

*Notes on neglected and underutilized crops***The 'Bavarian Turnip' – a rediscovered local vegetable variety of *Brassica rapa* L. em. Metzg. var. *rapa***Ludwig Reiner\*, Thomas Gladis<sup>1</sup>, Harald Amon and Andreas Emmerling-Skala<sup>2</sup>TU München, Ackerbau und Informatik im Pflanzenbau, Lange Point 51, D-85350 Freising  
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*Key words:* *Brassica rapa*, Local varieties, Neglected crops, Turnip, Underutilized crops**Abstract**

The 'Bavarian Turnip' ('Bayerische Rübe', *Brassica rapa* L. em. Metzg. var. *rapa*) is a nearly lost crop today. Until 1900, this local variety was commonly grown in Bavaria for human consumption. The special and very distinct characters of this variety in comparison with recent breeds are preferred by the farmers' families and assured the persistence and survival of this turnip *in situ* (on farm). In the region of Dachau and Freising, located north of Munich, only four farms are known, where this old crop is still grown and maintained. Urgent measures have to be taken to save this cultural relict for future generations.

**Introduction**

The systematic position and intraspecific variation of the species *Brassica rapa* L. em. Metzg. is described by Gladis and Hammer (1992) and Hanelt et al. (2001). Turnips (*B. rapa* var. *rapa*) were an important and frequently used crop in Germany and other European countries before potatoes were introduced and generally accepted as human food. Most turnip varieties and other starch providing plants as well as many formerly used vegetables were replaced step by step. They lost their importance, their growing areas and at the same time their diversity. At least one famous exception is known, the old German turnip variety 'Teltower Rübchen', traditionally grown in the area of the town Teltow in Brandenburg near Berlin. Other ancient varieties of such importance are completely extinct or they survived in gene banks only, *ex situ*. However, if tradition is

interrupted, the reintroduction of old varieties into recent agricultural or horticultural systems is hardly possible.

One of the traditional turnip varieties described from Germany is the 'Bavarian Turnip'. Following Thellung (1918 p. 257 ff., Figure 786 d), the roots are small, somewhat larger than those of the 'Teltower Rübchen' (Figure 786e) but much smaller than those from other old and new commercial varieties. The most distinct and unique character is the black color of the cortex, an important selection criterion used by the growers. Both old varieties have a dry matter content much higher than in modern varieties, and they were classified as subvar. *pygmaea* Alef. The length of the 'Bavarian Turnip' is 12–15 cm and the width is 3–5 cm in the more cylindrical diameter. The 'Teltower Rübchen' yield turnips in a more conical shape. In contrast to modern varieties and traditional races described from other European countries

(e.g. Ahokas 2002), the turnips of these two old German land races do not include thickened parts of the hypocotyledon but only of the root, and they grow completely underground.

### Description and discussion

Like 'Teltower Rübchen' and other autumnal turnip varieties, the 'Bavarian Turnip' is sown after harvest of cereals: In former times after winter rye, now after winter barley. The main reason for this late sowing date are attacks of turnip flea beetles (*Phyllotreta* spp., Coleoptera: Chrysomelidae). These beetles damage the foliage of young plants. Early sowing dates are much more endangered than those in late summer (e.g. first week of August). The turnips prefer sandy soils or alluvial deposits near rivers and do not need much manure. They are harvested at the end of October and can be stored in special cellarage at low temperature (2–4 °C) and high relative humidity. Selected turnips are planted in early spring in the garden to ensure vernalization for flowering and ripening of seeds from these plants. The turnips may survive mild winters outdoor and can be used after selection for seed collection too. Because variation in this land race is high, for maintenance only black rooted turnips are used. Yellow and brown colored or roots of untypical shape are consumed.

Despite the black cortex, the roots are white inside. Due to a relatively high dry matter and low water content they keep tight after boiling. They are aromatic and even a little sweet. The high dry matter content is the most distinctive character in comparison with all modern turnip varieties. It seems that this type of turnips with thickened, sometimes branched roots is located at the basis of the evolution of the variety.

Before 1900, each Bavarian cookbook contained recipes to prepare special dishes from this old variety. The eldest mentioning the 'Bavarian Turnip' is from 1475 (see Schmeller 1827–1837), the eldest existing recipe origins from Endtner (1691). For more details regarding utilization and processing see Reiner et al. (2001 or [www.bayerische-ruebe.de](http://www.bayerische-ruebe.de)).

