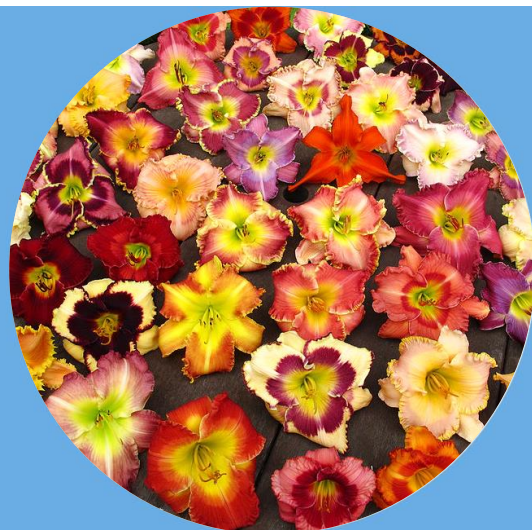


Issue brief

Considering the potential of citizens' science

Report of the social innovation dialogue of 11 April 2016 in Impulse, Wageningen Campus, the Netherlands



Introduction

On the 11th of April, under the flag of the Kennisbasis research theme of Social Innovation for Value Creation (SI4VC), a second dialogue was organised in the series "Social innovation dialogues to explore the potential of society to improve the quality of life". This dialogue focused on the potential citizens' science, illustrated through the case of the hybridisation of daylilies (*Hemerocallis*).

Report

The programme of the dialogue was split in four parts. In the first part, Dr Roel During (Alterra, Wageningen UR) introduced the topic of citizens' science, providing a framework for the afternoon. During the second part, François Verhaert, a daylily connoisseur and long-time hybridiser, enthusiastically discussed his fascination with daylilies and informed the audience about the latest developments in hybridisation practices. He interacted with participants in relation to their questions on daylily hybridisation. The third part of the programme included reflections by Dr Jaap van Tuyl (Plant Research International, Wageningen UR), Dr Arnold van Vliet (Wageningen UR), and Drs Janneke Vader (*Landbouw Economisch Instituut*, Wageningen UR) who extended views on citizen(s)' science beyond the case of daylilies. The last part of the afternoon was an interactive session in which participants shared their thoughts, questions and ideas on the potential of citizen(s)' science.

After the general opening by Dr Jan Brouwers (Centre for Development Innovation (CDI), Wageningen UR), Roel During began his introduction to the topic of citizen(s)' science. He explained how science, or the practice of knowing ourselves and ourselves in relation to the world around us, is nowadays mostly outsourced to universities or research institutes. However, we have now entered the era of "big data", in which there is also an increasing value of individual data, drawing from people's personal experiences. This development presents many opportunities for citizen(s)' science.

Opening speech by Dr Jan Brouwers (left).



There are many factors that motivate people to collect information by themselves. In societies where we are bombarded with statements about lifestyle, we want to find out what choices to make for a happy, healthy life. We also live in a participation society, or a "do-it-yourself economy", where people are invited to contribute with their knowledge. Finally, we are empowered by technology, such as smartphones, that has become readily available in the last few years.

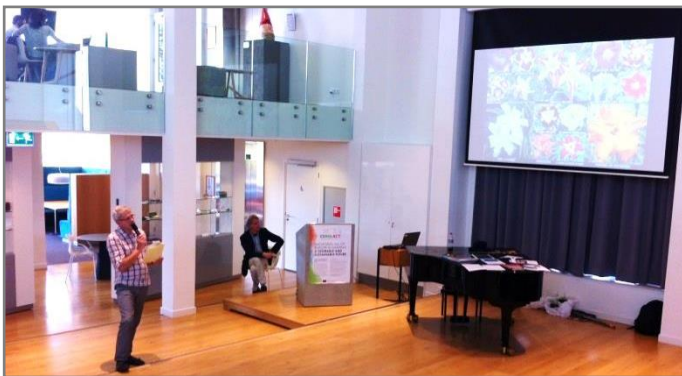
Roel During distinguished between citizens' science and citizen science. "Citizens' science" is used for people's own efforts: *by* and *for* the people, such as looking up your DNA profile or checking your illness symptoms online. "Citizen science", on the other hand, reflects the use of citizen data by scientists: *of* the people, such as recording birdwatching or astronomical observations.

"Scientific generalisations don't match the need for data individualisations"

In the second part of the programme, François Verhaert sketched the (social) landscape of daylily hybridisation. Fascinated by plants from an early age, Verhaert became an enthusiastic hybridiser of daylilies once he found out that these flowers are surprisingly easy to cultivate. They do not require much care, they grow in most environments, and they are easy to hybridise. In fact,

there is a large, worldwide community of daylily hybridisers who share information with each other and attend conferences to exchange breeds and look at each other's achievements. Nowadays, most communication takes place online, but before the Internet, daylily enthusiasts communicated using round-robin letters. One hybridiser would write down their methods and pass it on to another, who would add their advice and pass it on, until the letter eventually returned to the initiator.

