

Scanning report Vercammen Jef, pcfruit

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Source materials and methodology

Pcfruit npo was started in 1997 as a coordinating structure of three former research institutes and experimental gardens, all specialised in fruit growing and located in Sint-Truiden, the heart of the fruit growing area of Belgium. The success of pcfruit is due to the combination of applied scientific research, demonstration activities to growers and services for industry and fruit growers at one central location with suitable infrastructure like labs, greenhouses, storage facilities, plastic tunnels, shelters and warehouses and orchards.

In pcfruit new and existing technologies, techniques and varieties are permanently evaluated and judged on their added value to fruit growing. Finally, the individual fruit growers are assisted in the introduction of new technologies and sustainable production methods. A close relationship with individual growers and grower associations exists, which benefits transfer of research results or information.

It is the task of the Experimental Garden for Pome and Stone fruits (PPS) to test and demonstrate new developments of the scientific research on apples, pears and sweet cherries. The main topics are: **variety testing, rootstocks**, crop regulation (fruit thinning and fruit set), planting and training systems, fertilisation and replant problems.

Pcfruit npo is since the start in 1993 member of the EUFRIN network. Pcfruit participated in EUFROFRU (1991-1993) and is since the beginning in 1996 involved in the EUFRIN Working Group "Variety testing on apples and pears". Jef Vercammen, director of PPS, was 14 years (2001-2015) the secretary of this Working Group. In March 2015 he became chair of the new named Working Group "Apple & Pear Variety & Rootstock Testing", because also rootstocks were included. Since 2011 pcfruit is also participating in the meetings of the German variety testers and breeders commission "Fachkommission Kernobst im Arbeitskreis Züchtung". These networks allow an exchange of information between variety testers, which is very useful to enlarge the knowledge around new apple and pear varieties and mutants of existing varieties.

For most new apple and pear varieties in test we use the EUFRIN testing agreement (last version March 4th 2009). For the evaluation of the new apple varieties in level 1 the EUFRIN Descriptor list for apples is used (developed during EUROFRU and adapted by the EUFRIN Working Group). For the evaluation of the new pear varieties the EUFRIN Descriptor list for pears, composed by representatives of Belgium (pcfruit), The Netherlands (DLO) and Italy (UNIBO) is used.

The source materials for this scanning report are amongst others:

- Gomand A., 2016. De nieuwe perenrassen bevestigen in 2015. *Fruittelnieuws* 29(04) blz. 4-7.
Vercammen J., Gomand A. and Goossens H., 2009. Variety Testing of Apples in Belgium. *Compact Fruit Tree*: 42(2)p.. 6-8.
Vercammen J., Gomand A. and Goossens H., 2011. Cultivar Testing of Pears in Belgium. *Proceedings of the Eleventh International Pear Symposium*: p. 171-176.
Vercammen J., 2016. Nieuwe appelrassen: Welke maken een kans om een plaats in ons assortiment in te nemen? *Fruittelnieuws* 29(09) blz. 4-7.

¹ Please see ec.europa.eu/eurostat/ramon/nomenclatures/ for details on NUTS regions, level 3

Best practice findings

Variety testing of apples

Every year several new apple varieties are planted in the first screening. These varieties are from all over the world. From each variety we plant 10 trees on M9, of which 6 trees are planted in a parcel with a normal spraying scheme (IPM). 4 trees are planted in a parcel with limited use of fungicides. We only spray against scab when there is a high risk on scab (2 to 4x pro year). In this parcel we don't spray against powdery mildew, storage diseases and Nectria canker. For the scab resistant varieties we also plant 5 trees in a parcel where we only use copper or sulphur to control scab and powdery mildew. As reference we plant always Jonagored Supra and Golden Reinders. For the observations we use the EUFRIN Descriptor list, developed by the EUFRIN Working group "Apple & Pear Variety & Rootstock Testing". Annually a report is sent to the breeders/licensors.

