Organic greenhouse horticulture in Eastern Meditranean Area, Constraints and Possible solutions

Roula FARES

COST is supported by the EU Framework Programme

COST Action FA 1105: Training School - 15-19 Sept 2014 - CIHEAM – IAMB
Soil fertility, Suppressiveness & Water management for organic agriculture: constraints and opportunities for greenhouse horticultural production

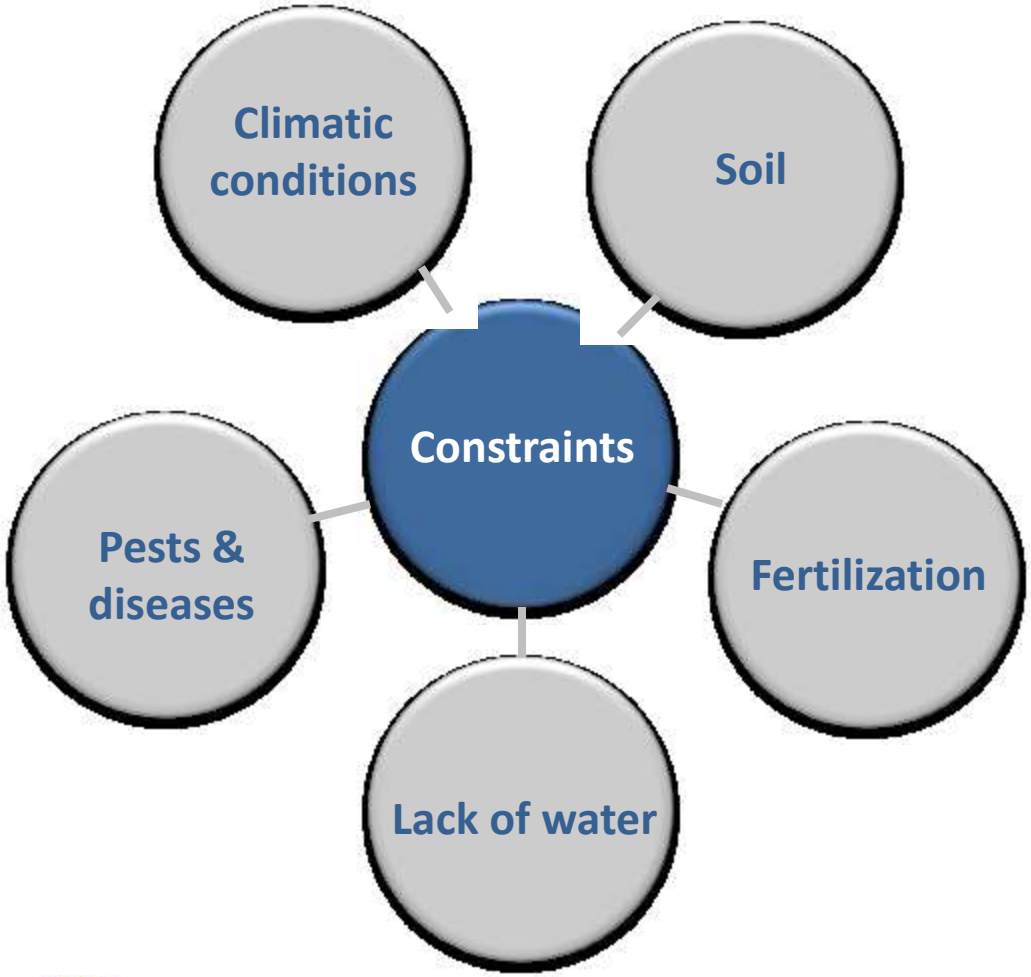
ESF provides the COST Office through a European Commission contract

Country	Status
Saudi Arabia	Not fully implemented
United Arab Emirates	Not fully implemented
Lebanon	In the process of drafting regulations
Syria	In the process of drafting regulations
Egypt	In the process of drafting regulations
Morocco	In the process of drafting regulations

Tunisia	**Fully implemented**
JORDAN	Issue of the Bylaw (April 2011)

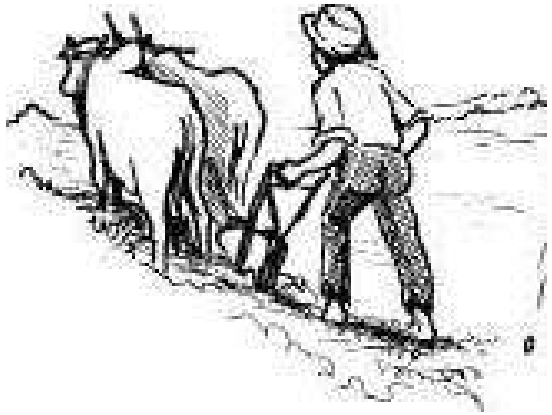
- *The Arab region has a total area of about 14 million square kilometers out of which more than 87% is desert, with super aridity and poor vegetation cover dominating the region Water Resources in the Arab Region* **(Source: Arab World council, 2009)**