François Verhaert (left) showing new daylily varieties (screen).



Verhaert finished his talk by showing many pictures of new daylily varieties to compare with the 'original' daylily. He demonstrated that many features of the flower (such as the colours, borders, "eyes", and shape) have been expanded enormously. According to Verhaert, recent hybridisation efforts have resulted in a daylily which can bloom for a week – a 'weeklily'! This may seem trivial news, but in the world of daylily hybridizing, it is world news and hybridizers will be willing to pay thousands of Euros to obtain this genetic potential.

[*"Everybody can make new daylilies – it's child's play. That is what makes it attractive"*]

The third part of the programme included three short reflections by researchers of Wageningen UR. Jaap van Tuyl discussed his forty years of work at the university, in which he researched genetics, plant breeding, and floriculture. According to Jaap van Tuyl, techniques that were developed by Wageningen UR and commercial breeders have changed the ornamental flower business significantly. He also argued that much work in flower hybridisation had already been done by 'amateurs', from which both science and the commercial flower sector benefit now.

Arnold van Vliet, a biologist active in the field of environmental systems, started his talk by saying "citizen science is my life". He is deeply involved in citizen networks (e.g. see www.natuurkalender.nl). Perhaps in line with the previous speaker, he is focused on "citizen science" rather than "citizens' science". The explanation about the hybridisation of daylilies made him wonder whether such a process is really improving our understanding of how hybridisation works: can it actually

be used by scientists? In other words, when do we call something 'science'? Perhaps that requires more than just exploring hybridisation opportunities. In his own research, citizens can participate by recording their observations of plants and animals. The goal of Arnold van Vliet is then to improve the understanding of how plants and animals respond to changes in weather and climate. With the improved understanding we then can better forecast the responses of the natural world to changes in e.g. climate.

The last one to provide an invited reflection was Janneke Vader, who claimed not to be an expert on citizen(s) science, social innovation, nor flower breeding. However, she is involved in the exciting European project CIMULACT: Citizen and Multi-Actor Consultation on Horizon 2020, in which European citizens are put behind the steering wheel of research programmes (<http://www.cimulact.eu/>). In all EU countries and Norway and Switzerland, citizens (more than a thousand in total) were asked what they value in their daily life, what are important matters to them now and in the future and what they would like the future to look like. 180 future visions were produced, which were clustered in 12 so-called social needs. After summer, amongst others, a public online consultation about the research directions for these social needs will start. This project will result in a basis for future calls for Horizon 2020 for which citizens themselves have laid the foundations.

In the final part of the afternoon, participants were invited to discuss the potential of citizen(s) science amongst themselves. For about ten minutes, buzz groups talked about the value of citizen(s) science for scientists, about ownership issues, and about the use of citizen(s) science in future projects. In the plenary session that followed, participants were able to reflect on their discussions. One person stated that there may be a demand for scientists to work with citizens, for example in a project in Ethiopia that involves farmers who feel like there is a lack of scientific support for their issues.

Someone argued that in some cases, citizens may need to change their attitude so that they can share knowledge with each other. Another person wondered how people respond to data collection, and whether citizens should be taught or educated how to respond. This could increase the potential of citizen(s) science, as more complex issues could be studied. However, there remains the issue of (peer) feedback that makes knowledge 'scientific'. Another person raised the problem of property rights of citizen(s) science: who owns traditional or indigenous knowledge? And is the point of citizen(s) science not that this information is 'open source' and transparent? One group concluded that citizen(s) science should be seen as a bridge that connects the objectives of scientists, policymakers, and citizens.

[*"Citizen(s) science is a bridge"*]

"In order for something to become citizen science, it has to be incorporated in a broad scientific context (...) to improve our understanding"

Jan Brouwers wrapped up the meeting, and with the organiser of the dialogue, Seerp Wigboldus (also CDI), he noted that citizen(s) science relates to capitalising on citizens' energy and motivation: people enjoy being part of the process. A large part of citizen(s) science is about people who are excited and passionate about issues that are important for them. This underpins both citizen science where citizens participate in research designed and led by scientists, as well as citizens' science where citizens are in the "driver's seat" of research. How can we make more use of not only that energy, passion and motivation, but also of the expertise and the context-specific and context-relevant knowledge that comes with it?

The fourth part of the programme involved lively discussions.



Discussions on the potential of citizen(s) science continued during the drinks after the programme had finished.



Social Innovation Dialogues to Explore the Potential of Society to Improve the Quality of Life

This series of social innovation dialogues is part of a Kennisbasis research project on Social Innovation for Value Creation in which Alterra, LEI, and CDI cooperate.

Contact: Seerp Wigboldus (seerp.wigboldus@wur.nl)

Centre for Development Innovation
PO Box 88
6700 AA Wageningen
The Netherlands

T +31 317 486 800
F +31 317 486 801
info.cdi@wur.nl
www.wageningenUR.nl/cdi

