

Model project for the conservation of sweet cherry varieties in the community of Hagen

Overview

The conservation of sweet cherry (*Prunus avium*) genetic resources in the community of Hagen am Teutoburger Wald has been addressed in two ways: the establishment of a genebank collection of old varieties in the form of a cherry variety (mother) garden (“Kirschsortenanzucht”) and by reinstalling the use of the remaining local old trees through re-inventing consumer products and involving them in recreational and touristic activities. Hagen a.T.W. is a relatively small and isolated cherry cultivation area. Originally, farmers kept only 10-15 trees as a by-product of other cultivations in a so-called “Streuobstwiese”: a meadow where animals (mainly sheep) were also kept. The advantage of this system for conservation was that most trees were not replaced by modern varieties, which occurred in areas with more professional orchards when that production was still commercially viable. The area holds some 1,000-2,000 trees in total, and has had this cherry cultivation at least since the 16th century. The cultivation was at its height in the 19th century, and dwindled in the early 20th century due to economical lows, frosts and, from 1960s onwards, as the result of an increase in imports from Southern Europe, which led to cutting down trees.

1. Objectives

Our objective was to assess the conservation of local cherry varieties in the Hagen a.T.W. area (Germany), through improved use through its integration in different community activities. For that, we carried out interviews with Mrs Jenny Menkhaus (responsible for economic policy at Hagen community), Dr. Edgar Klinger (regional Slow Food representative) and Dr. Anja Oetmann-Mennen (genetic resource expert).

2. Description of the case

The idea to start conservation work for the sweet cherries in the Hagen community arose at a meeting in October 2000, when the Hagen tourist association was founded. The old sweet cherry varieties appeared to be an interesting distinguishing topic for the Hagen area. However, local knowledge had become very scarce and to be able to obtain an inventory of

which varieties the remaining trees belonged to, expertise was sought. Through Eckart Brandt, collector of old apple varieties in Elbe region, fruit tree experts were found: Hans-Joachim Bannier (LPG leader, Magdeburg) and Norbert Clement (Pomologenverein, Marburg), who had done collection work with old cherry varieties. As there was no systematic knowledge, additional expertise was sought with the Fachhochschule Osnabrück, FG Obstbau, Prof. W. Dierend, and Prof. H. Schacht, who was involved in breeding apple, and to a lesser extent, cherry.

During two years, a first variety identification and diversity study on the trees in the Hagen area was done by Osnabrück University (Lehrstuhl für Obstbau und Obstverwertung der Fachhochschule Osnabrück) together with the community and touristic association of Hagen, the Pomologen-Verein e.V. and the Convivium Osnabrück von Slow Food Deutschland e.V. (Bannier *et al.* 2004;). The study included interviewing old farmers, which had to be done at that time as most of them were very old. This was a rather unique cooperation, as modern breeding had lost interest in these old tree varieties and aimed at shorter trees that could be harvested more efficiently. Originally, there was 400-600 varieties, 40 of which were left in a mother garden, and the present day standard assortment encompasses just 6 cultivars. Subsequently, a more extensive inventory was done as a model project ("BLE Modellvorhaben") commissioned by the Federal office for Agriculture and Food (Bundesanstalt für Landwirtschaft und Ernährung BLE) in 2007-2010. This inventory also involved Witzenhausen (Nordhessen), another important cherry area in Germany, together with A. Braun-Lüllemann (Universität Kassel); a total of around 1,000 trees were assessed, 400 of which in Hagen. 67 old varieties, 40 of which in Hagen, were identified, including rare and disappeared ones (e.g. 7 endemic for Hagen), and 80% of the varieties (70% in Hagen) were threatened. In practice, 80% of the trees were identifiable, as not all varieties were traceable in historic literature or reference collections (Braun-Lüllemann *et al.* 2009; Dierend *et al.* 2011).

The work caught the interest of the German genebank, as these old varieties potentially held special traits/genes for future breeding. For instance, specific tastes and/or processing qualities, such as white flesh, red variegated, or dark varieties with good taste but poor shelf life, and abiotic and biotic stress tolerance traits were found. As of 2007, the decision was taken to decentralise the fruit tree gene bank. Thus, a cherry mother garden (Fig. 1) was established on the Jägerberg at Hagen, which also included the Clement collection of Norbert Clement mentioned above. It first encompassed 250 trees, and recently went up to 365 trees. Other smaller cherry plantations were founded at Witzenhausen and Landesbetrieb Landwirtschaft Hessen. All three gardens are part of the German fruit tree genebank ("Deutsche Genbank Obst DGO"), co-ordinated by the "Institut für Züchtungsforschung an Gartenbaulichen Kulturen und Obst des JKI (Institutsteil Obstzüchtung) Dresden-Pillnitz". This institute also currently curates a database, with a custom-friendly online tool being developed. It also supported the verification of the variety identifications in the Hagen mother garden and assisted in the set-up of the cherry

information trails (“Lehrpfad”) that were part of the touristic activities developed, discussed below under Communication.

