WAGENINGEN UR
For quality of life

Adaptive Greenhouse Horticulture in arid climates

Examples based on experiences in Algeria, Egypt, UAE, and Saudi Arabia

Main goals

- Increasing production and product quality
- Optimal use of scarce water resources
- Reducing the use of nutrients and chemical crop protection
- Economic feasible

Local conditions in arid climates

- Dry hot summers, shortening the cultivation season
- Winter nights can be cold
- Limited rainfall and water availability
- Specific plagues adapted to dry climates

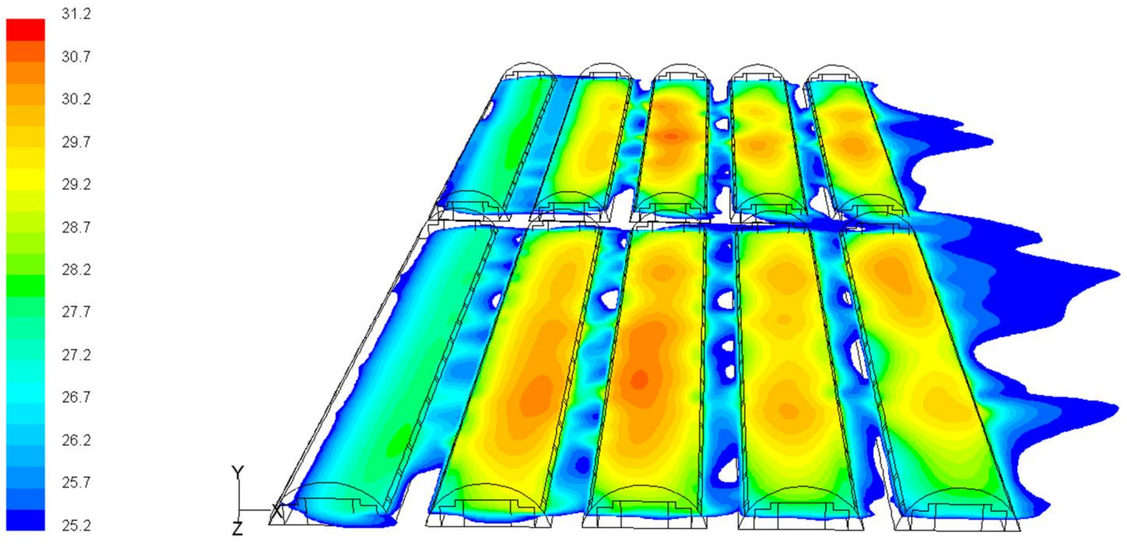
Priority based system design

Dependent on the priorities of the specific goals to be reached, a greenhouse system is designed to fit those needs. In this process the overall effects of individuals measures are included to reach the optimal situation.
Examples are: optimizing the greenhouse temperature conditions in a passive ventilated greenhouse with netting to reduce pests or increasing the water use efficiency in greenhouses with cooling.

Increased water use efficiency (WUE) in greenhouses with cooling

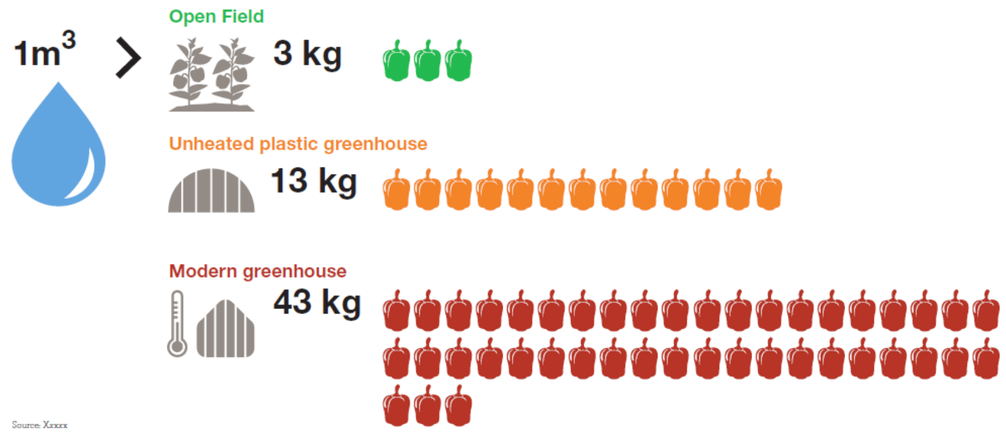
Pad and fan cooling decreases temperature and at the same time increases relative humidity. In arid climates of Northern Africa and the Middle East this technology for cooling the air is an effective method. Within those greenhouses WUE can be, depending on the available water quality, increased using drip irrigation or soilless culture.

Nets against insects



The optimal type and position of nets is based on maximizing its effect on insect prevention while minimizing its effect on ventilation and greenhouse temperatures.

Along coast lines the air is much more humid, there pad and fan is not very successful. Optimal WUE solutions there include forced cooling in more controlled environment greenhouses with also very high production potential.



Source: Xxxxx

Wageningen UR Greenhouse Horticulture
P.O. Box 123, 6700 AB Wageningen
Contact: sjaak.bakker@wur.nl
T + 31 (0)317 485605
www.wageningenUR.nl