

Productivity value of new Saskatoon berry (*Amelanchier alnifolia* Nutt.) genotypes bred at the National Institute of Horticultural Research (InHort), Skierniewice, Poland



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Saskatoon berry (*Amelanchier alnifolia* Nutt.): Prospects for commercial and amateur cultivation in Poland and other countries.

Origin: Canada and Northern USA.

Nutritional Value: Fruits valued for their nutrient richness, suitable for the fresh consumption and the processing and freezing industries.

Cultivation: on a small scale, as implementation plantations.

Breeding Program: the new applied breeding of this species was initiated at the Department of Horticultural Crop Breeding of the National Institute of Horticultural Research (InHort) in Skierniewice, Poland in **2012**.



2. Material and Methods

Experiment: established in the field of Experimental Orchard in 2014.

New Polish Cultivar: 'Amela' - registered in the Community Plant Variety Office (CPVO) in 2023.

New Breeding Clones: Type H and N - developed at the Department of Horticultural Plant Breeding, belonging to the InHort in Skierniewice and evaluated in the field trial.

Canadian Control Cultivars: 'Honeywood', 'Martin', 'Northline', 'Smoky', and 'Thiessen'.

Evaluated Parameters (2022-2023): Plant morphology, ripening period, fruit yield, fruit weight, and chemical composition of fruits, including extract, dry matter, pH, acidity, anthocyanins, total polyphenols and ascorbic acid (vitamine C).



3. Results and Discussions

- The cv. **'Martin'** had the most vigorous growth with a shrub size of **5.2 m²**.
- Tested genotypes ripened on average between **July 4th and 8th**.
- The new Polish cv. **'Amela'** and breeding **clone N** produced the highest fruit yield.
- **'Martin'** produced the largest fruit (**1,37 g**).
- **Soluble solids** content ranged from **14.0 to 21.9 °Brix** for tested genotypes.
- The fruit of the cv. **'Amela'** had the highest Vitamin C content (**9.78 mg/100g**).
- The cv. **'Smoky'** showed the highest anthocyanin (**292,2 mg/100g**) and the total phenolic content (**778.6 mg/100g**).

Table 1. Bush size, harvesting time, fruit yield and their weight and chemical fruit analyses of tested Saskatoon berry genotypes (Experimental Orchard, at Dąbrowice, Central Poland, (*average results for 2022-2023*))

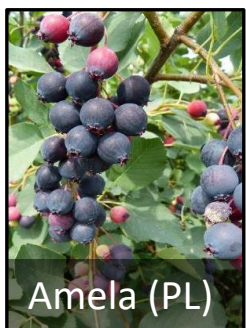
Genotype	Bush size (m ²)*	Harvesting time	Yield (kg/bush)	Weight of 100 fruit (g)	Soluble solids (°Brix)	Ascorbic acid (mg/100g)	Anthocyanins (mg/100g)	Total phenolic (mg/100g)
Smoky	2.2a**	06.July	2.08 a	99.7 a	20.28 d	5.41a b	292.2 d	778.6 e
Martin	5.2 c	04. July	1.56 a	137.0 b	16.05 b	6.73 b	269.4 c	701.3 c
Thiessen	2.1 a	05. July	1.48 a	110.5 ab	17.99 c	4.71 a	218.1 b	716.7 c
Honeywood	2.8ab	07. July	1.62 a	105.5 ab	21.83 e	5.59a b	271.0 c	748.6 d
Amela	3.6 bc	08. July	3.59 b	111.6 ab	14.02 a	9.78 c	207.2 b	668.7 b
Clone H	2.6 ab	07. July	1.52 a	80.0 a	18.01 c	6.02 ab	173.1 a	622.2 a
Clone N	3.8 bc	07. July	3.55 b	109.0 ab	16.74 b	6.18 ab	219.7 b	662.7 b

*Height ×width; in m²

**Means followed by the same letter in columns are not significantly different at the p = 0,05 level of significance

4. Conclusions and Perspectives

1. The new Polish cv. '**Amela**' and **clone N** produced significantly higher fruit yield, than the tested Canadian cultivars.
2. The fruits of the cv. '**Amela**' and **clone N** could be used in the processing and freezing industries as well as for the fresh fruit market due to its fairly large fruits and taste.
3. From the consumer point of view, these valuable, nutritional attributes of fresh fruits and products of the Saskatoon berry could be beneficial for the human health and food diet.



Amela (PL)



Clone H (PL)



Clone N (PL)



Thiessen (CA)



Martin (CA)



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