In the first screening (level 1) no chemical thinning (only by hand) and no treatments with gibberellins against russetting are used. Furthermore only a few branches are bent, so we can judge the natural tree shape of the new apple variety. At dryness it is possible to irrigate and there is protection with overhead sprinklers against spring night frost. This way we are certain that the trees rapidly come in production and that we have a (good) production every year. In 2016 we have 97 apple varieties in the first screening. After 3 to 4 production years a first selection is made. Varieties that are not good enough are grubbed.

From the best varieties in the first screening mostly 40 to 120 trees are planted in a second screening (Level 2). Depending on the variety we do trials on improving the fruit, chemical thinning, fertilisation, fruit quality, training and pruning, ... To test the (ideal) storage conditions we work together with VCBT (KULeuven). The eventual goal is to make a technical guide for the fruit growers. As soon as the varieties are planted in the second screening, the results are also available for the (Belgian) fruit growers and the parcel can be visited. (*In the first screening this is not possible.*) In 2016 we have 13 apple varieties in the second screening: Kanzi®/Nicoter, Belgica, Maribelle/Lola®, Wellant®/Fresco, Sweet Surprise®/B3F45, Rockit®/PremA96, Joly Red, Kizuri, Asfari, Ras 95, Isaaq®, Natyra®/SQ159 and Sweetango®.

Demands for a new apple variety

We are looking for an apple which is productive, firm and delicious and which has a good fruit size, a good outlook, a good storability and a good shelf life. If possible it must be able to pick the new variety in one time and it must be distinguished from the existing varieties. The new variety must also be optimally to grow in our climate and it must be preferably less susceptible for pests and diseases and for spring night frost.

Variety testing of pears

Every year several new pear varieties are planted in the first screening. These varieties are from all over the world. From each variety we plant 10 trees on Quince C or Adams (if possible with an interstem of 'Beurré Hardy' or 'Doyenné du Comice'). We try to use an interstem to avoid the risk of incompatibility between the new variety and the Quince rootstock. Five trees are planted in a parcel with GA-treatments (to improve fruit set) and five trees in a parcel without GA-treatments. Since 2014 5 trees are only sprayed against scab when there is a high risk on scab (2 to 4x pro year). In this parcel we don't spray against storage diseases. On the other 5 trees we use a normal spraying scheme (IPM) to avoid pest and diseases. In the first screening no chemical thinning (only hand thinning) is used. As reference we always plant 'Conference'. For the observations we use a descriptor list, developed by the EUFRIN Working group "Apple & Pear Variety & Rootstock Testing" and based on the IBPGR Descriptor list. Annually a report is sent to the breeders/licensors. In 2016 we have 48 apple varieties in the first screening. After 4 to 5 production years a first selection is made. Varieties that are not good enough are grubbed.

From the best varieties in the first screening 40 to 120 trees are planted in a second screening. Depending on the variety we do trials on fruit set or chemical thinning, fertilisation, fruit quality, training and pruning, ... To test the (ideal) storage conditions we work together with VCBT (KULeuven). The eventual goal is to make a technical guide for the fruit growers. As soon as the varieties are planted in the second screening, the results are also available for the (Belgian) fruit growers and the parcel can be visited. (*In the first screening this is not possible.*) In 2016 we have 7 pear varieties in the second screening: Corina®, Cepuna/Migo®, Sweet Sensation®, Celina/QTee®, Dicolor, TE-4179, Regal Red® Comice and Red Modoc®. Besides we have also 5 varieties in comparison under a hail net: Xenia®/Oksana, Queen's Forelle®/Thimo. Early Desire®/Gräfin Gepa and Dazzling Gold®/Uta.

Demands for a new pear variety

We are looking for a pear that is productive and delicious and that has a good fruit size, a good appearance, a good storability and a good shelf life. If possible it must be distinguishable from the existing varieties. The new variety must also be optimally to grow in our climate and it must preferably be less susceptible for pests and diseases (e.g. fire blight) and spring night frost. It is also very important that fruit set is possible through sprayings with gibberellins.