Main constraints



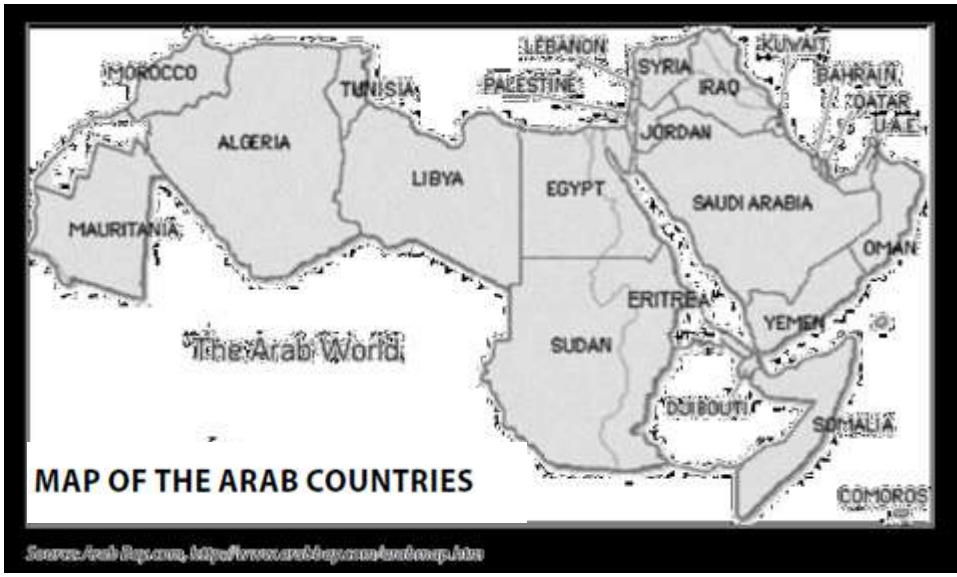
Lack of knowledge

Technical experts and at farmers level



Climatic conditions

Average annual temperatures, as well as maximum and minimum temperatures, also vary from freezing to over 50ºC, depending on the season and location.



Droughts affect the lives of the rural poor through decreased agricultural production and endangered environment as seen in loss of soil fertility, increasing of some diseases problems...

Climatic conditions

Soil temperatures that are too high are a major constraint on crop production in many parts of the Eastern Mediterranean region .

a. Roots absorb more water at higher soil temperatures up to a maximum of 35 C.

b. Soil temperature above 20 C leads to a rapid turnover of organic matter and nitrogen mineralization (Kenny & Hanafi, 2001).


Cooler

Under greenhouses, the speed of nitrogen and organic matter turnover is even higher. Therefore, farmers are not counting on manure and/or compost alone, they are also using fertigation with manure juice, intercropping with legumes and the incorporation of crops debris left after the harvest (Kenny & Hanafi, 2001).

