Animal health and welfare in biodynamic farming system, Egypt

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Description

Biodynamic farming systems adopt a holistic approach to agriculture. This has significant advantages for the sustainability of the farming system and its impact on the environment.

Biodynamic agriculture considers both the material and spiritual context of food production and works with terrestrial as well as cosmic influences. The influence of planetary rhythms on the growth of plants and animals, in terms of the ripening power of light and warmth, is managed by guiding cultivation times with an astronomical calendar. All organic principles apply to biodynamic farming, gardening and forestry. A specific feature of biodynamic agriculture, inspired by Rudolf Steiner (1861-1925) is the regeneration of the forces that work through the soil to the plant by using compost and spray preparations from naturally fermented organic substances in minute doses to soils and crops. The aim is to harvest crops which not only have substances but also vitality. The use of biodynamic preparations has been shown to have substantial restoration power on exhausted soils and biodynamic animals seem to have better resistance to infection (FAO, 2009).

Following alternative paths, the SEKEM initiative in Egypt has been working for 35 years according to the principles of biodynamic agriculture, with humus as its basis. Humus brings structure to soil and enables it to sequester carbon. However, in Egypt most soils are destructed (naturally and due to human activities), and topsoil has deteriorated. As a result, business as usual agriculture and its treatment of soils contributes to global warming.

SEKEM Agriculture (holding for the agricultural activities and companies of SEKEM) operates throughout the agricultural cycle. SEKEM Agriculture’s activities include reclaiming desert land, natural pest control using predators, growing grafted organic seedlings, cattle management and composting. SEKEM Agriculture has a significant social impact in Egypt: providing employment for 1,413 people, establishing a kindergarten, a school, a vocational training centre, and a special needs school in the last three decades. Within the schools and companies, culture and arts play an important role.

By applying a holistic approach to agriculture, including a closed value chain within the Egyptian market, SEKEM is able to produce high quality products with full transparency and traceability from the field to the supermarket.¹

In the years 2007-2009 SEKEM acquired three new plots of desert land (total area of 2,630 ha), with the aim to establish model farms to demonstrate that biodynamic agricultural methods are the best option for Egypt in terms of desert land reclamation, providing food security and sustainable development. By 2013, about 684 ha have been reclaimed and developed including the construction of necessary infrastructure and community centres on all three farms.

¹ All processing for the Egyptian market is carried out by SEKEM. For the international market, products are processed by partners in Germany.
This study shows that organic production is possible in a dry climate by following biodynamic farming principles. In the low-input livestock production sector, where fewer resources are available compared to temperate climates, biodynamic principles also help to assure livestock health and welfare.

**Organic crop production in Egypt**

Soil & More International conducted a study to determine whether organic or conventional agricultural practices will be more sustainable in the future in both ecological and economic terms. The indicators used for the study were carbon and water footprints and farm economics.

The results clearly showed that in the long-term, business as usual farming systems will be unaffordable and inefficient for a country like Egypt where there is a lack of natural resources and the population continues to increase. For long-term sustainability, organic agriculture systems would enhance soil organic carbon and improve the efficiency of the farming system. According to the study, the carbon footprint in organic farming systems would be much lower than in business as usual systems for all seven strategic crops growing in Egypt. The total water footprint would also be lower under organic farming systems for all seven strategic crops, which means that organic production requires less water to produce a tonne of crop than business as usual farming systems.

**Animal husbandry**

Animals play a crucial role in the balance of all ecosystems. They are capable of different patterns of behaviour and even show emotional life in their higher stages of development. Like human beings, they are sensitive to pain. Treating animals in a species-appropriate way is to respectfully deal with life itself. In SEKEM’s Demeter based understanding of farm and cattle management, animals are not only raised in ways appropriate to the species, but also with the physical requirements of their natural development.

SEKEM’s livestock sector includes cattle, sheep, bees and pigeons. The cattle live unbound in an open space covered by a shading roof. Their nutrition consists of corn-silage, clover, straw, fodder beat, corn, soya, cotton seeds and local wheat bran. The average milk production per cow per day is around 23 litres. The sheep nutrition consists of clover and regularly grazing. The two other animal species, bees and pigeons, are kept on the main farm and in Adleya and are freely moving for feeding.

A unique characteristic of ruminants such as cows is that they are able to turn crude fibre to food like milk and meat. No other animal (including humans) is able to do this. Apart from cow, sheep and pigeon meat, milk, honey and the by-product wool, the most important product is the manure of the cows, sheep and pigeons that goes directly to compost production. Manure from animals adds vital parts to the mixture with green residue. The manure with the best characteristics for producing compost comes from ruminants.

SEKEM Libra is the part of the SEKEM group that concentrates its operations on cattle management. The company produces milk, eggs, meat and fodder and began producing compost under the name of Soil & More Compost in May 2007. Altogether, Libra has five different products that are used as raw materials for the other SEKEM companies, which process them. The exception is compost and the associated carbon credits, which are sold and traded on the open market.
Composting for organic fertilization

Composting at Libra is carried out in two sites, one in Adleya and one near Alexandria. Libra has a total of 8 ha of composting area and 1 ha of storage area. Each year around 30-40,000 tonnes of compost are produced. This is equivalent to around 1000 hectares of land which could be reclaimed using the compost.

The aerobic conditions throughout the composting process are the basis of acquiring methane avoidance based carbon credits, a project which Libra has developed together with Soil & More International. Optimal compost has an increased water holding capacity, suppresses diseases, improves soil structure and works as substitute for synthetic fertilizers. Compost offers a higher productivity per unit of land, which makes the farmer more economically competitive.

Lessons learnt

Through respect and controlled management of animals SEKEM achieves a balance in cycling of nutrients in the system. Manure application in crop production is a major success story of the whole enterprise which was able to reclaim lands in a dry region through optimizing agricultural activities thus minimising the impacts of the system on environment and improving sustainability of its business.

References