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Preparatory action on EU plant and animal genetic resources

On-farm management of vegetables in Switzerland

Overview

The conservation of genetic diversity in local traditional crop varieties can be supported by keeping cultivation alive through promoting continued consumption: on-farm conservation¹. In Switzerland, interesting examples of local traditional vegetable varieties can be found, such as “Küttiger Rüebli” (a white carrot) and “Cardon épineux argenté de Plainpalais” (a cardoon from which etiolated leaf bases are consumed).

The coordination of plant genetic resource conservation by research institutes, private persons and organisations in Switzerland is done by the “Commission Suisse pour la conservation des plantes cultivées (CPC)” that develops strategies for conservation, collects scientific, technical, historical and cultural information on plant varieties and their use, and ascertains public information. Information is available at the database BDN (base données nationale²)³. Activities are funded by the Swiss Federal Office of Agriculture (NAP-PGRFA: Plan of Action for the conservation and use of plant genetic resources for food and agriculture).

An important private organisation in Switzerland working on the conservation of genetic resources, both plant and animal, is ProSpecieRara (PSR), founded in 1982. It started as a network organisation of private seed savers supporting the free exchange of material and knowledge. PSR has created a large seed collection⁴. It also promotes the use of the varieties through on-farm conservation. To provide a firm basis for on-farm conservation, PSR set up a supply chain with a labelling programme ensuring product identity based on traditional varieties, together with the supermarket chain, Coop. For this case study, we looked at this chain, with the Küttiger Rüebli as the main example, but will compare with other garden vegetable examples where relevant, including the Cardon épineux argenté de Plainpalais. To this end, we visited ProSpecieRara at their headquarters in the Merian Gärten, Basel, and interviewed Béla Bartha (director, Fig. 1), Philipp Holzherr (marketing) and Simona Matt (project coordinator at Coop).

¹ e.g. Li et al. 2014

² www.bdn.ch

³ Schierscher-Viret & Kleijer 2007

⁴ <https://www.prospecierara.ch/de/sortenfinder>

1. Objectives

Our objective is to obtain insight in the effectiveness of the on-farm conservation of traditional Swiss vegetable varieties based on some concrete examples: “Küttiger Rüebli” (carrot), “Cardon épineux de Plainpalais”, and other garden vegetables.

2. Description of the case

ProSpecieRara (PSR) has organised a professional supply chain for traditional varieties in collaboration with Coop, the second largest supermarket chain in Switzerland, with 837 shops plus online sales⁵. It encompasses the whole supply chain from seed production to retail under the ProSpecieRara label (Fig. 2). This will be illustrated by the example of the Küttiger carrot (*Küttiger Rüebli*) (Fig. 3). Its original local production is around Küttigen in the Aargau region. This cultivation still exists, but is facing problems with seed quality (inbreeding depression). It is a small market organised by the “Küttiger Landfrauen”, including a yearly market at Aargau. To ensure the on-farm conservation of this special variety, PSR organised the production based on cultivation in a larger area of Switzerland. The partnership of Coop with PSR started in 1999; the first exhibition was in 2002 and the first product on the market in 2003.

Seed production

Seeds are produced by Sativa-Rheinau AG as larger-scale high-quality production is beyond the scope of the PSR seed savers’ community, particularly when aiming at organic certification. PSR’s small-scale seed multiplication for *ex situ* conservation is coordinated through a central database tracing for each seed lot of each variety, who multiplied it and the year of production, thus providing quality control (Fig. 4). Sativa-Rheinau AG is an organic seed company, founded in 1999. A link with PSR exists since 2000. It takes care of seed multiplication for PSR particularly for species difficult to multiply through private growers. The seed production is performed by specialised farmers supervised by Sativa-Rheinau. Farmers cultivating the carrot have practically no role in selecting/maintaining the variety as in the original concept of on-farm conservation. Selection may be adapted to local cultivation conditions with farmers under the supervision of Sativa-Rheinau. Additionally, there are breeding activities, e.g. aiming at reducing the sensitivity to *Alternaria* fungus during stocking.

Growers

Farmers are contracted for cultivating the carrots. Distribution of harvests is coordinated by a wholesaler of fruit and vegetables (Terraviva). Farmers need to learn growing the variety, and are assisted by the network (PSR, Sativa-Rheinau).

