



Agricultural production and water use scenarios in Cyprus under global change

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In many countries of the world, food demand exceeds the total agricultural production. In semi-arid countries, agricultural water demand often also exceeds the sustainable supply of water resources. These water-stressed countries are expected to become even drier, as a result of global climate change. This will have a significant impact on the future of the agricultural sector and on food security. The aim of the AGWATER project consortium is to provide recommendations for climate change adaptation for the agricultural sector in Cyprus and the wider Mediterranean region.

Gridded climate data sets, with 1-km horizontal resolution were prepared for Cyprus for 1980-2010. Regional Climate Model results were statistically downscaled, with the help of spatial weather generators. A new soil map was prepared using a predictive modelling and mapping technique and a large spatial database with soil and environmental parameters. Stakeholder meetings with agriculture and water stakeholders were held to develop future water prices, based on energy scenarios and to identify climate resilient production systems. Green houses, including also hydroponic systems, grapes, potatoes, cactus pears and carob trees were the more frequently identified production systems.

The green-blue-water model, based on the FAO-56 dual crop coefficient approach, has been set up to compute agricultural water demand and yields for all crop fields in Cyprus under selected future scenarios. A set of agricultural production and water use performance indicators are computed by the model, including green and blue water use, crop yield, crop water productivity, net value of crop production and economic water productivity.

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