

‘Xenia’, a New Pear Cultivar from Moldova, First Results in The Netherlands

G. Heijerman-Peppelman^{1a}, V. Bucarciuc^{2b}, H. Kemp¹ and O. Pasat²

¹Applied Plant Research, Fruit Section, Lingewal 1, 6668 LA, Randwijk, The Netherlands

²Ministerul Agriculturii si Industriei Alimentare al Republicii Moldova, Institutul de Cercetări pentru Pomicultură, MD 2019, mun. Chişinău, Str. Costujeni, 14, Republica Moldova

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Abstract

The pear cultivar ‘Xenia’ (synonym ‘Noiabriskaia’) from Moldova is a selection from a cross between ‘Triomphe de Vienne’ and ‘Nicolai Krier’. In The Netherlands, ‘Xenia’ has been tested since 2001. So far, trees have given early and high yields and required little thinning. Up to now, a very low to moderate susceptibility to scab (*Venturia pirinia*) and a very low susceptibility to fruit tree canker (*Nectria galligena*) have been observed. The trees showed a medium vigour and there was a low tendency to biennial bearing. With the relatively young trees, the average fruit size of ‘Xenia’ fruits at full crop was 250-300 g. The harvest window was wide. Fruits of ‘Xenia’ had a green ground colour at harvest and were moderately bronzed. ‘Xenia’ had a spherical pear shape. The fruits had a strong fruit skin. The firmness was higher than that of ‘Conference’. The juiciness varied from juicy to very juicy, depending on the maturity stage. ‘Xenia’ had a good eating quality: fresh, slightly aromatic with a typical aroma. The storability of the fruits was very good and the shelf life of ‘Xenia’ proved to be much better than of ‘Conference’. Summarizing, the first results show a good potential for commercial fruit growing.

INTRODUCTION

In The Netherlands, pears for fresh consumption are grown on about 7.000 ha with ‘Conference’ as the main cultivar (approximately 70% of the total area). The dependence on just one cultivar is risky and, as a consequence, the pear-testing program was focused on new supplementary pear cultivars. The requirements for introduction of new pear cultivars are high, as pear plantations are made for a period of at least 25 years. Therefore, the main cultivar characteristics need to be equal or even better than that of ‘Conference’. Fruit quality, productivity, storability, and shelf life, but also low disease susceptibility and good tree features are considered as important characteristics. So far, the preliminary test results of ‘Xenia’ satisfied these requirements.

MATERIALS AND METHODS

The Netherlands is situated between 50° and 53° (Randwijk at 52°) N latitude. In Randwijk, all trials are on plots with fertigation and the local soil is a river clay soil. The top layer (0-30 cm) has a lutum percentage between 12 and 30% (lutum: particles < 2 µm), an organic matter content between 2 and 4%, and a calcium carbonate percentage of between 0.3 and 1.4%. Locally, sand can be found in the subsoil (between 60 and 120 cm depth). The subsoil at 75 cm and deeper, consists of heavy river clay (lutum percentage > 50 %). The average rainfall is approximately 800 mm per year.

In the spring of 2001, in Randwijk, the first ten trees of ‘Xenia’, grafted on ‘Quince MA’ rootstock, were planted on two different plots. In spring 2004, five trees were replanted to a new plot due to rearranging of the testing fields. In spring 2005, the

^a Gondy.Heijerman@wur.nl

^b vbucarciuc@mail.ru

other five trees were replanted to the new plot. The planting distance was 3.5 x 1.5 m.

The pear cultivar 'Xenia' was selected by Mrs. X. Dusutina in Moldova, from a cross between 'Triomphe de Vienne' and 'Nicolai Krier', made in 1962. Its Moldovan name is 'Noiabriskaia'. Due to the difficulty of this name, the new name 'Xenia' was chosen (called after Mrs. X. Dusutina's first name). In Moldova, 'Xenia' has been in test since several years and was selected for high productivity, long storability, and eating quality. The selection was registered in 1995 (Brevet de inventie, 1995). In the European Union, the Plant Variety Rights application has been submitted by fruit tree nursery Van Rijn - de Bruyn BV in The Netherlands. The commercial introduction of 'Xenia' is executed by Inova Fruit b.v.