The Soil

Sandy soil

The Soil

Poor soil

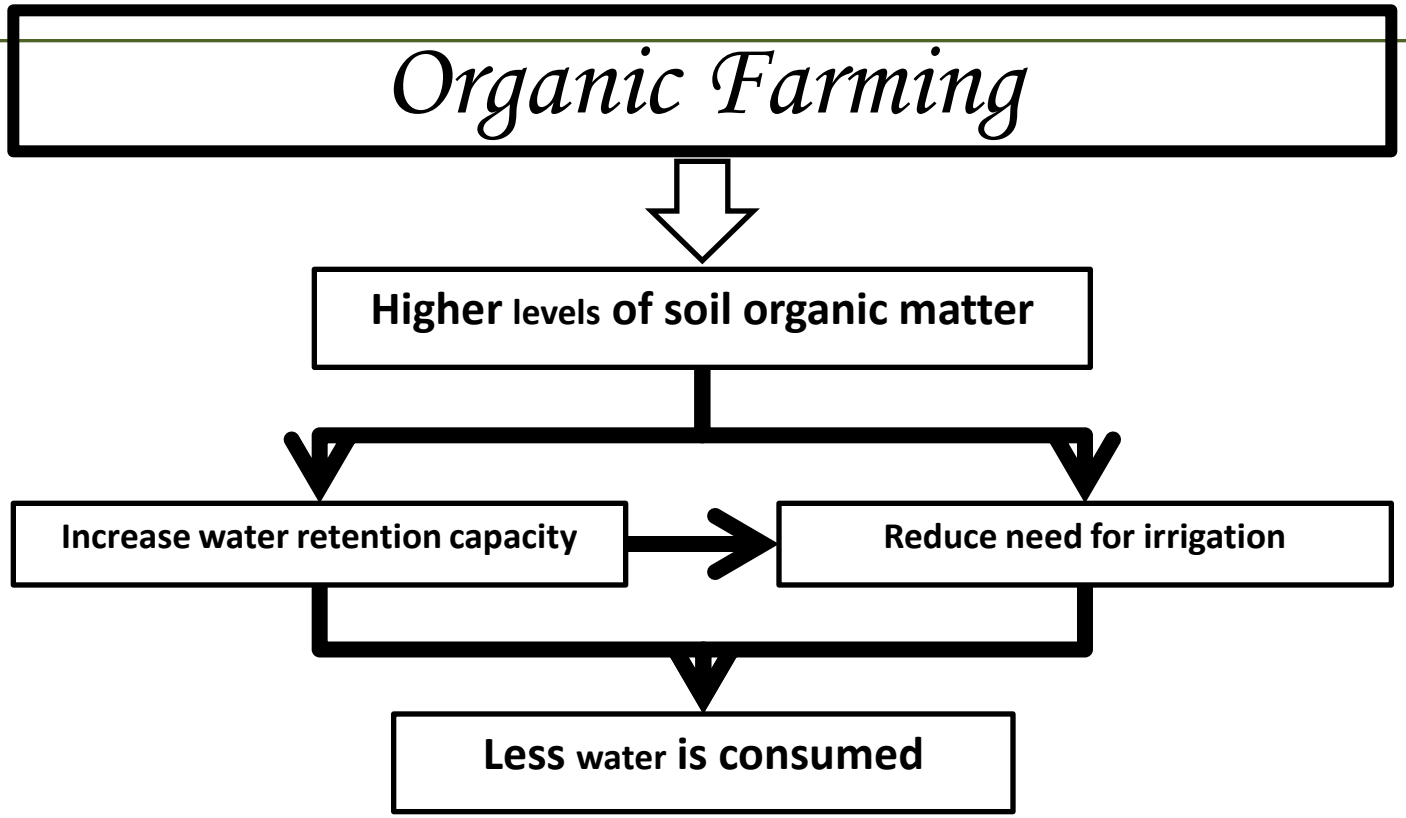
The Soil

Saline soil

Lack of water

- *The average amount of rain received by the Arab region is estimated at 2,148 km3 per year, out of which about 50% occurs in Sudan.*

- *The average annual precipitation for the Arab nations varies considerably between 18 mm/yr in Egypt and 827 mm/yr in Lebanon, and averages at 156 mm/yr (FAO, 1997).*



Water conservation is a concern in organic farming. It is incorporated as a basic principle into the EU organic regulation (EU regulation 834/2007), so that careful attention must be paid to choosing appropriate and innovative irrigation systems

Pests & Diseases

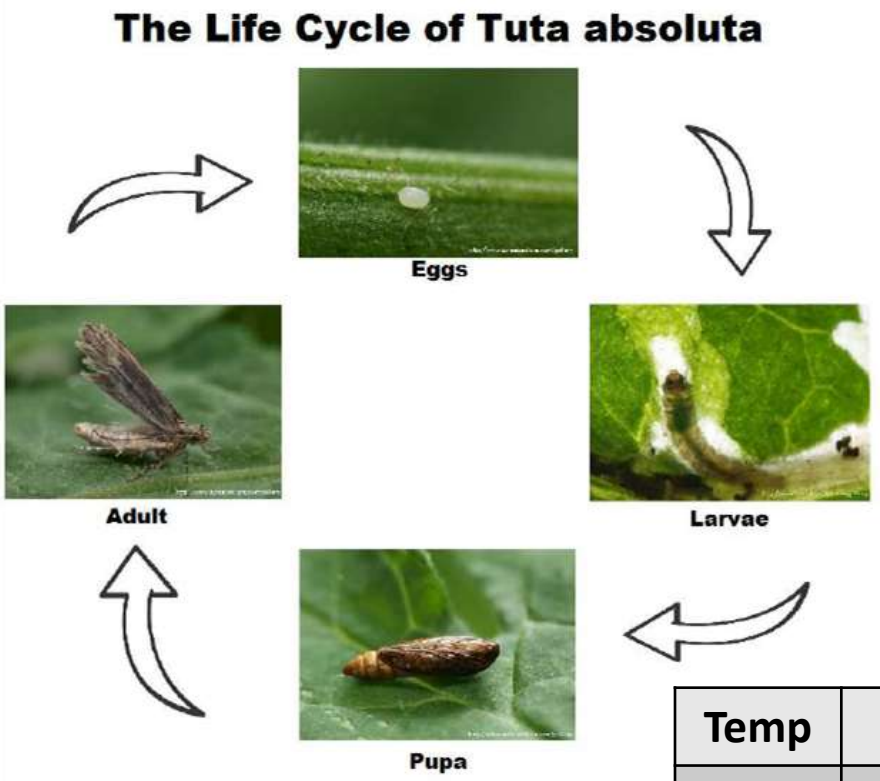
1. Soil born diseases (Nemathodes, sclerotinia, …)
2. Tuta Absoluta
3. White Fly (virus)
4. Red spider mite
5. Tomato russet mite

