement for: (inclement weather, stage of production, health and safety of animal, risk to soil and water quality).

Waste Management:

Manure must be managed in a manner that does not contribute to contamination of crops, soil, or water by plant nutrients, heavy metals, or pathogenic organisms and optimizes recycling of nutrients.

Health Care:

Livestock species and type selection.
Adequate nutrition.
Appropriate housing, pasture, and sanitation.
Freedom of movement; stress reduction.
Appropriate low stress physical alterations.
Vaccines and veterinary biologics.
Natural therapies (herbs, homeopathy, flower remedies, essential oils, acupuncture, radionics).
Synthetic Medications on the list.
No synthetic Pest Controls (traps, botanicals, biological, minerals).

Organic Pasture Integrity Issue:

Treated fence posts: Existing installations are allowed on land in transition.
New installations are prohibited where they can contaminate forages and animals.
Conventional grazing animals (Allowed as long as the land is managed according to the organic regulation requirements for organic crop production and no contamination occurs).

Criteria of organic livestock products:

Livestock products from organic system can be distinguished by:-
Applying for organic certification by an accredited certifying body.
Acquiring an organically certified certificates and labels.

Animal Health in Organic Livestock Production:

Disease prevention in organic farming is based on the principles that an animal that is allowed to exhibit natural behavior is not subject to stress, is fed optimal (organic) feed, and will have a higher ability to cope with infections than animals reared in a conventional way [7]. Fewer medical treatments would thus be necessary and if an animal would become diseased, alternative treatments instead of conventional drugs should be preferred, Although homeopathy or phototherapy are recommended according to prevailing regulations.

Most Important Health Problems:

Important health problems in organic livestock farming are often related to the outdoor access area, exposing the animals to various viral, bacterial and parasitic infections some of which may only influence the animals' own welfare whereas other ones may also endanger the health of conventional livestock (e.g. Avian Influenza) or pose a food safety (Campylobacter, Toxoplasma) problem to the consumer. Many preventive measures can be taken, such as using better animal breeds, optimized rearing conditions, pre- and probiotics, and addition of acids to the drinking water. In case of infectious disease, tight vaccination schedules may prevent serious outbreaks.

Could a conventional Livestock Farm Be Converted To An organic One?

The basic standards of organic livestock production are suited to reduce environmental pollution and nutrient losses on the farm level markedly. To convert a conventional livestock farm, it should follow the laid out of organic standards appointed by the organic organization in the country within a specified conversion period for each species of livestock.

IV. ORGANIC LIVESTOCK PRODUCTION IN SUDAN

Organic livestock production in Sudan, is still far away from the concept of organic production, in spite of the fact that, livestock production in Sudan and many African countries is predominantly traditional, less mechanized, and is usually associated with minimum use of chemical fertilizers, pesticides, and drugs. This low external input production also referred to as "organic by default" can create basis for organic farming where agro-ecological methods are introduced and present an alternative in terms of intensification to the current low-input/low-output systems.

Traditional livestock production should not be confused with the organic one, because in some cases, the existing traditional practices have consequences like overstocking and less attention to soil improvement as well as to animal health and welfare, which is contrary to organic principles of ecology, fairness, health, and animal welfare [8]. Challenges of implementing sustainable organic practices in the Sudanese livestock sector threaten its future development, such as vectors and vector-borne diseases, organic feed insufficiency, limited education, research, and support to organic livestock production. The prospects of organic livestock development in Sudan can be enhanced with more scientific research in organic livestock production under local conditions and strengthening institutional support.

V. CONCLUSION

Due to the growing demand for animal products, there is a need to design new livestock production systems that allow the combination of food security and sustainability. Within this context, organic livestock may be a useful strategy to achieve such a pivotal goal. However, there is a lack of studies that integrate the existing knowledge, specifically in organic livestock, and integrating the main aspects implied in its practice (its externalities and challenges).

VI. RECOMMENDATIONS

Setting up organic livestock production policy and policy action plan for the country.
Establishing competent authority for monitoring and surveillance for the sector.
Approving the regulation from the government.
Launching the Logo for the certified products.
Attracting the stakeholders within association.
Building research center for the extension services.

Enhancing the role of the domestic certification bodies.
Supporting the organic inputs suppliers.
Designing strategy for the market development.
Offering training program and capacity building for the governmental staff.
Encouraging the investors, NGOs, Companies to enter into the sector.

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