

## SEKEM Agriculture

**General** SEKEM Agriculture functions as holding for the agricultural activities and companies of SEKEM. From reclaiming desert land through SEKEM For Land Reclamation, cattle management and composting through Libra, natural pest control to grafting plants through El-Mizan, the whole agriculture cycle is covered.

In SEKEMs mission holistic agriculture represent the basis for Sustainable Development. Through Biodynamic agricultural principles, quality standards and efficiency improvements, the application of new technologies and education of all our stakeholders, SEKEM wishes to achieve “eco-literacy.” This means keeping the environment in balance and taking the scarcity of all resources into consideration. To assure that our environmental management system works effectively, we have aligned it with the ISO 14001 standard. The responsibilities related to corporate environment protection (e.g. water, energy, waste) are organized centrally under the General Compliance Manager.

Until 2014, more than 1600 Feddan of desert land have been reclaimed and developed including all necessary infrastructure for sustainable development on all four SEKEM Farms. SEKEM for Land Reclamation is the responsible entity for these activities.

Between the years 2007 and 2009 SEKEM acquired three new plots of desert land (total area of 6000 Feddan), in El Wahat El Bahareya, Minya and Sinai.

### Sustainable Land Reclamation

Each feddan cultivated by SEKEM has to be turned from desert land into vital soil. Today, the top layer of SEKEMs first farm soils (up to 30 cm in depth) is rich of Organic matter and a broad spectrum of microbiological life; a main requirement for an increased water holding capacity. Furthermore, the microorganisms are essential to make nutrients such as nitrogen, potassium or phosphate available to plants. For creating this vitality in the soils, three techniques are applied: First, the application of compost, compost tea and other Organic fertilizers, second, the rotation of crops and, third, the use of Biodynamic preparations.

### Compost

To build-up the first Organic matter in empty desert soils, SEKEM uses compost that is produced at the own premises. The continuous treatment of the field with compost tea (a mixture of compost with molasses and water aerated for 16 hours) maintains and accelerates the activity of the microorganisms in the soil. In some cases, further Organic fertilizers are added.

### Biodynamic Agriculture

Biodynamic agriculture is a method of Organic farming that applies a holistic understanding of life processes.

As one of the first sustainable agriculture movements, it treats soil fertility, plant growth, and livestock care as ecologically interrelated tasks emphasizing spiritual and cosmic perspectives.

The basic idea of Biodynamic farming is the treatment of animals, crops and soil as a single system in a sustainable way. A high diversity of plants and animals should be present on the farm: trees, various plants of different seasonality and different animals like birds, insects and small animals like hedgehogs, lizzards and others. It's important to keep the balance between the flora and fauna and that they do not disturb the life cycle on the farm but support it with their respective contributions. Hence, they strengthen each other and contribute to the nutrition of the human being and themselves. Therefore, the cultivation plan takes a crop rotation into account related to the circumstances of each farm. An astrological cultivation calendar is used to set the correct time for agriculture work. The basic principle of fertilization is the creation of a compost out of plant residues and animal manure from the farm. This mixture is treated with the six Biodynamic compost preparations made from medicinal plants. Additionally, there are two Biodynamic field preparations used when cultivating the fields. The Biodynamic preparations enhance all the bacterial, fungal and mineral processes that are found in the Organic farming system. Therefore, they are the base for sustainable, Demeter agriculture.

### Demeter

SEKEM is an active member of Demeter International, the largest certification organization for Biodynamic agriculture worldwide.

**Animals** As holistic and sustainable agriculture include animals, SEKEMs company Libra is taking care about animals like cows, sheeps, chicken and bees. Hence, SEKEM produces milk, eggs and meat. In SEKEMs Biodynamic 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. Hence, for instance the cattle lives in an open space covered by a shade roof.