Soil Born Diseases

COST is supported by the EU Framework Programme

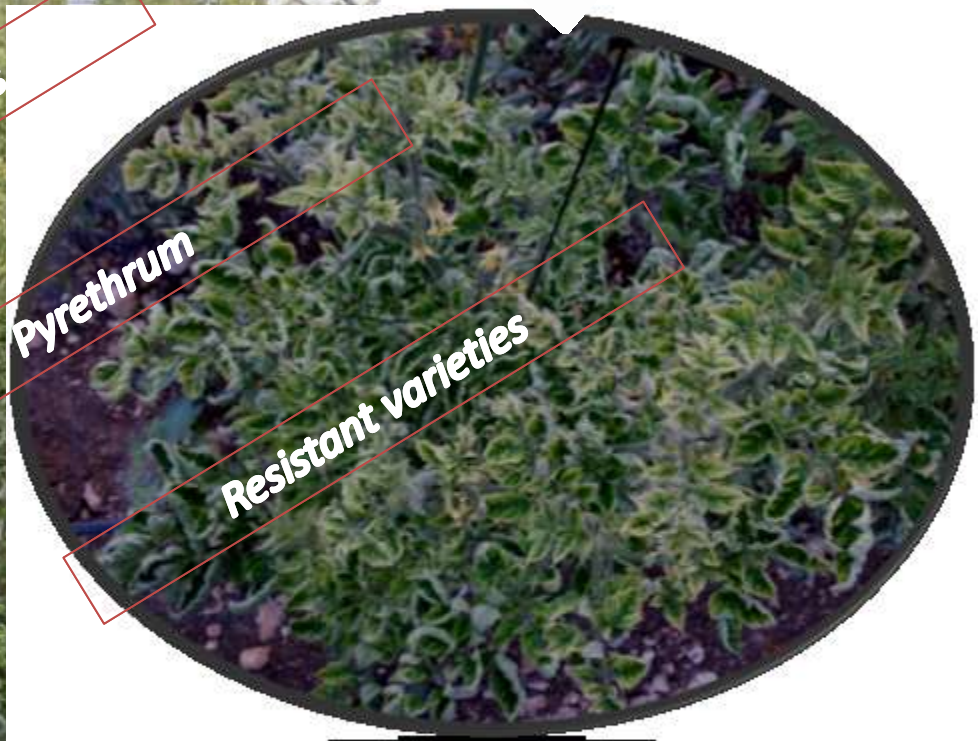
ESF provides the COST Office through a European Commission contract

