Characterization of the JKI strawberry cultivar collection in scope of the EU research project BreedingValue

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Strawberry, *Fragaria ×ananassa* Duch., has the largest economic importance of the small fruit crops grown in the temperate regions of the world. Strawberry is an octoploid species, originated from an interspecific hybrid crossing of *F. chiloensis* and *F. virginiana* in the 18th century in Europe. Since then, strawberry breeding has seen a large impact from European breeders. However, strawberry breeding has been largely privatized in the recent past, which hindered the exchange of new knowledge. Furthermore, changes in climate, cultivation techniques, consumer needs and disease distribution demand a new approach from breeding. The EU-funded project "BreedingValue" brings breeders, researchers and producer associations together and aims to address these new challenges by using genetic resources from the collections of the project partners.

The Julius Kühn Institute (JKI) is one of the 20 public and private institutions participating in the project. The Institute for Breeding Research on Fruit Crops in Dresden-Pillnitz has a strawberry gene bank of 187 cultivars and 284 accessions of *Fragaria* wild species as part of the German Fruit Genebank (DGO). The Institute offers not only genetic resources, but also their knowledge about traditional cultivars and experience with characterizing and evaluating traits in the crop.

One of the most important roles of a gene bank is to maintain a collection of true-to-type cultivars. Cultivar identification can be done in two ways: by genotyping and by pomological assessment. With genotyping, marker data is used in combination with pedigree information to verify cultivars by their known relationships. Pomological assessment is done by identifying morphological traits typical for a cultivar. There are several traits used for this purpose, for instance fruit form, achene depth, leaf color, or leaf gloss. However, these are not the only traits evaluated in Dresden-Pillnitz. The cultivar collection is phenotyped for breeding relevant traits like fruit firmness, acid, sugar and vitamin C content as well.

Through this genotyping and phenotyping data, interesting traits can be identified in the cultivar collection of the JKI. Cultivars with these traits can be then used by breeders in the future development of resilient and added value strawberry cultivars.