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The diversity of outreach activities for communicating biogeochemical research

Valentin Klaus, Sabina Keller, Anna Gilgen, Susanne Burri, Lukas Hörtnagl, and Nina Buchmann
ETH Zürich, Institute of Agricultural Sciences, Environmental System Sciences, Zürich, Switzerland

Outreach activities are nowadays a regular, often even mandatory part of scientific research. However, there are many potential recipients of scientific results and many ways to communicate them. Thus, before creating any outreach activity, the aim and the target audience of the activity have to be carefully chosen and clearly specified. In the Grassland Sciences Group at ETH Zurich, we have been engaged in outreach activities since 2011. Together with our project partners, we have developed different formats to communicate basic and applied research to (1) school children and their teachers at primary and secondary school levels, (2) interested lay people as well as (3) practitioners, such as farmers.

Based on our experiences, educational outreach projects need an interactive approach. Learning activities, such as simple experiments, illustrative fact sheets and intensive mentoring are necessary to ensure successful knowledge transfer from scientists to school children, students and teachers. An example for such an activity is our project LernFeld (www.gl.ethz.ch/education/SpringSemester/lernfeld.html) that focusses on biodiversity and climate change in the agricultural context, e.g. with short learning units like observing earth worm populations or determining the soil carbon content in a field. We recommend using participatory learning experiences and hands-on activities when disseminating complex research topics on biogeochemistry, such as ecosystem biospheric-atmospheric gas exchange, to interested lay people. Virtual Reality videos have been particularly popular at science and agricultural fairs. In the project PubliFarm (www.gl.ethz.ch/research/pro/PF.html), lay people are involved in interactive activities like easy to understand exhibits and hands-on experiments at public events and during farm visits.

Activities targeting at knowledge transfer to practitioners, as often required in large research projects, ask for different outreach strategies. These can be fact sheets in national languages, which are distributed to stakeholder networks to explicitly address stakeholder interests, or workshops and farm visits guided by trained staff. Particularly the latter have been proven successful, since the exchange between scientists and practitioners is usually very intensive.

According to our experiences, each outreach activity has to be clearly focussed and adapted to the specific situation as defined by the aims (e.g., education, information, knowledge transfer of basic or applied research) and the audience targeted (e.g., school children, lay persons, stakeholders). Making scientific research results accessible to society – by touching, experiencing, doing – can be highly rewarding and can effectively illustrate the societal relevance of biogeochemical research.