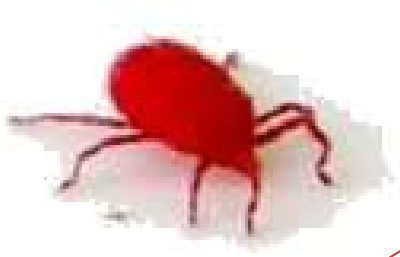
Tuta absoluta



Temp	Egg	Larvae	Pupae	Adult	Total (days)
> 24°C	3	10	4	7	24
15°C	10	36	20	23	89


Neem oil
Yellow Sticky traps


Pyrethrum
Resistant varieties



COST is supported by the EU Framework Programme

ESF provides the COST Office through a European Commission contract

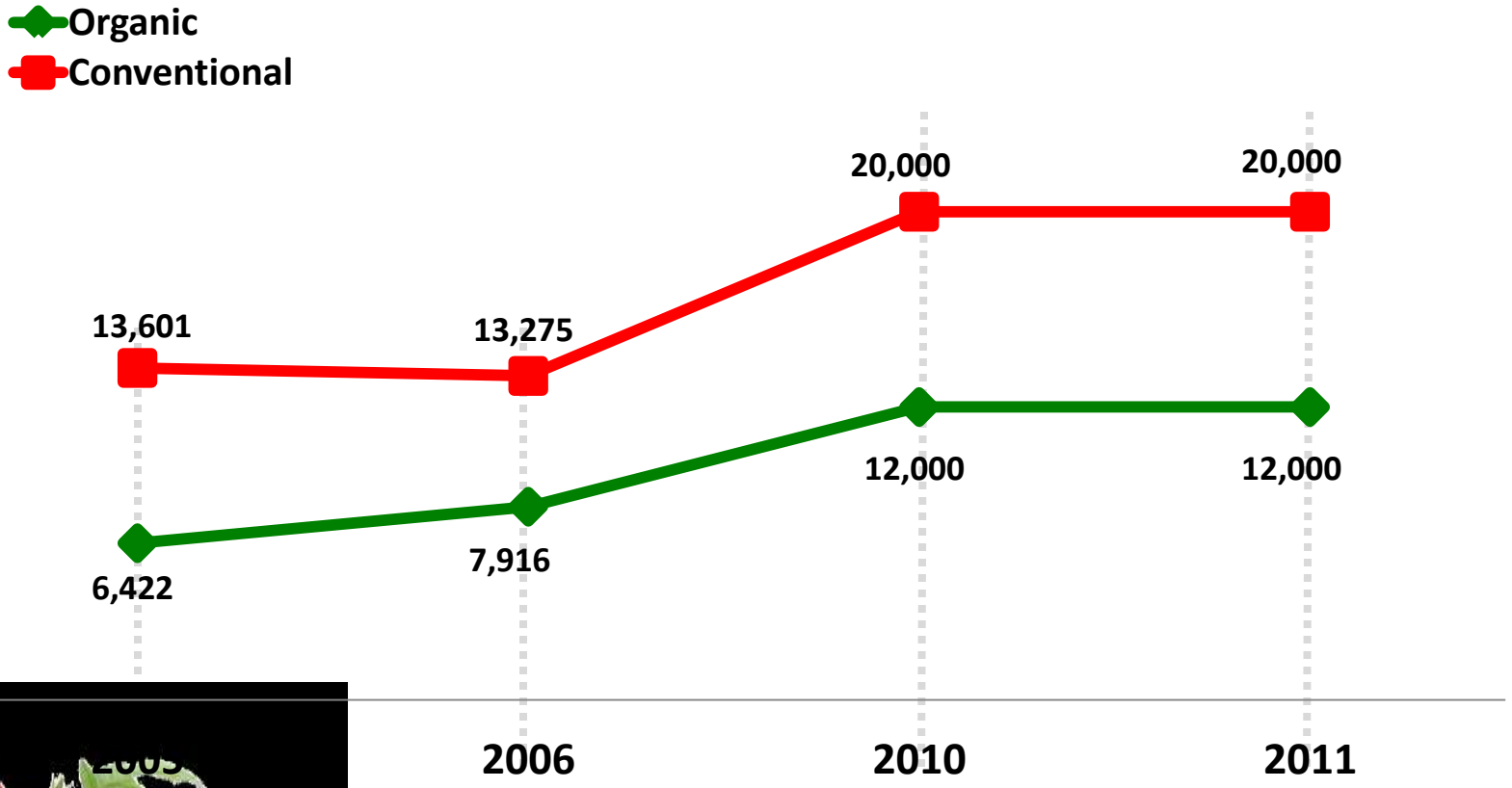
Tomato russet mite

Lack of Organic seeds

Lack of Bio-pesticides and on-farm input

Lebanon

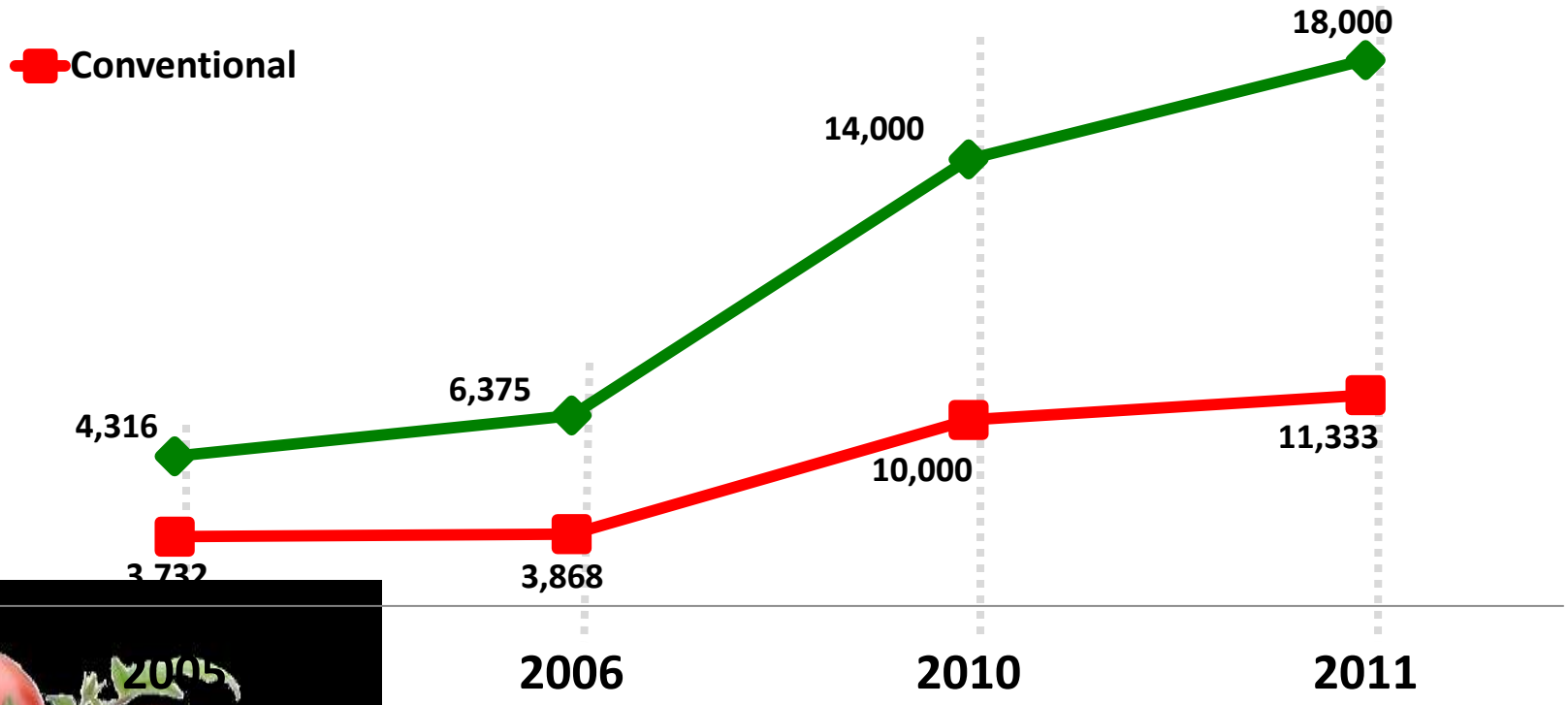
Tomato Production (Kg/du)



ESF provides the COST Office through a European Commission contract

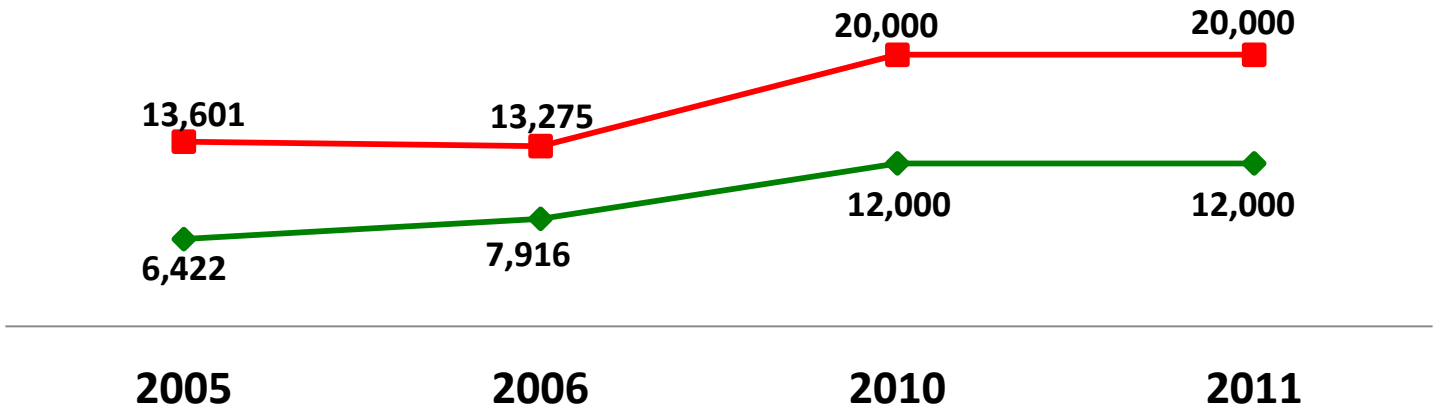
Lebanon

Sale Amount (US $/ du)

