PRACTICE ABSTRACT

# Selecting varieties for organic potato production

## Problem

In Hungary, organic potato production is mainly based on commercially available varieties bred for the conventional, high-input sector. There is a lack of availability, information, and guidance for organic growers to select appropriate potato varieties for their production systems. There are risks involved in testing conventional varieties under organic conditions on a large scale, because their performance may be different from official variety descriptions. Moreover, farmers usually do not have always the skills or equipment to accurately measure yield differences among varieties.

## Solution

Analysis of qualitative and quantitative attributes of a wide range of varieties on a small scale can be carried out by farmer themselves, to better understanding of the most appropriate varieties for organic systems. As an example, on-farm testing for determining quantitative and qualitative parameters of 13 well-known potato varieties have been carried out on 12 organic farms in Hungary.

## Benefits

Seed tubers contribute one of the largest components of annual production costs for organic farmers. Early selection of the best variety is one of the most important decisions for farmers to make every year. Small-scale field trials, in collaboration with scientists or advisors, can help farmers to select the optimum variety to grow, that suits their growing conditions and market demand while also being stress-tolerant, disease resistant and a good performer under organic conditions.

## Practical recommendation

- Before selecting varieties for organic production, test varieties bred under conventional conditions on a smaller area first: for arable farms plant one or half a row; for horticultural farms 10 m² is enough to test the performance.
- Pests and disease are highly important factors in organic production. Therefore, resistance in varieties is important and it is advised to grow locally bred varieties as they are better adapted to local conditions, as opposed to imported varieties (Figure 2).
- Test the pH of your soils before and after growing. Alkaline soils with a higher pH level can increase the occurrence of microbial diseases. Consequently, potato production is less advisable in alkaline soils. If needed, green and acidic manures can be applied for reducing the prevalence of pests and diseases whilst decreasing soil pH levels for a more neutral value.

## Applicability box

**Theme**
Organic potato production, variety selection

**Agronomic conditions**
All conditions which suitable for organic potato growing

**Application time**
Each year prior to planting, period of variety selection

**Required time**
All year: both during and ahead of the growing season

**Period of impact**
Actual crop

**Equipment**
Typical machinery for organic potato production

**Best in**
In the period of planning and when selecting varieties

**Figure 1: The symptoms of scab (*Streptomyces* spp., above) and black scurf (*Rhizoctonia solani*, under) on potato tubers (Orsolya Papp, ÖMKi)**

ÖMKi - Research Institute of Organic Agriculture. Selecting varieties for organic potato production in Hungary. SolACE practice abstract.

- Depending on the features of the production site, such as soil type and weather/irrigation conditions, the starch content of the same variety may differ considerably (up to 30% difference). If potatoes are sold for specific purposes, take this into account when selecting the variety.
- On-farm testing and trial and error carried out by growers is a very useful tool in evaluating varieties and even new promising hybrids, by providing a direct link through observation between researcher and farm practice, that is site-specific.

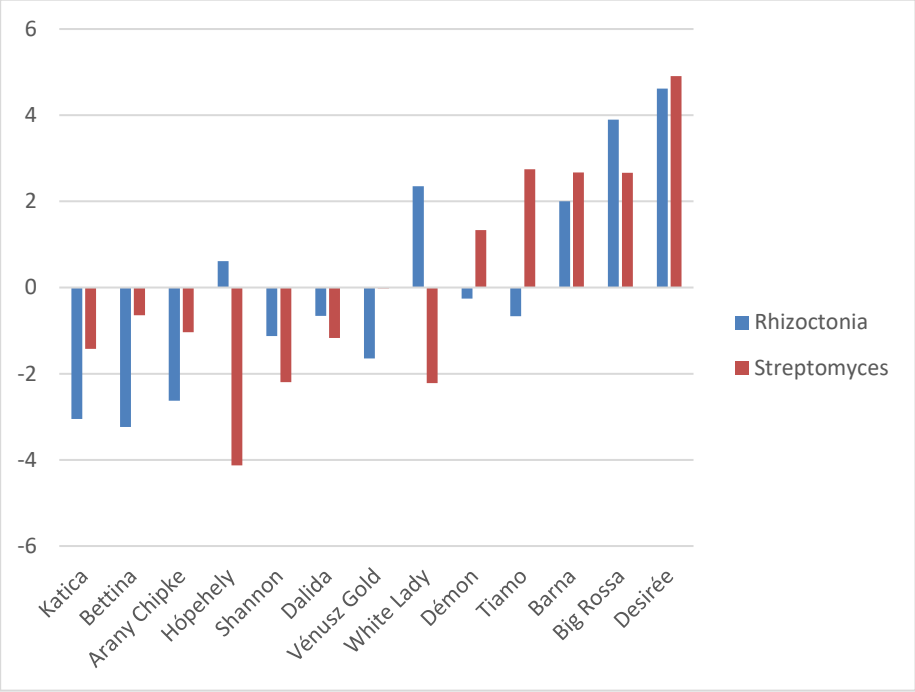


**Figure 2 (above). Results from SolACE trials of different varieties: deviation of the number of Rhizoctonia- and Streptomyces-infected tubers from the annual average. (Source: OMKi)**

**Figure 3 (below). Soil pH testing happening at organic potato farm (Source: LEAF).**

## Further information

### Further readings


- Papp O. – Jung T. – Drexler D. (2019): Középkorai burgonyafajták on-farm vizsgálata magyarországi ökológiai gazdaságokban. ÖMKi kertészeti on-farm kutatások.
- ÖMKi (2012): Bioburgonya – Minőség a termesztés minden lépésében. ÖMKi, Budapest


### Weblinks

- Further information is available on the ÖMKi website.

## About this practice abstract and SolACE


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**SolACE**: The project is running from May 2017 to April 2022**.** The goal of SolACE (Solutions for improving Agroecosystem and Crop Efficiency for water and nutrient use) is to help European agriculture face major challenges, notably increased rainfall variability and reduced use of N and P fertilizers

**Project website:** www.solace-eu.net




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