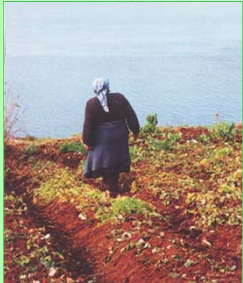


'Snow White'™ (hansawhit^(S)) - a new strawberry cultivar with white fruits

Introduction

The cultivation history of white-fruited strawberries is much older than that of red cultivars of *Fragaria ×ananassa* Duch. *Fragaria chiloensis* f. *chiloensis* (L.) Miller with white or pale pink fruits is cultivated for hundreds of years in Chile and Peru and was introduced to Europe in 1714. It became an ancestor of the cultivated *Fragaria ×ananassa* Duch. together with *Fragaria virginiana* Miller from North America which had been cultivated in Europe since 1623. White cultivars were always interesting for cultivation. The cultivar *Fragaria ×ananassa* 'Weisse Ananas', bred in 1867, survived in house gardens and germplasm collections due to its fruit colour and its fresh-fruity taste. Meanwhile, white cultivars are attractive for European strawberry production as a niche product, in particular, for the gourmet fruit sector.



Traditional Chilean cultivation of *Fragaria chiloensis* f. *chiloensis*
Foto: Jorge Retamales



Vulcano Villarica (2.840 m)



Fragaria chiloensis f. *patagonica* Staudt
accession from the vulcano Villarica,
found at 1.200 m above sea level



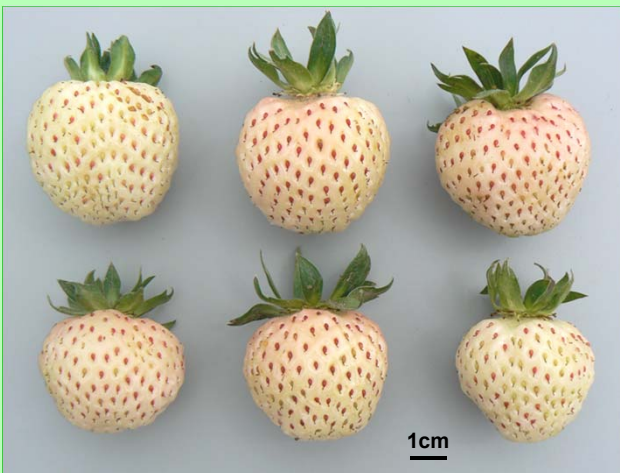
Accession from nature near a settlement
close to the vulcano Villarica: escape or
leftover from cultivation.



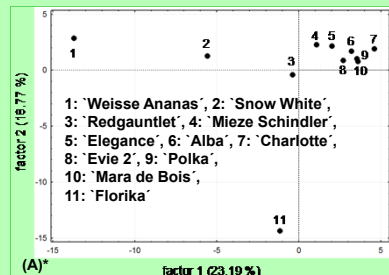
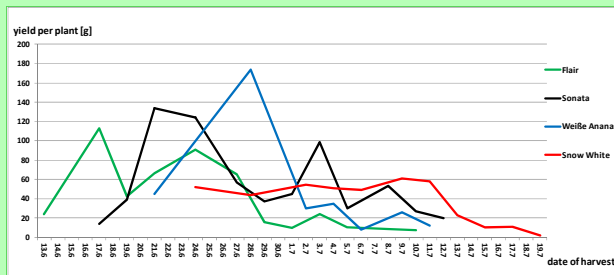
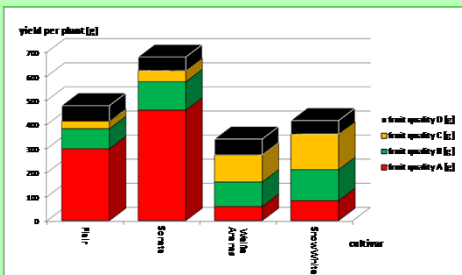
'Lucida perfecta' 1861



'Weisse Ananas' 1867



'Snow White' was selected as seedling in 2010 out from a population of *Fragaria ×ananassa* 'Weisse Ananas' × clone numbers which arose from Chilean landraces of *Fragaria chiloensis* f. *chiloensis*. 'Snow White' is a white-fruited strawberry and currently under application for European Plant Breeders' Rights 2013 under the registration number 2013/1478. 'Snow White' is winter hardy, more vigorous than the old white-fruited cultivar 'Weisse Ananas', highly tolerant to powdery mildew and other leaf diseases as well as tolerant to *Verticillium* wilt, *Phytophthora* crown rot, *Xanthomonas* and *Botrytis*.



A preliminary consumer study revealed a high acceptance of the new cultivar. A pleasant mouth feeling was mentioned, in particular. All the consumers pointed out the outstanding fresh-fruity impression which they had not recognized for any red-fruited strawberry cultivar. This result can be supported by the volatile analysis (Headspace-SPME*). 'Weisse Ananas' and 'Snow White' are rich in terpenoid compounds. Some unidentified high volatile substances are discriminating white-fruited against red-fruited cultivars. After data processing using PCA representing volatile data of 144 compounds the discrimination of cultivars is obvious: white-fruited cultivars are clearly separated from the red-fruited *Fragaria xananassa* cultivars and from the *Fragaria vesca* cultivar 'Florika' (A): Olbricht, K.; Gerischer, U.; Ludwig, A.; Ulrich, D.; Casas, B.; Darbonne, A.; Kraege, S.; Obers, H.; Vissers, A.; Walpole, P.; Walpole, S. (2013): 'Snow White', a new strawberry cultivar with white fruits. International Strawberry Congress 2013, Book of Abstracts: 35, *analysis by Dr. Detlef Ulrich, JKI Quedlinburg).



White-fruited strawberries can be distinguished from red-fruited cultivars by sensory evaluation and volatile analyses. The breeding level of white cultivars is behind the development of red cultivars in terms of yield, fruit size, firmness and shelf life. Therefore, positive characteristics like the attractive white fruit colour, flavour and tolerance to *Botrytis* should be transferred to future selections by cross-breeding with *F. ×ananassa*. In this perspective, 'Snow White', a new cultivar, applied for European Plant Breeders Rights, exhibits improved traits.