RESULTS AND DISCUSSION

So far, trees of 'Xenia' have given early and high yields: on average a total yield of 43 kg per tree in the years 2001-2006. 'Conference' trees on 'Quince C' and the same planting distance produced during the same number of growing years on average 49 kg per tree, however these trees were not replanted. The trees required little thinning. So far, a very low to moderate susceptibility to scab (*Venturia pirina*) and a very low susceptibility to fruit tree canker (*Nectria galligena*) has been observed. The trees showed a horizontal to rather upright tree habit. The trees were medium to strongly vigorous in the first growing years, but due to heavy and early cropping the vigour decreased and branches tend to bend early. Fruits grew on one-year-old and perennial wood. There was a low tendency to biennial bearing. There were some first indications regarding incompatibility with 'Quince MA' as the rootstock diameter lagged behind of the stem of 'Xenia'. Therefore, in order to know more about the suitability of the rootstock for 'Xenia', in spring 2007, 50 trees of 'Xenia', grafted on 'Quince MC' with interstem 'Doyenné du Comice', were planted in Randwijk. For these trees, no results are available yet.

Flowering starts early, on average 3-5 days before 'Conference'. In 2006, 'Xenia' was pollinated by a series of ornamental *Pyrus* selections, in order to investigate the fruit set ability of the ornamental *Pyrus* pollenizers. The obtained results were promising as two *Pyrus* selections gave good fruit set. In the same experiment, 'Conference' proved to be able to induce good fruit set on 'Xenia'. However, for optimal pollination every year, the overlap of the flowering period of 'Conference' and 'Xenia' is not optimal, as 'Xenia' flowers relatively early. The self-fertility of 'Xenia' was investigated too, with a 6% fruit set (at harvest) as a result. The fruits from selfing proved to be almost without good seeds. So, it seems that 'Xenia' has a tendency to semi-self-fertility. However, in order to gain more accurate and reliable information on the compatibility of the pollenizers with 'Xenia' and other cultivars and its self-fertility, the experiment has to be repeated (Kemp et al., 2008).

Cropping results from a practical orchard suggested a good result of GA₃ application after spring frost, on fruit set and production. In 2007, in a small test in Randwijk, fruit set seemed to be improved by GA₃ application, too. So far, no negative effects of GA₃ application on the fruit shape were observed. In the past, with 'Triomphe de Vienne', good results were obtained by annual application of GA₃ during the first days of the flowering period (Wertheim, 1964, 1965, 1966). Total production and regularity of bearing improved and the fruit size decreased, due to improved cropping. As 'Triomphe de Vienne' is a large-fruited pear, a decrease of the fruit size was a desired effect. For 'Xenia', also large-fruited, GA₃ application seems to be useful for the same reason. Therefore, additional investigations on this topic are required.

With the relatively young trees, the average fruit size of 'Xenia' at full crop was 250-300 g. With older trees a smaller fruit size can be expected. The cultivar had a relatively wide picking window, varying from the middle of September to the beginning of October; on average 2 weeks after 'Conference'.

Fruits of 'Xenia' had a green ground colour at harvest (Fig. 1), which changes into green/yellow after (long) storage. Fruits were moderately bronzed, evenly spread over the

fruits, but mainly at the calyx end; in Moldova fruits were not bronzed or a only little, and sometimes had a light ruddiness. Fruits had a spherical pear shape, sometimes diabolical. The pears were characterized by a strong fruit skin. The firmness was higher than that of 'Conference', especially after storage and shelf life. The juiciness varied from juicy to very juicy, depending on the maturity stage. Notwithstanding its juiciness, 'Xenia' can be consumed without making a mess, as no leakage occurred. Only after extended shelf life did the fruit flesh begin melting and becoming extremely juicy, and sometimes a slightly musk-flavour occurred. Xenia was crispy and had a good eating quality: fresh, slightly aromatic with a typical aroma. The sugar content increased from 11-12 °Brix at harvest to 12-14 °Brix after about four months of storage. Fruits contained none or very few grit cells.

The storability of the fruits was very good, only after (very) long (refrigerated cool) storage (four months in air) some brown core and sometimes flesh browning occurred. Incidentally, some shrivelling appeared around the stalk due to water loss during storage. Storability tested under ULO conditions is being performed. The shelf life of 'Xenia' proved to be much better than that of 'Conference'. Stored until February at 1°C, the shelf life period was about two weeks; for 'Conference' this is about one week.

Although the testing period lasted only six years, relatively short for a new pear cultivar, the first results show a good potential for commercial fruit growing.

CONCLUSION

In The Netherlands, so far, 'Xenia' produced attractive green, slightly russeted (bronzed) fruits, with crispy, juicy and tasty fruit flesh, a remarkably good storability, and a very good shelf life. The trees had given high yields and required little thinning.

Limited quantities of budwood are available for research purposes within the European Union, from fruit tree nurseries Van Rijn - de Bruyn, The Netherlands on a written request (info@vanrijn-debruy.com).

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Figures



Fig. 1. Xenia.