Sale

The Küttiger Rüebli is sold as a fresh product at Coop. The carrot is sold under the ProSpecieRara label at large and medium-sized Coop shops (about 400 in total). It is a small product but with an interesting history attached to it, as well as a typical PSR product. It has a good shelf life, which is helpful with the sales of a product with relatively few customers and to avoid undue packaging. Certified seeds from Sativa-Rheinau are also sold at Coop’s green (garden) centres.

⁵ www.coop.ch

The Cardon épineux argenté de Plainpalais is marketed through a different production scheme. It is a traditional variety of the region south of Geneva; Plainpalais was the vegetable production area of Geneva in the 18th century. The production of the variety in the Geneva region has received an AOC (Appellation d'Origine Contrôlée)⁶, which represents a strong marketing label. As AOC, it can only be marketed from the Geneva region under the auspices of the "Association Cynara"⁷, under the name "Cardon épineux genevois". ProSpecieRara and Sativa-Rheinau have the seeds in their sales catalogues, under the original variety name, Cardon épineux argenté de Plainpalais, aiming to obtain a broader use and distribution of the genetic diversity than the limited area of cultivation and seed production of the Geneva area.

Analysis

3. Funding and support

Funding for setting up the product chains was generated mainly through investments by Coop. In addition, a fund covering the risks of product development when testing new varieties was set up based on small contributions by each chain partner. Money left over could be invested in breeding activities. PSR had support in their preceding seed saver activities through their network, including paying membership fees and donations. In addition, support comes from private foundations (about half) and cantons, and additional income comes from seed sales through the catalogue.

On the policy side, the enactment in Switzerland of a seed directive with an adaptation for the marketing of landraces was important. Landraces usually show a larger variability than acceptable according to the UPOV criteria of DUS (distinctness, uniformity, stability) that should be met so as to have the landrace enlisted on national and European variety lists, which is conditional to allowing commercial cultivations. The landraces can now be relatively simply registered for the relatively small market served by the PSR system. The advantage in arranging for such a Directive was that a market had already been developed by PSR with Coop as a strong retail partner.

On the scientific side, the national action plan NAP-PGRFA is providing funds for NGOs and researchers to describe collections through projects with Agroscope. NGOs such as PSR can bring in projects fitting the strategy. In addition, researchers from the Swiss organic research institute FiBL⁸ are involved in this work. These institutes bring in important expertise which is not present at PSR and therefore help NGOs develop this expertise within their organisation. For instance, the description of old potato varieties was supported by Agroscope Zürich. Regarding the vegetables at PSR, this input has played a minor role.

⁶ www.admin.ch

⁷ www.umg.ch

⁸ <http://www.fibl.org/>

PSR cooperated with CGN Wageningen in an EU GenRes project on leafy vegetables, involving phenotyping and field trials.

4. Partnerships, networking and communication

PSR promotes Coop with their own communication activities and campaigns, such as publishing journals and organising markets. PSR collaborates with nurseries and does the yearly planning for several demonstration gardens (e.g. Fig. 5) throughout Switzerland. Coop promotes PSR products in its journal, including providing recipes, and sells some of them online. Marketing research on knowledge about the PSR label among Swiss people showed that 30% were familiar with the label and 10% mentioned PSR when asked for a biodiversity label. Besides organic promotion, gastronomy activities, also promoted by PSR, may have an indirect effect. For instance, the recent interest in parsnip at Coop stores stems from encountering it in restaurants. Gastronomy is interested in specialties and develops storytelling, which is crucial for the successful presentation of old varieties. Histories are described per crop/variety in a large “Lexikon der alten Gemüsesorten” published by PSR. PSR’s seed saver volunteers are proud of the success of the products at Coop. They apparently do not perceive it as a challenge to their small-scale way of working. Coop organises a network meeting twice a year.