The rediscovery of this ancient vegetable by chance is connected with a new edition of

Schmeller's Bavarian dictionary (1827–1837), prepared by scientists from the Bavarian Academy of Science in Munich. Investigations and surveys regarding this special variety mentioned in this dictionary resulted in four remaining farmer families, maintaining and using this crop until now. The growing of the Bavarian turnips, collecting seeds and preparing a special meal is in the hand of countrywomen since generations. In each of the four families a very specific population of this land race survived: growing the turnips in pots in the greenhouse, this variation can be observed. The plants differ widely in size, shape, color, surface, hairiness of leaves and branched roots. One peasant's woman mentioned that for generations always the very dark coated roots were preferred by the vegetable growing women. In spite of this long selection process, the whole range of beet colors from beige or very light brown to black can be found in the field each year again. This is an unique example showing the role, farmers' women play to keep alive old traditional crops for hundreds of years. The acreage of 'Bavarian turnip' in the area of Dachau and Freising, North of Munich is less than 10 000 m<sup>2</sup>. today (Figure 1).

Interviews on television, radio and in newspaper articles, led to better information of growers and gardeners and increasing interest in this unique crop. The people feel that the best method of conservation is to grow and consume this crop again. The 'Bavarian turnip' is now on the list of the slow food movement, a passenger of the 'ark of taste'. Recently, an association to stimulate this crop and to find sponsors was founded. During the annual meetings, the landlady of a tavern in the growing area, is preparing this typical peasant-meal, a soup or dip, called Rübentauch in which lard–pastry is dipped. She uses the same recipe, her grandmother used, 50 years ago. The public awareness for this rare crop, nourishing the people in Bavaria for hundreds of years, is increasing: a grower of vegetables, will start to offer the Bavarian turnips on the vegetable market in Munich this year. Many gardeners asked for seeds and are interested to grow this crop now. To secure the maintenance and further characterization, a germplasm sample was transferred to the German genebank in Gatersleben (<http://www.ipk-gatersleben.de/en/02/02/>). There it is the only turnip accession now

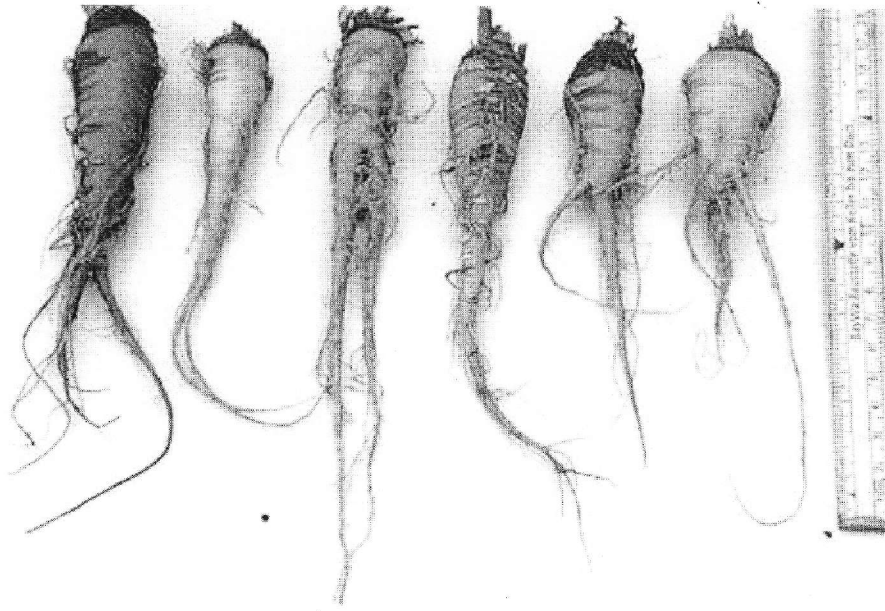


Figure 1. Marketable 'Bavarian turnips' which vary in size, shape, color and root branches; for generations the very dark coated roots were preferred (left-most).

bearing a black cortex – and the latest incoming old land race from the territory of Germany.

### Conclusion

Maintaining plant genetic resources today requires the complementary application of several methods. To integrate the *ex situ* and the *in situ* approaches with the special application for domesticated organisms, the management of genetic resources on farm (Hammer 1998), are essential preconditions. Modern tools like financial support, increasing public awareness for rare and endangered crops and utilization of trade marks should be used as well (Reiner and Amon 2002).

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