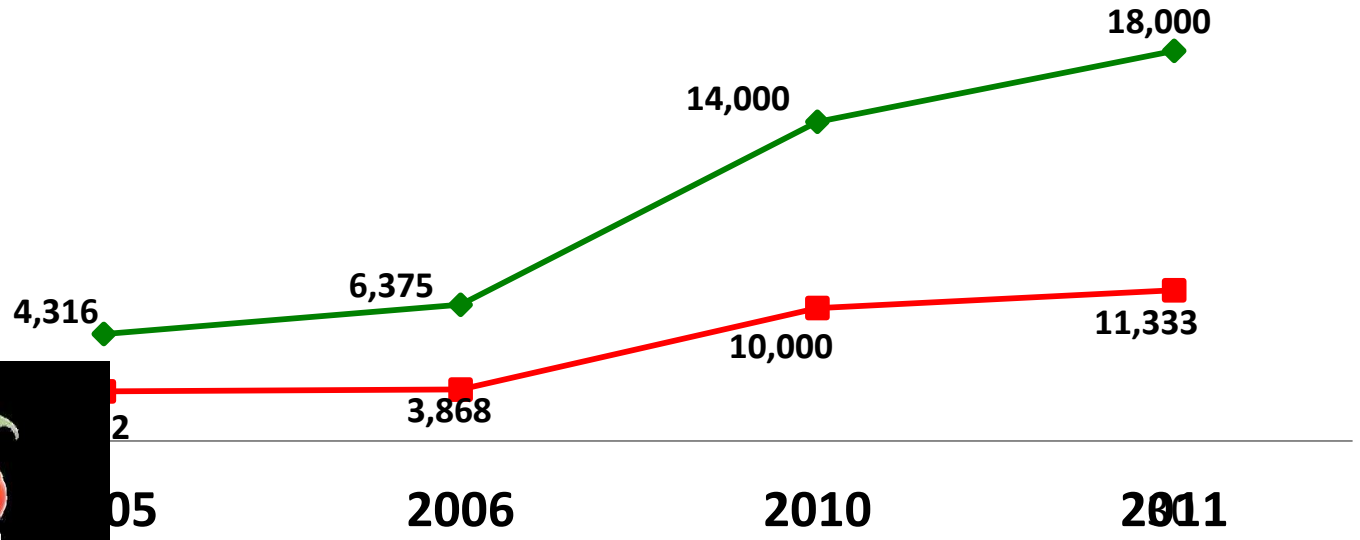


ESF provides the COST Office through a European Commission contract

Tomato Production (KG/du)

