

Switzerland meets climate change

Increasing droughts, glacier melt, floods...the effects of climate change are ever more present in discussions. The concern reaches into the future and now it is time to prepare new approaches that will safeguard against these eventualities. How will the Swiss forest, garden and field scenario look like in 50 or 70 years?

The [Zurich-Basel Plant Science Center \(http://www.plantsciences.uzh.ch/en.html\)](http://www.plantsciences.uzh.ch/en.html) brings this year **Climate garden 2085 – A public experiment**, an exhibition at the Zurich Old Botanical Garden, where science and art come together to help envision our future landscape.

Two different climate change scenarios with 2 °C and 4 °C increased temperature, as well as 8-28 % less water (following A2 business as usual and RCP3PD scenarios) will recreate forecasted Swiss conditions in 2085 (Meteoschweiz/ETH CH-2011). The broad program open to the public will include tours, art performances, movie documentaries, workshops for children and school groups.

Conserving water in a drier Switzerland

As climate changes, agricultural management will adjust to confront different environmental conditions efficiently. Many parts of the world are expected to become hotter and drier, and the combined effect of greater losses by evaporation and less rainfall, would place rain-dependent plants particularly at risk.

Conventional tillage practices prepare a crop field by plowing to 20 cm depth. In contrast, conservation tillage practices include no-till/direct-seeding or reduced till (less than 10 cm depth). Conservation tillage can [increase soil moisture retention compared to conventional tillage \(http://californiaagriculture.ucanr.edu/landingpage.cfm?article=ca.v055n01p30&fulltext=yes\)](http://californiaagriculture.ucanr.edu/landingpage.cfm?article=ca.v055n01p30&fulltext=yes), thus reducing the amount of irrigation necessary. No-till farming can [lower soil surface temperature \(http://www.pnas.org/content/111/27/9757.abstract\)](http://www.pnas.org/content/111/27/9757.abstract) by up to 2 °C during the hottest days, thus reducing the amount of water lost by evaporation.

As part of the exhibition, an experimental plot measuring 2 m x 1 m, is sowed with soybean spaced 15 cm x 25 cm under 2 different tilling conditions. One simulates a 20 cm deep standard till, as practiced normally in conventional agriculture, whereas the second involves a conservation tillage approach with only the top 5 cm tilled to remove previous plants and additional plant material added simulating remaining crop residues.

Faced with high summer temperatures and limited water supply, will plants sowed in conventional plow conditions show stronger visible signs of drought stress than those under reduced-till? How can commercial and domestic crop management practices can be modified in response to an ever-changing climate reality? Despite the strain on water resources, implementing the proper strategy may conserve a green Switzerland for generations to come.

The climate garden exhibition will run from April 1- September 18 2016, Old Botanical Garden, Zurich

Stay updated with Climate garden activities at <http://blogs.ethz.ch/klimagarten/>



1. View of the Climate Garden.