Analysis

3. Funding and support

On the policy side, the mayor of Hagen supported the start of the project, but the Hagen community itself could only support small projects. The first inventory of the trees was funded by the Lower Saxony state (Niedersachsen) with 35,000 EUR. The BLE funded the model project with around 100,000 EUR. Last year, a small project (10,000 EUR) to plant and develop cooking with cherries, involving two people, was funded by the Stiftung Niedersachsen (Lower Saxony Foundation).

Some ideas have been put forward to the mayor of Hagen for a next application round of the rural development programme, together with five other communities around Osnabrück, forming the ILEK (Integrierte Ländliche EntwicklungsKonzept) “Hufeisen region”. Such cooperation is prerequisite for funding. Other communities may be less interested in cherries, though single-community projects are possible.

4. Positioning at local or regional level

Local people did not all appear to show much interest, as the old trees were not easy to conserve and harvest and tourism did not appear to be of high economic relevance in the area. Interest has somewhat improved, a. o. by raising awareness through school projects (see below under Communication).

There was a need to re-invent a local supply chain as knowledge of recipes spread by word of mouth was lost for the most part and no books were available. Some cherry varieties turned out to be unsuitable for consumption as a fresh product, but perfect for processing into jam or chutney. Jams and chutneys are currently made by volunteers from single variety harvests, and kept in a freezer until processing. Single variety products appear to be unique to Hagen and sell very well, though cherry varieties are far less known to the public than apple varieties. The Baumschule Fels in Westerkappeln (west of Osnabrück) was interested from the start and helpful in producing trees for “cherry of the year” activities, selling trees to private persons.

There are no strong traditions of local food in this area of Germany; this is different from e.g. Southern Germany. Local producers, such as pastry shops or ice cream producers, are not interested as it is far more efficient to obtain standardised cherry half products from imports. The local harvests are small due to the original cultivation system containing a small number

of trees in a meadow (“Streuobstwiese”) and they are variable, e.g. due to birds or insects damaging fruit. Thus, there are few trees of a single variety and moreover, harvesting from the high trees requires more work. Only 2-3 people are currently active in this work, and they obtain 3 EUR per kg of fresh harvest. Subsequently, pips need to be removed, for which the only suitable machine available for the relatively small-pipped cherries is a heavy-working one from the 1950s. Some local processors farther away (>100 km) could be interested, but the logistics are mostly too complex. A “Kirsche mit Limone” liquor is made by the distillery Drohner Edelbrennerei “BrennerEy” in Stemwede, about 40 km northeast of Osnabrück. However, an Osnabrück high quality chocolate producer could not cope with the small quantity of fruit, and changes in variety from year to year due to failing harvests would be difficult to communicate to the consumer. As of yet, there is also no single label for all the Hagen cherry products. Slow Food has been successful with cooking events combining meat dishes with cherries and using old recipes from elsewhere. A recipe book from Hagen, including innovative recipes is already sold out.

5. Partnerships and networking

Witzenhausen is another important German cherry area that also set up an information trail. Together, a book describing the old cherry varieties was produced (Braun-Lülleman & Bannier 2010). Another cooperation is with the Kompetenzzentrum Obstbau-Bodensee (Ravensburg-Bavendorf), who did a survey on the genetic diversity in Hagen cherries using molecular markers; results are expected this winter. There are informal exchanges with Neuhaus-Elbe, Rheinischer Obstsortengarten and Kirschgemeinde Dettingen/Erms. The latter has part of the trees identified and/or labelled and compared to the varieties in Hagen. In Dettingen, there is more interest from gardeners and more interest in harvesting with links to high-quality producers, as this community is richer in traditions and tourism. Hagen was inspirational for the world heritage region “Oberes Mittelrheintal”, which also had a ministry-funded project, but there has been no further cooperation.

6. Communication

The Hagen community runs a website¹, with links to the activities and (research) reports. Furthermore, a brochure was published that received a favourable analysis from the “Industrie- und Handelskammer” (Industry & trade corporation). There is a small information centre housed in an old school building that is used to receive groups (5-10 per year, gradually increasing), including school children, and to store cherry harvests. Nearby, the genebank/mother garden can be visited through the cherry information trail, which has a series of seven information panels (history, use, diversity, and conservation). Further touristic activities entail one cycle and three foot trails (“Wanderwege”), as well as a festival twice a year with a cherry queen and a cherry monster. One could even have a wedding with a cherry theme (“kirschlich heiraten”). The local Landhotel Buller has rooms with a cherry theme (“Kirschenzimmer”) and was interested in product sales and recipes from the start of the project. The cherry activities have been presented at events, such as the CBD-

¹ <http://www.hagen-atw.de/freizeit-kultur-tourismus/die-kirsche-in-hagen-a.t.w/hagen-und-die-kirschen.html>

Konferenz in Bonn and the Landesgartenschau in Bad Essen. Examples of communication activities are illustrated in Fig. 2.

7. Outputs and added value

From the environmental perspective, the trails raise awareness on the special landscape feature of the “Streuobstwiesen” (meadows with fruit trees, Fig. 1). The “Streuobstwiesen” are also important to the local “Naturpark TERRA.vita” encompassing the area around Osnabrück. This natural area only has limited resources for maintenance, employing one person. Local products are mentioned on its website, and there are plans for establishing shops for this.