**Seedlings** SEKEMs company El-Mizan is raising plants to provide not only SEKEM but also Egypt's other vegetable producers with healthy and profitable grafted seedlings. The combination of a vigorous root-stock and a strong variety leads to an increase in crop productivity of up to 10%. Such grafted plants are more resistant against soil diseases like root rot, viruses, fusarium and are better adoptable to extreme climates. Grafting also means lower cost per plant due to higher productivity and better plant health and lower cost per area through lower plant density

**Water** SEKEM uses three sources of water: Nile water, government-distributed water and well water. In all companies and all farms, certain rules for water usage apply though they are not yet enforced through a written policy. The waste water from all companies is reused after treatment as irrigation water for the trees at the main SEKEM Farm.

SEKEM supports the CEO Water Mandate, a UN Global Compact Initiative. As Egypt will be hugely impacted by the world's water scarcity, we regard it as one of our highest priorities to raise awareness for the careful and efficient usage of the country's water sources.

The irrigation methods used in SEKEM are Sprinkler Irrigation (SI), Drip Irrigation (DI). About 60% of the cultivated farmland is equipped with drip irrigation. The remaining 40% is irrigated by sprinklers. The subsurface drip irrigation is still in the phase of experimentation. The area equipped with this system is about 2.5 ha.

The field application efficiency is 70% by sprinkler irrigation and 90% by drip irrigation.

**Energy** Egypt is predestinated for using the energy of the sun. Hence, SEKEM is integrating different kinds of solar energy systems holistically in all fields of activity: education, research, agriculture and the different business areas. Small photovoltaic stations, several hybrid solar dryers for herbal production, Sheffler mirrors to produce steam for production processes, several solar water heaters are already in use and recently SEKEM installed the largest solar-powered water pump in Egypt on the SEKEM Farm in El Wahat El Bahareya.

**Waste** All waste of SEKEMs companies, educational institutions and residential houses is separate on the SEKEM Farm and is recycled whenever possible. By processing the green waste into compost greenhouse gas emissions are decreased substantially. Waste water is treated and then used for the irrigation of trees that surround the SEKEM Farm.

**Contracted Farmers** Approximately 70% of SEKEMs raw materials come from contracted farmers all over Egypt. At the moment SEKEM has approx. 130 suppliers that subcontract more than 400 small-holding farmers. All of them are part of the Egyptian Bio-Dynamic Association (EBDA). The EBDA is a non-governmental organization that was established in 1990 with the support of SEKEM to promote Biodynamic agriculture in Egypt. The organization supports its members in shifting from conventional to Biodynamic agriculture according to the Demeter standarts. Besides, the EBDA takes care about SEKEMs supplying farmers and ensures that all products are treated according to the quality standards (Organic, Demeter, Fairtrade).

## Factsheet SEKEM Agriculture

<b>Established</b>	1977
<b>Head Quarter</b>	3 Belbes Desert Road, P.O.Box 2834 El Horreya Heliopolis, Cairo, Egypt
<b>Size of Land</b>	Total reclaimed land: 1628 Feddan (1 Feddan equals 0.42 hectares) El Wahat El Bahareya: 500 Feddan Minya: 500 Feddan Adleya: 150 Feddan Sinai: 1000 Feddan
<b>SEKEM Farms</b>	Adleya, El Wahat El Bahareyya, Minya, Sinai
<b>Number of Employees</b>	90
<b>Main Businesses</b>	Sustainable Land Reclamation Production of Biodynamic crops Biodynamic Cattle Management
<b>Products</b>	Vegetables: Tomato, Cherry Tomatoes, Zucchini, Broccoli, Colored Pepper, Cucumber, Green Beans, White Beans, Onions Cereals: Wheat, Quinoa, Chia Medicinal and Aromatic Plants: Chamomile, Basil, Calendula, Echinacea, Verbascum Fodder Crops: Alfalfa, Ray Grass, Corn Animal Products: Eggs, Milk, Honey, Meat and others
<b>Animals</b>	Bulls: 22 Dairy Cows: 130 Laying Hens: 17500 Sheep: 554 Bee Hives: 54 Pigeons: 1550
<b>Contracted Farmers</b>	130 supplying farmers that subcontract more than 400 small-holding farmers
<b>General Manager</b>	Dr. Amr Sabahy
<b>Research and Development</b>	Angela Hofmann
<b>Finance Manager</b>	Mohamed Hassan
<b>Supplier Manager</b>	Ibrahim Saad