Characteristic of some pear varieties of Polish origin derived from the gene bank of the Research Institute of Horticulture, Poland

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INTRODUCTION

Pear has never been widely grown in Poland. Mainly due to unfavorable climatic conditions, in particular, severe winters, during which pear trees were frequently damaged. The second reason was the lack of varieties well adapted to the climate and soil conditions. Before 1939 the most pear varieties grown in Poland were of German, French, Belgian and Russian origin. Although in some regions local varieties highly resistant to winter frost were planted, but on a small scale only.

The pear collection was founded in the twenties of the XX century. Over the years pear varieties, both foreign and domestic in origin, were collected and put into the gene bank. Nowadays, it belongs to the Research Institute of Horticulture in Skierniewice (Central Poland). Today, it contains about 320 genotypes. Most of them were once cultivated in Poland. Part of the collected cultivars derive from the field expeditions organized in Poland and neighbor countries and they have statutes of local varieties. Some of them could be seedlings of well known cultivars.

Some of the varieties could be interesting from the breeding point of view. Especially as a donor of genes responsible for resistance to diseases and unfavorable environmental conditions.

MATERIAL AND METHODS

The object of the preliminary study was to characterize some features of 14 local pear varieties important both for breeders and growers. The list of all cultivars in alphabetical order and fruits characteristics (weight and percentage of blush) are given in Table 1. During the first two years of research we focused on the following fruit quality characteristics at harvest: degree of maturity (starch index, rate of ethylene and carbon dioxide production – data not presented), total soluble solids content, titratable acidity and fruit firmness, fruit size and percentage of blush. The commonly established standard methods were used to determine fruit maturity and quality.

Table 1. Fruit weight and percentage of blush of pear cultivars evaluated in the experiment

Name	Fruit weight (g)		Percentage of blush (%)	
	2015	2016	2015	2016
‘Bobońskiego’	163	112	-	-
‘Boika’ od Urbana	204	120	37	-
‘Bojniczanka’	300	304	-	-
‘Bratanka’	270	292	31	32
‘Cukrówka’	164	178	-	-
‘Grusza od Nagórskiego’	157	187	-	-
‘Hrabiego Pomorskiego’	68	75	13	-
‘Jałowcówka Nr2’	103	128	29	16
‘Król Sobieski’	188	259	41	33
‘Majówka Lipskiego’	84	110	-	-
‘Owsianka’	424	263	27	28
‘Radcówka’	222	199	-	-
‘Rygowski 05’	414	377	28	26
‘Szalce’	161	193	28	-

RESULTS

Regardless of the season, fruits of ’Hrabiego Pomorskiego’ were the smallest and ’Rygowski 05’ the biggest (Table 1). In both seasons, pears of ’Bratanka’, ’Jałowcówka Nr2’, ’Król Sobieski’, ’Owsianka’ and ’Rygowski 05’ were characterized by a nice blush. Appearance of blush on fruits of ’Boika od Urbana’, ’Hrabiego Pomorskiego’ and ’Szalce’ seems to be seasonally dependant. Fruit firmness was strongly associated with the ripening stage and varied from ca. 69N to 15N for ’Majówka Lipskiego’ and ’Jałowcówka Nr 2’, respectively. Data presented in Fig. 1 and Fig 2 showed that in both seasons, the highest total soluble solids content (16 - 18%) and titratable acidity (0.56 - 0.91%) were noticed in fruits of ‘Radcówka’ cv. In both seasons, titratable acidity of ‘Bojniczanka’ and ’Król Sobieski’ cv. fruits were below 0.20%. The results of preliminary study showed that fruits of some examined cultivars are able to ripe on the tree.

‘Boika’ od Urbana

‘Bojniczanka’

‘Bratanka’

‘Hrabiego Pomorskiego’

SUMMARY

The results of the preliminary study indicated that quality parameters of some investigated pear cultivars were quite stable – regardless of season. Cultivars, especially those characterized by high TSS and TA content could be used for breeding programmes.

Further investigation is required to predict the optimum harvest date and storability of the studied cultivars.

‘Grusza od Nagórskiego’

‘Jałowcówka’

‘Król Sobieski’

‘Majówka Lipskiego’

‘Owsianka’

‘Radcówka’

‘Rygowski 05’

‘Szalce’

