



Deutscher Tropentag, October 9-11, 2002, Witzenhausen
“Challenges to Organic Farming and Sustainable Land Use
in the Tropics and Subtropics”

Comparison of Conventional and Organic Grown Fennel in Egypt

MOHAMED KANDIL¹, SALAH AHMED¹, EWALD SCHNUG²

¹National Research Centre, Egypt

²Federal Agricultural Research Centre (FAL), Institute of Plant Nutrition and Soil Science, Germany

Abstract

Bitter fennel (*Foeniculum vulgare* MILL.) is an important crop for small farming in Egypt. Seeds are used as raw material for medical and aromatic products especially for the export to Europe. Due to these uses and high quality demands the processors prefer seeds grown according to the standards of the EU directive 2092/91 for organic products. This means strict regulations for the use of fertilizers such as avoidance of mineral nitrogen, soluble phosphates and limitation to raw potassium.

Field trials on two sites, a newly reclaimed sandy soil (Sekem) and an intensively used old cultivated soil (Nile valley) were conducted to prove the effects of different farming systems on seed quality. Fertilization practices have been compared based on plant nutrient applications in conventional farming, such as ammonium nitrate, super phosphate and potassium sulfate. These were compared to practices in organic farming such as compost, compost plus Azotobacter (for better mineralisation) or chicken manure for nitrogen supply, rock phosphate or rock phosphate plus elemental sulfur for phosphorus and sulfur supply and feldspar for potassium supply. Experiments have been conducted during two growing seasons 1998/1999 and 1999/2000.

Results showed that conventional farming practices generally gave the highest yields for seeds and oil (3.1–3.4 t^{seeds}/ha and 71–86 l^{oil}/ha) followed by compost plus Azotobacter as nitrogen source, rock phosphate plus sulfur and feldspar for potassium supply which gave similar results (3–3.3 t^{seeds}/ha and 60–82 l^{oil}/ha). The composition of the essential oil had not been influenced substantially by the two different farming systems (no statistically significant differences were found).

It can thus be recommended that farmers in Egypt might grow fennel due to organic farming practices without substantial loss of income.

Keywords: *Foeniculum vulgare*, oil composition, oil yield, organic farming, seed yield