The products themselves sell very well, at the tourist office in the town hall and a farm shop. Their main problem are the small and unpredictable harvests. In addition, a permanent coordinator who could work on improvement, is lacking; it mostly depends on volunteer work and few people are willing to perform the difficult harvesting even if they are paid to do it. Only a minority of the trees are used for consumer products. Therefore, many of the trees remaining in the area are of primary importance for *in situ* conservation, as is the genebank/mother garden.

8. Sustainability

Currently, the maintenance of the mother garden is too costly for a small community like Hagen. Jenny Menkhaus of the community of Hagen coordinates activities, but the cherries are only one part of her tasks. Thus, many of the activities depend on volunteer work. The German genebank is interested in co-ordinating the collection work, but apparently has little funds available to support and network with the local people involved.

9. Upscaling and out-scaling

Up till now, the EU level has appeared a bit too far away for such a local project, as they do not have sufficient knowledge of the funds available at EU level, so applications and connections have not been sought. As explained above, the sustainability of the cherry activities suffers from lack of funding and interest from the local community. Options for improvement which were mentioned are: community funds for tree maintenance; volunteers; sponsors (e.g. of individual trees); information themes at the festival; lessons at school with biology, German or art; touristic projects; cooperation (e.g. Kirschgemeinde Dettingen/Erms, Rheinischer Obstsortengarten); foundations (e.g. Stiftung Niedersachsen, see above).

An example of duplication of the project was a request for advice, also to H.-J. Banner, from Rinteln (near Minden at Weser). They were quite successful, as they had an interested local “Heimatverein” (local history association) and supportive authorities. Other examples are exchanges discussed under Networking.

Conclusions

STRENGTHS	WEAKNESSES
<p>Good foundation for conservation <i>in situ</i> from the model research project identifying the old cherry varieties;</p> <p>A large variation in educational and touristic activities has been created;</p> <p>Single variety cherry products appear to be unique for Hagen.</p>	<p>Specific label guaranteeing interesting local products lacking;</p> <p>Production too small to be sustainable due to low numbers of trees per variety and difficult harvesting.</p>
OPPORTUNITIES	THREATS
<p>Raising awareness of value of local cherry trees through trails and (school) educational activities.</p>	<p>Harvest failures;</p> <p>Lack in interest from the local community and long-term funding for the varieties garden.</p>

The main strength of the *in situ* conservation of old sweet cherry varieties in Hagen is the strong foundation laid by extensive cooperation with fruit tree researchers and institutes, which led to a good overview of varieties present and the establishment of a varieties garden as part of the German gene bank (so *in situ* and *ex situ* combined). In addition, a lot of creativity went into educational and touristic activities to raise awareness on the value of the old cherry tree varieties for conservation and an attractive historic landscape. However, support for conservation through use by developing a local supply chain suffers from difficulties in harvest security and developing a commercially sustainable production and label. Thus, a commercially viable chain has not yet been achieved, which was identified as a bottleneck to the sustainable use of these genetic resources. Partly related to such problems, interest from the local community appears to have been limited up till now. Nevertheless, the touristic infrastructure created during the project offers opportunities for improving awareness, which appears to have had some success with the activities for school children. Administrative burdens were encountered in applying for the model project and writing reports, which were difficult due to the large and complex formats.

To get a supply chain commercially working, there is a need for support at the start for the investments to overcome the difficulties in the production of old cherry varieties, such as increasing numbers of trees per variety, as well as securing and improving harvesting. The model project which funded the research and conservation activities, was not allowed to work on the development of products, because this could go against EU legislation with regard to illegal subsidising. A supply chain will likely not suffice to support the whole infrastructure, including the gene bank concept of the tree garden. This could only last with continued support from society and communication with the general public. In both these bottlenecks, authorities at local, national and EU level, could play an important role.

Figure 1. The cherry varieties garden on the Jägerberg near Hagen, part of the decentralised German fruit tree gene bank: a) view showing the “Streuobstwiese” character

(fruit trees on a meadow further used for keeping animals); b) example of a tree with variety label.

a



b



Figure 2. Examples of communication activities: a) information trail with information panels, the introductory panel's title says "A tradition is re-discovered"; b) information centre & cherry harvests from various varieties; c) cherry queens & monster; cherry information & products at tourist bureau and cherry art with Dr Anja Oetmann-Mennen in Hagen town hall.

a



b



c



d



Annex 1 – List of interviewees

- Mrs Jenny Menkhaus (responsible for economic policy at Hagen community)
- Dr. Edgar Klinger (regional Slow Food representative)
- Dr. Anja Oetmann-Mennen (genetic resources expert)

Annex 2 – List of references

Braun-Lüllemann, A.; Bannier, H.-J. (2010) Alte Süßkirschensorten (Obstsortenwerk): Genetische Vielfalt in den Kirschanbaugebieten Hagen am Teutoburger Wald und Witzenhausen. Pomologen-Verein, 472 pp

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