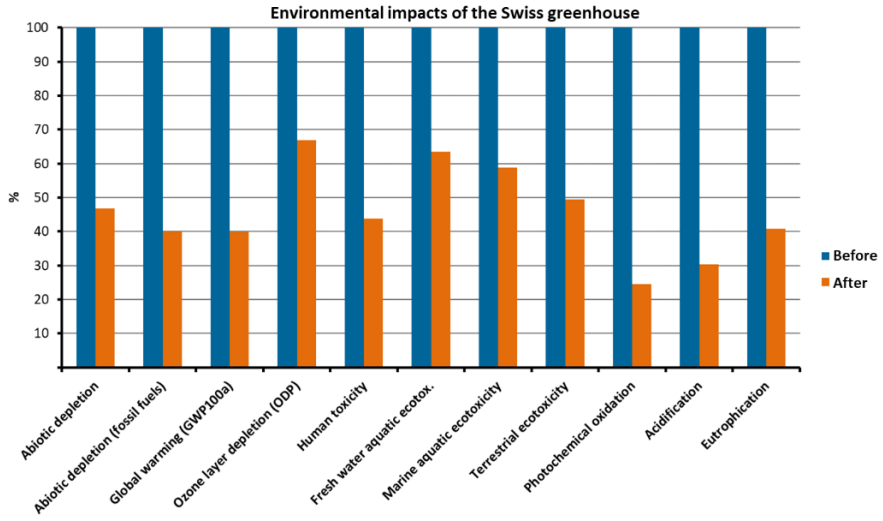
Thermochemical Fluids in Greenhouse Farming

Environmental impact

The environmental impact of TheGreefa technology was assessed in the Life Cycle Analysis (LCA) performed based on real data from two TheGreefa greenhouses located in Switzerland and in Italy.

In the study, the operational phase of the greenhouses was analysed considering energy and fuels consumption. The aim was to compare the impacts of 15 years of operation of 1 ha greenhouse before and after the implementation of TheGreefa systems for indoor climate control for the greenhouses.



The results obtained in the LCA have shown that the use of the new TheGreefa technology in greenhouses contributes to visible lowering the environmental impacts of the greenhouse operations. The heating, cooling and humidity control are very energy intensive processes in the greenhouse operation.

The heat production and electricity consumption are responsible for most of the environmental loads. Therefore, implementation of improvements in these aspects is the right call that can help to reach the EU climate goals by reduction of the use of electricity and natural resources. Besides lower greenhouse gases emissions (CO_2 savings), they are not the only benefits of the implementation of TheGreefa system. They are of course responsible for the climate change. But there are other aspects where TheGreefa brings improvements in the long-term period of operation. By big reduction of such factors as human toxicity or photochemical oxidation potentials, the use of the new system can result in 20% to over 50% reduction of the overall human health negative impact.

Use of resources like wood and oil, or even natural gas are lower, but can be lowered more when more renewable energy sources is implemented in the greenhouses' energy systems – heat pumps, geothermal energy, etc.

TheGreefa project has received funding from the European Union's Horizon 2020 Research and Innovation Program under grant agreement No 101000801.