

Mini series

Greenhouses in the Middle East <Part 1>

Middle Eastern greenhouses are yellow! This is the first impression I had when I saw greenhouses for horticulture for the first time in Syria. After this initial encounter, I subsequently had opportunities to see greenhouses in various parts of the Middle East including Jordan, Iraq, UAE and other areas. The vast majority of greenhouse coloring was yellow. As I was used to Japanese greenhouses, the yellow greenhouses looked a bit peculiar! In this new series, I would like to discuss greenhouses in the Middle East which has been one of my interests for a long time, and make comparisons with greenhouses in Japan. This time I would like to focus on single-span greenhouses which are owned by private farmers, rather than the large scale multi-span greenhouses in the Gulf States constructed in what is commonly called the Venlo type greenhouse.



Yellow arch greenhouse seen in Syria

Difference in concept

Horticulture involves intensive cultivation of vegetables, fruits and flowers in structures such as greenhouses. The main reason for using greenhouses is to prolong the period of cultivation by controlling the environment inside the greenhouse to be appropriate for crop growth and minimize external environmental impact such as changing seasons. However, the purpose of greenhouses for cultivation in the Middle East seems to be totally opposite to that in Japan.

In many parts of Japan, greenhouses are used for heating and maintaining temperature. Generally speaking, greenhouses in Japan focus on extending the cultivation period into colder winter months by artificially heating the greenhouses. Therefore most Japanese farmers naturally introduce heating rather than cooling facilities. In addition, greenhouses in Japan are becoming increasingly high-tech, controlling non temperature elements such as humidity and CO₂ concentrations to promote crop growth.

On the other hand, greenhouses in the Middle East

where the summer temperature is extreme often rising above 40°C, the priority consideration is how to cool greenhouse interiors. Many greenhouses have cooling facilities but not heating facilities. In particular in the Gulf States such as UAE rich in oil, every ordinary greenhouse has a cooling facility. These differences in terms of the purposes of greenhouses may well be affecting the shapes and facilities of greenhouses.

Roof shape of greenhouses in the Middle East

Japanese greenhouses come built of many materials and in many shapes. There are glass greenhouses or many kinds of soft plastic film greenhouses. Roof shapes could be even-span, quonset or three-quarter. Whatever their shape and size, Japanese greenhouses usually have windows on the side wall and a sky window on the roof. By opening and closing the windows, air gets circulated inside the greenhouse and the temperature can be controlled.

By contrast, most greenhouses in the Middle East are arch greenhouse and quonset greenhouse. As far as the author could see, greenhouses in UAE have a quonset greenhouse, and in the Gulf States such as Iraq, Syria and Jordan, they are simple arch greenhouse. There are no windows. Working inside these arch greenhouses, low ceilinged greenhouses is difficult at the edges and corners. Even though quonset greenhouses are superior to the arch greenhouses for actual work inside, they are not commonly used. One reason for this probably is that materials to construct quonset greenhouses are more costly than arch greenhouses.

Greenhouse in UAE
(Quonset greenhouse)

Even-span greenhouse in Japan



Quonset greenhouse in Japan



Three-quarter greenhouse in Japan