



Crop diversity enriches our lives – A case study on German Custodians of old crop varieties

The loss of genetic diversity is one of the present challenges in sustainable food production. The Green Revolution, i.e. the intensification of agriculture in the second half of the past century, succeeded in combating famine in many regions of the world. However, as a non-desired side-effect, industrialization has led to new social dependencies and a serious decrease in the genetic diversity of crops which is the basis for sustainable food production in future. FAO (Food and Agriculture Organization of the United Nations) estimates that crop diversity has decreased by 75 % in the past century (FAO, 1993).

Political commitments for the protection of crop genetic diversity and fair access to propagation material do exist, i.e. the Convention of Biological Diversity (1992), the International Treaty for Plant Genetic Resources for Food and Agriculture (2001), and the German Agro Biodiversity Strategy (2007). Nevertheless, agricultural practices and political frameworks are still in conflict with these goals. Wolff (2004) describes how current legislations, especially the structure of the content of seed laws and intellectual property rights, still hamper the protection of many varieties in Europe.

In Germany, public awareness on the importance of crop diversity has increased considerably in recent years. Here, as in neighbouring countries, plenty of initiatives for the protection of old crop varieties have been funded. These initiatives engage on a political level, in breeding activities as well as in the dissemination of seeds.

Breeders and custodians report an unexpected increase in the demand for seeds of old crop varieties and new organic varieties, especially by small scale and private gardeners.



Different varieties of barely, accompanying humans since 10,000 years

Although many people intuitively share an interest in the different shapes and colours of tomatoes, carrots, and potatoes, not everybody is aware of the importance of the protection of crop genetic diversity. Within the BIOMOT interviews (an EU FP7 research project), four breeders and custodians of old crop varieties in Germany were asked about their motives for being engaged in these activities. This is what they told us:

Plants for human nutrition

Nobody can live without food. Unlike other regions in the world, the risk of famine due to crop failures in Europe is negligible at present. Nevertheless, difficult access to seeds and planting material and social dependencies on agricultural industry of many farmers worldwide – one cause of crop failures - was one important driver for the interviewees to engage in public awareness rising on the



loss of agrobiodiversity. As an important source of inspiration, Pat Mooney was mentioned, a Canadian seed activist who is a laureate of the Right Livelihood Award 1985, and one of the first who draw public attention to plant genetic erosion and resulting social problems caused by industrial agriculture.

In Germany, as in other European countries, the process of food production and its ecological consequences is more relevant than the mere access to food. For the interviewees one important motivational driver was the protection and development of crop varieties which are suitable for organic farming. In general, organic seeds

© S.Lütt, "Leafy goosefoot" (*Blitum virgatum*) has probably been cultivated before the Thirty Years War.

available in the market are derived from crops that have been bred under conventional farming conditions and only the production of seeds was conducted under organic farming. In contrast, our interviewees aimed at breeding crops which are especially adapted to the growing conditions under organic farming. Adaptation to local soil conditions and tolerance to widespread crop diseases are examples for characteristics which are more critical in organic farming than in conventional farming, where nutrient deficiencies and diseases can be counteracted more easily with mineral fertilizers and pesticides.

Plants as cultural treasures

Humans cultivate crops since they have settled down in villages, halting the hunter-gathering nomadic livelihood. As an example, barley has been cultivated since 10.000 years. Its robustness to harsh environmental conditions allowed the production of food in high mountain areas and regions high up in the north of Europe. In that sense, one important concern raised by the interviewees was the joint co-evolution of human societies and crop varieties. They complained about the fact that such a co-development is nowadays largely determined by agricultural corporations. In the eyes of the interviewees, such a co-development should be borne by a broader society. The cultivation of crops is also associated to particular tales and local history. Some of the old crop varieties have names that still hint their past and neglected uses. As an example, the umbellifer *Ammi visnagis* called "Zahnstocherammei" in German, meaning "Toothpick Ammi", was used as a toothpick in the Orient. The "Kerbelrübchen" (*Chaerophyllum bulbosum*) was a delicacy

until the 1930s, but then it disappeared from the market because of its low durability. One of the interviewed custodians was initially more interested in traditional craft techniques than in plants. This is how she found her way to old crop species.

Closely related to their importance in the past is their importance for regional identity. Many crop varieties still bear the name of a region, e.g. the beet “Teltower Rübchen”, the potato “Bamberger Hörnchen” or the kale “Ostfriesische Palme”. One interviewee was especially engaged in the collection of local varieties in a northern region of Germany. He often found these varieties in the gardens of elderly people who had been propagating their own varieties since ages. Without his efforts, many of these varieties probably would have already disappeared.

Although not mentioned by the interviewees but referred to in literature (Lukesch 2009, Sthapit et al., 2008), the importance of specific crops for religious purposes is also worth mentioning. The citrus fruit “Ertog” is especially grown for the Jewish Sukkot festival. Tulsi (*Ocimum sanctum*), a relative of basil, is a holy plant in Hinduism due to its high medical value. In Christian cultures, many species bear the name of a holy person, e.g. Good King Henry (*Chenopodium bonus-henricus*) or important festivals, e.g. Passion flower (*Passiflora*) and Christmas rose (*Helleborus niger*). An important personal aspect some interviewees mention is the longing for a self-sufficient life. Therefore, the development and propagation of varieties which are suitable for private gardens fit well into their own way of life. Varieties suitable for small scale gardening have to fulfil different demands than varieties for commercial horticulture. As an example, beans for domestic use should mature during a longer period to be harvested step by step. In commercial horticulture, a shorter ripening time is more appropriate for industrial harvesters.



©N.Soethe, In domestic gardening, bean varieties should mature during a longer period to be harvested step by step

Plants as partners

It became evident during the interviews that the maintenance of crop genetic diversity is not something static. For the interviewees it was not about preserving a certain number of crop varieties as it is done in seed banks. In contrast, the plant was considered a partner that the breeder or custodian has to get to know in its characteristics, similar to a person. It was important for them to experience the whole life cycle of the plant variety and they emphasized the fact that nowadays most people don't know the flowering stage or stage of maturity of most crops, e.g. cabbage species. The process of traditional breeding and cultivating was at least as worthwhile to be protected as the diversity of crops itself. One interviewee described crop varieties as family members due to their historical connection to humankind. He felt a special responsibility towards domesticated varieties since they depend on human cultivation, which is generally different from wild species and nature's selection. Some interviewees expressed their wish that breeding activities should not be restricted to a small number of breeding professionals. In contrast, traditional breeding activities should be “re- embedded” into society in order to improve connectedness of people to plants.

Conclusion

Our interviewees mentioned a broad range of personal motives to be engaged in the protection and development of crop diversity. These motives exceeded by far the range of arguments that dominate the public discourse on management of plant genetic diversity, and which is mainly focused on food supply, fair access to genetic resources and monetary benefit sharing (Even though these arguments were relevant for the interviewees as well!). However, crops are also partners in the co-evolution, custodians of stories, symbols of homeland, integral element of cultural traditions as well as rituals and, last but not least, living beings.

(This Findings for All was written by the German team about data that was gathered by the whole BIOMOT team.)



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