5. Outputs, added value and sustainability

Simona Matt acts as “bridging” person between the demands of efficient retail selling from sourcing and marketing departments and the limitations of marketing old varieties. The development of new products is organised in targeted projects. PSR’s niche products are more demanding and may need more promotion than the large quantity standard products, but they fit in the sustainability and organic concepts of Coop, increase diversity in the shops and attract new customers, including organic “heavy” users, who may also buy other Coop products. Distribution centres need to adapt their quality schemes: conventional standards are too strict and need to be set per variety; calibration is performed in cooperation with PSR. In addition, packaging needs to be adapted, e.g. with larger-sized products. Product uniformity and short shelf life are particularly challenging. The wholesalers’ pride lies in being able to show that they get difficult cultivations to work with their farmers. Harvests need to be indicated in time by the farmers for the logistics to work, e.g. with tomatoes there may be competition with conventional tomatoes at the same period, leading to a need for promotion and/or distribution to a larger number of stores. Seasonality can also be a marketing advantage with promotion strongly linked to a specific period of the year. The popularity of individual PSR products changes over time. Presently the parsnip is selling well, whereas before the Baselbieter Röteli, a local tomato variety, was popular. At the moment, interest is rising for kale.

Not all old varieties have proven amenable to this approach. For example, a variety may look great at first introduction, but may in practice perform poorly in the complex distribution system, e.g. due to poor shelf life. Product acceptance by the consumer is another point, e.g. a green tomato completely failed. Potato is another relevant example: there are several varieties interesting to gastronomy, but seed potato production is often far too expensive for niche markets; in addition, varieties that are not suitable for organic cultivation, will also not be sustainable for conventional cultivation due to increasing disease pressure and pesticide use, as these varieties are often highly susceptible to the devastating potato disease, late

blight. Thus, of the 900 varieties tested since 1999, 63 (7%) have been successfully developed into a saleable product. Furthermore, Sativa-Rheinau produces certified seeds for niche markets, for 150 varieties.

There are no specific administrative burdens for Coop, apart from the aforementioned problems with niche markets for old varieties. Paperwork for Swiss funds is smaller than for EU projects. To be successful in obtaining donations as a foundation, a ZEWO quality seal is necessary, ensuring an optimal transparency. This is accompanied by extra work for accountancy, and the certificate needs to be renewed once every five years. Variety registration and consumer laws are relatively simple for NGOs with small seed packages; a little more so for professional farmers: they need to register with an extract from the database and pay 50 CH Francs (i.e. 46 EUR) once. Maintaining the large address database of members and people interested takes up a large part of the administrative work at PSR. Furthermore, the regulations of the International Treaty for PGRFA are problematic to seed savers like PSR: gene banks address these issues with an SMTA (standard material transfer agreement) for handing out seeds, but this is practically impossible for PSR, as a large number of people order from the catalogue, and these people in turn may pass on seeds to third parties. Whether a standard MTA on the website or in the catalogue would help is unclear and it is hard to get advice as an NGO is not commercial and therefore not recognised by official bodies. Breeders will go to a national focal point (national genebank) instead of PSR for material.

Conclusions

STRENGTHS	WEAKNESSES
Integrated supply chain professionalizing on-farm conservation; Specific label guaranteeing interesting products; Support from large retailer.	Products often not easily adapted to supermarket distribution demands; Challenging prices for PSR label; Value of genetic diversity is a rather abstract concept to communicate to the general public.
OPPORTUNITIES	THREATS
Increased support for conservation of old varieties; Raising awareness of value of seeds for food production.	Harvest failures; Competition from breeders imitating the approach.

The strength of on-farm conservation through the PSR label lies in the highly integrated supply chain, which took on the quality assurance of seed production and retail distribution comparable to conventional supply chains, but with the support of a large retail company to develop the niche products and ascertain sales. The chain is further strengthened by the funds covering the risks of product development, which are provided by small contributions

from each chain partner. For niche markets, the ProSpecieRara label is quite well known by the public and it distinguishes Coop from other supermarket chains as a retailer promoting diversity and sustainability. The difficulty in adapting old varieties to supermarket distribution systems could be seen as one of the weaknesses. Only a relatively small part of the old varieties conserved by PSR could be successfully marketed in this way up till now. In addition, prices are challenging. The value of genetic diversity embodied in the old varieties is a rather abstract concept to communicate to the general public in the experience of PSR, but the PSR label is helpful in that, which can also be seen as one of the opportunities provided by this product scheme. Threats are posed by harvest failures, e.g. from destructive diseases, such as *Cladosporium* in tomato. With short seasons, this may result in a failure to deliver for a whole year. This could be tackled by breeding, which is being done by the seed producer that is part of the supply chain. Another threat could be competition from breeders imitating the approach.