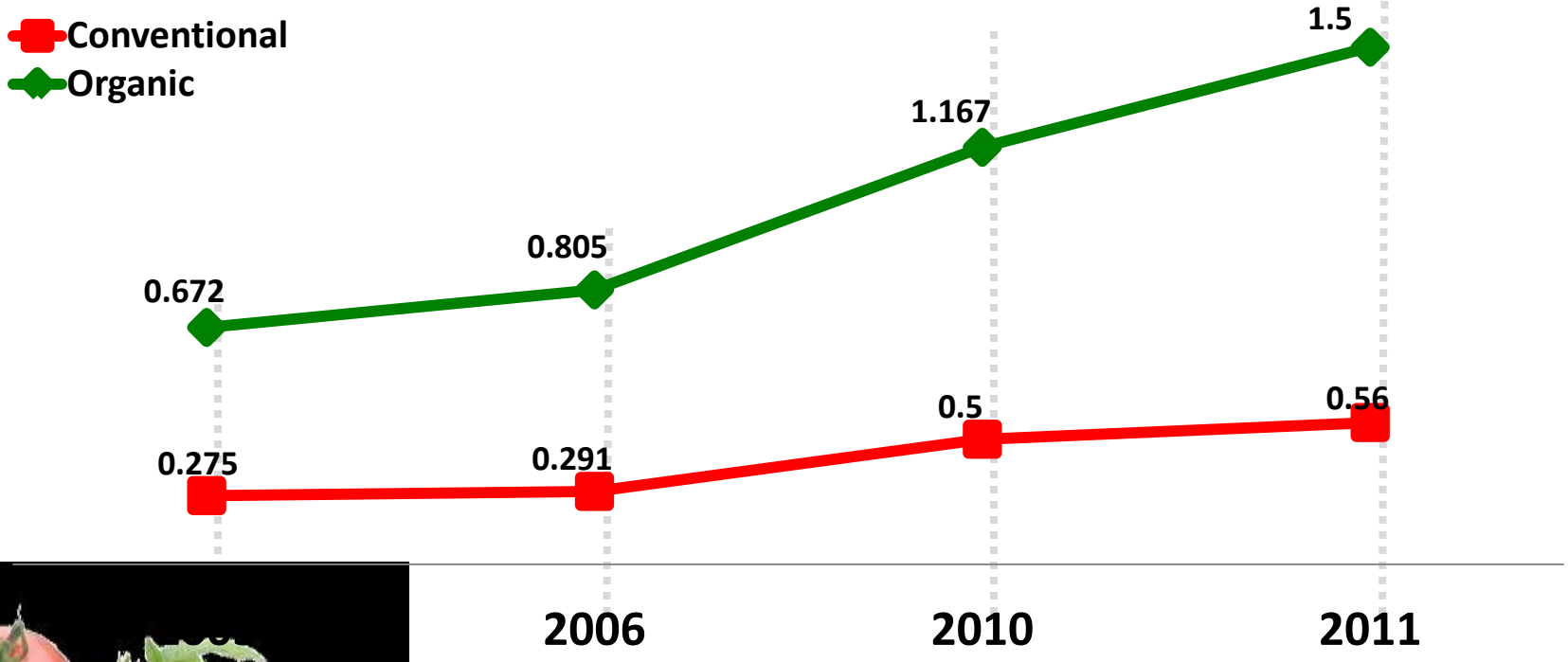


Sale Amount (US $/du)



Lebanon

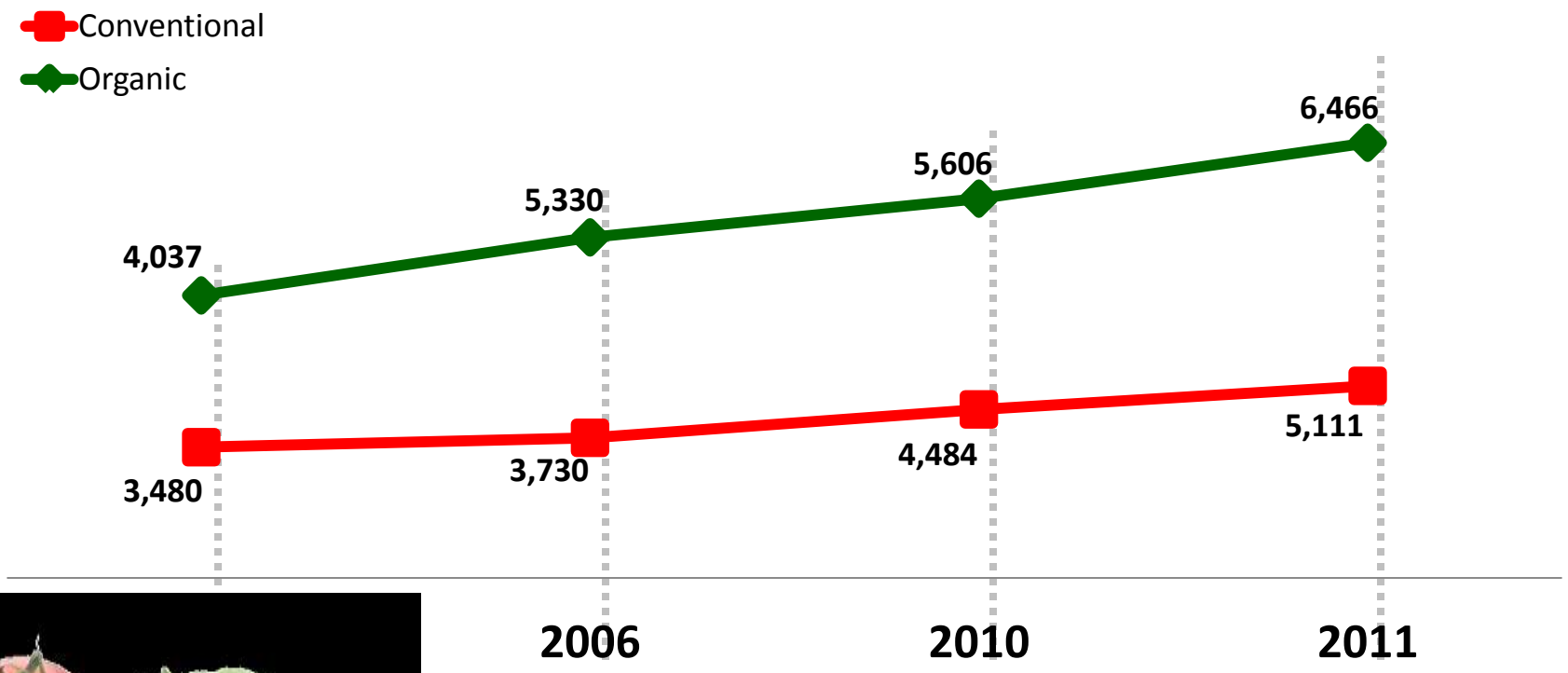
Price of 1kg of tomato (US $)



ESF provides the COST Office through a European Commission contract

Lebanon

Production Expenditures (US $/du)



ESF provides the COST Office through a European Commission contract


Lebanon


Lebanon


Lebanon


Jordan


Jordan


Jordan


Emirates


Lebanon


Lebanon


Jordan


Jordan

Thanks for your attention