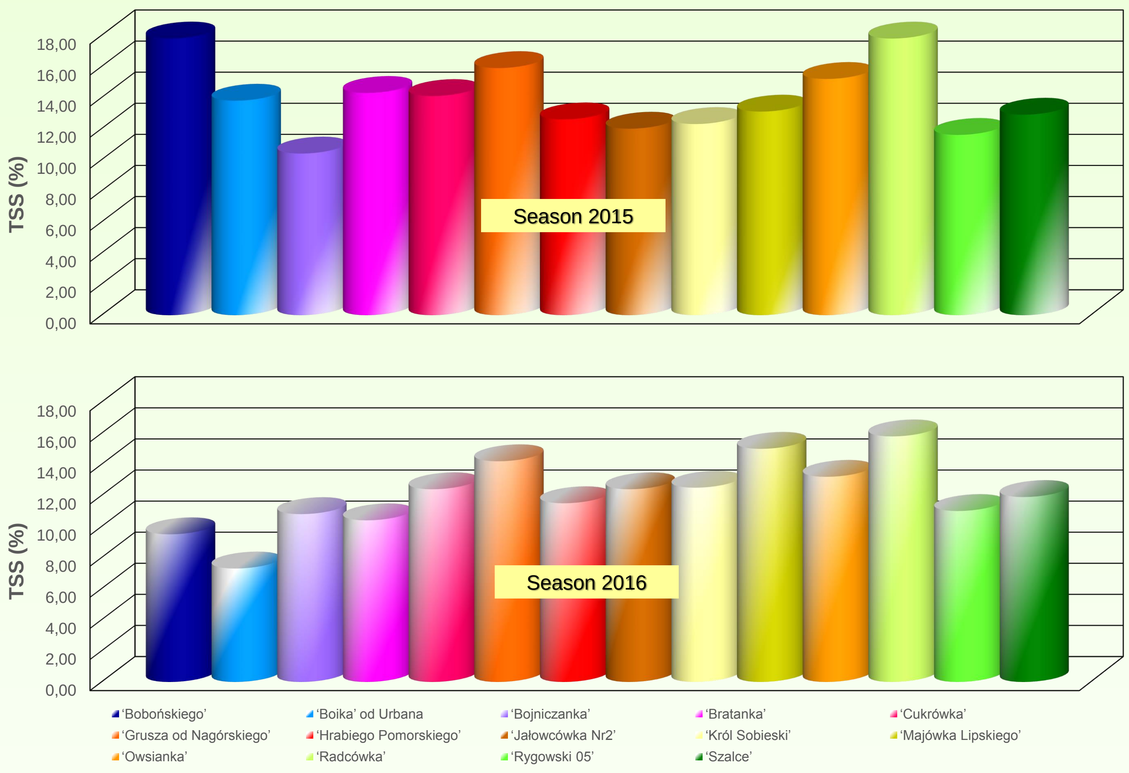

Fig 1. Total soluble solids content (TSS) of evaluated pear cultivars

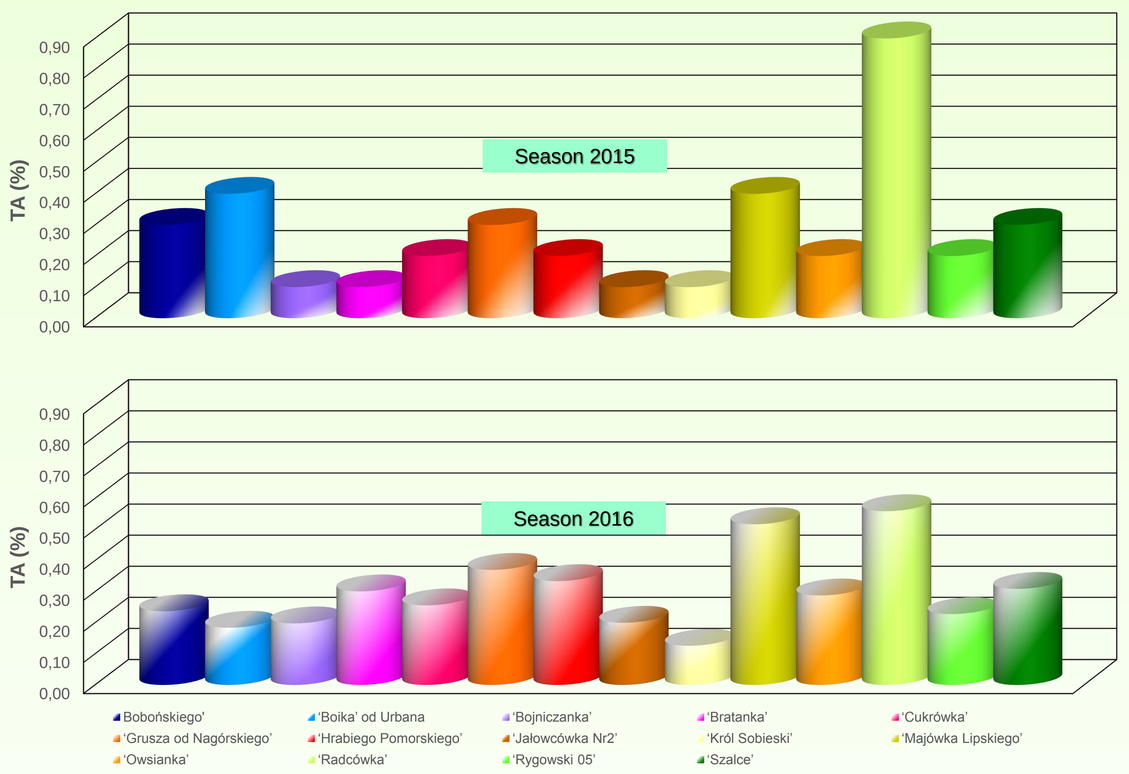

Fig 2. Titratable acidity (TA) of evaluated pear cultivars

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