It should be possible to duplicate the marketing label system with Coop, provided that one could find a strong partner to finance the development of the chain. The starting point of organising a professional seed savers' organisation like ProSpecieRara itself could be different as the Swiss government and private organisations may be more supportive for these initiatives. For instance, PSR has set up a similar organisation in Germany, but financial support is still limited. Thus, PSR in Germany is still supported by Switzerland.

Supply chains like the PSR labelling scheme may not be in line with regulatory systems of registering landraces ("conservation varieties") not fulfilling DUS standards as they have been implemented in seed Directives in the EU. For instance, in Switzerland, a one-time payment 50 CH Francs (46 EUR) is required for registering such a variety. In Germany, a yearly fee of 30 EUR is required to maintain the registration of a variety, which could act as an incentive to withdraw once a variety becomes obsolete, whereas in the view of PSR one would want to keep the variety to conserve diversity and use the market as a possibility for the sustainable use of PGR and to obtain easy access to consumers to raise awareness on the diversity of PGRFA. In such discussions, the role of authorities could be important. Authorities could also be helpful with supporting communication between seed savers and conservators across the EU. Existing networks suffer from limited funds and lack of sustainability, e.g. in the form of a permanent secretariat, though a possibility of losing independence may be perceived by NGOs when organised by authorities.

Figures

Figure 1. Béla Bartha at Basel headquarter of ProSpecieRara.



Figure 2. Supply chain for old varieties (e.g. Küttiger Rüebli) under the ProSpecieRara label (courtesy of Béla Bartha, ProSpecieRara).

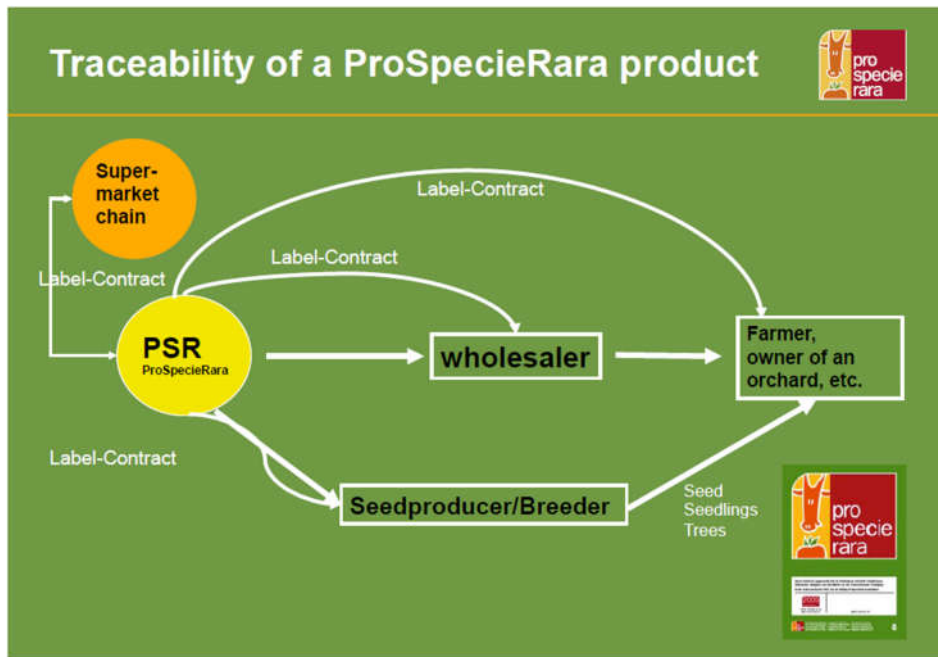


Figure 3. Küttiger Rüebli (courtesy of Béla Bartha, ProSpecieRara).



Figure 4. Seed testing and storage at ProSpecieRara.



Figure 5. ProSpecieRara demonstration garden in Merian Gärten, Basel.



Annex 1 – List of interviewees

- Béla Bartha (ProSpecieRara director, Fig. 1)
- Philipp Holzherr (marketing at ProSpecieRara)
- Simona Matt (project coordinator at Coop)

Annex 2 – List of references

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