EVALUATION OF GROWTH AND FLOWERING OF CULTIVARS DERIVED FROM THE PIMPINELLIFOLIA (*Rosa pimpinellifolia* L.) GROWING IN THE COLLECTION OF ROSE CULTIVARS IN THE BOTANICAL GARDEN OF THE POLISH ACADEMY OF SCIENCE IN POWSIN

Marta Joanna Monder

Polish Academy of Science Botanical Garden – Center for Biological Diversity Conservation in Powsin, Prawdziwka 2, 02-973 Warsaw, POLAND
e-mail: mondermarta@obpan.pl

(Received November 26, 2010/Accepted March 1, 2011)

A B S T R A C T

In the years 2000-2010, observations were made of shrubs of the varieties derived from the Pimpinellifolia (*R. pimpinellifolia* L.) gathered in the Collection of Rose Cultivars of PAS Botanical Garden in Powsin, Poland. The nine observed varieties were 'Aïcha', 'Elegans', 'Frühlingsduft', 'Frühlingsgold', 'Frühlingsmorgen', 'Harison's Yellow', 'Maigold', 'Poppius', and 'Stanwell Perpetual'. Every year, the following were recorded: frost damage; the date of bud breaking and the date when leaves developed in springtime; the date of the initial, complete and final flowering; the presence of symptoms of damage from disease and pests; the ability to create decorative fruit, and remarks concerning the necessity to perform spring cutting and cutting after flowering. The winter seasons of 2002/2003, 2005/2006 and 2009/2010 were unfavourable for the roses. The cultivars varied greatly according to the examined features. The advantages of many of the varieties include high frost resistance, early flowering, low requirements in terms of cutting, good condition; and the fact that some varieties create suckers ('Elegans', 'Harison's Yellow', 'Poppius', 'Stanwell Perpetual'). The varieties 'Aïcha', 'Elegans', 'Frühlingsduft', 'Frühlingsgold', 'Poppius', 'Stanwell Perpetual' are the most frost resistant . The least frost-resistant variety is 'Maigold'. The first to flower are 'Harison's Yellow', 'Frühlingsmorgen' and 'Poppius'. Varieties derived from *Rosa pimpinellifolia* can be widely used as park roses, as ground covers, and as soil protective roses ('Elegans', 'Harison's Yellow', 'Poppius', 'Stanwell Perpetual').

Key words: *Rosa pimpinellifolia*, shrub roses, frost resistance, ground cover roses, greenery

INTRODUCTION

Roses, planted both in smaller complexes and in parks and green areas, play a major role in shaping the human environment. In Poland, there is a slowly increasing need and tendency to create interesting and varied green areas in the city, and along rail and road routes (Zaraś and Latocha, 2000; Latocha, 2002; Monder, 2007a, 2009). Increasing attention is being paid to other advantages of ornamental plants than just using them for decorative purposes. For successful rose cultivation, frost resistance, tolerance to diseases and pests, and limited requirements as far as cultivation procedures are concerned are the most essential needs. In urbanized areas and alongside rail and road routes, plant resistance to urban conditions, i.e. air pollution, salinity, and drought, is important. Wild roses are believed to strengthen steep slopes and scarps, play a considerable part in a biocenose, and provide convenient shelter and food for various animals. In addition, owing to their resistance to diseases and pests, they do not have to be sprayed with plant protection chemicals. Wild roses endure air pollution and soil salinity (Popek, 1996).

The Pimpinellifolia (*Rosa pimpinellifolia* L., syn. *R. spinosissima* L.) belong to the *Rosa* (*Eurosa*) subgenus. They are one of the richest in species, and are from the *Pimpinellifoliae* section. The flowers are white or cream and appear at the end of May beginning of June. The fruit is roundish or a flat spherical shape, and dark purple to almost black, which is rare colour in roses. The shrubs have a huge tolerance to drought, frost and urban conditions, and they grow well on calcium soils. In its natural environment, it is usually found on rocks, forest fringes, thermophilous boundary communities, dunes, and heathlands. Its range encompasses northwestern and southern Europe, southwestern and central Asia as well as western Siberia. It sometimes runs wild in Poland (Popek, 1996). The species has long been recommended for growing in places that are difficult for other plants, *e.g.* mine areas (Oszkinis and Mazurkiewicz, 1957).

Pimpinellifolia cultivation started in the 16th century. In 1793, it was brought to Scotland, where Robert Brown and his brother carried out the first selection of seedlings and obtained eight varieties (Gustavsson, 1999). The first varieties were described as early as the 17th century, and by around 1830, approx. 200 varieties had originated. About 20-30 of the 200 are still counted as very valuable and are propagated on a mass scale mainly in Great Britain, France and Germany. In Great Britain, varieties which had originated in the early 19th century were called Burnet roses, and later there were the hybrids – Scots Roses or Scots Briers (Boyd, 2009) and Dune Roses (Boyd, 2009). In other countries they were mostly combined into one group and often called eg. Pimpinelleroser (Pimpinelleroses) (Gustavsson, 1999). Most cultivars flower profusely but

briefly, in May, June or July. The flowers are usually fragrant, and pastel-coloured. Many also generate suckers. After many varieties were derived from the Chinese rose (*Rosa chinensis* Jacq.), Scots roses lost popularity and mostly vanished. Presumably by the early 20th century, more than 1200 varieties derived from Burnet roses had originated (Boyd, 2009). In the 1920-30s, Wilhelm Kordes became interested in them again. Breeding consisted of crossing them with modern rose cultivars, mainly tea hybrids, and consequently many valuable, mainly park varieties, appeared. In the second half of the 20th century other growers also started to cross them, e.g. Tantau, Shepherd, Valdemar Petersen, Frank Skinner and Percy Wright, thus obtaining many valuable park, climbing and ground cover cultivars (Gustavsson, 1999; Boyd, 2009). Currently cultivars derived from *Rosa pimpinellifolia* L. are combined in literature into the Pimpinellifolia group (Gustavsson, 1999). These may be divided into:

a) typical Scots Roses;
b) cultivars and close hybrids of *R. pimpinellifolia* L. that are not typical Scots Roses;
c) other hybrids of *R. pimpinellifolia* L. (Boyd, 2007).

In Great Britain, there are two National Collections of Pimpinellifolia Roses. The roses are valued in Scandinavian countries (especially Finland) and other countries which have severe climates (e.g. Canada). Many Scots Roses and related Pimpinellifolias can be grown in a wild garden without any weeding, pruning or other attention. In more sculptured gardens, weeds may be held back by the use of a layer of gravel or use of an organic mulch (Boyd, 2007). According to Boyd (2007), Scots Roses and their relatives are not particular about soil and will grow in anything from clay to almost pure sand. However, they appreciate some organic matter in the soil, and applied as a top dressing. Most like full exposure to the sun and will grow more naturally and flower better if not shaded for more than a small part of the day.

The Pimpinellifolias are produced in Polish nurseries, however they not particularly popular. The number of new cultivars from all over the world is increasing constantly.

Among 700 taxa in the Collection of Rose Cultivars in the Botanical Garden, 11 cultivars are derived from the *Rosa pimpinellifolia* L. (Tab. 1). Growth and development of these cultivars has been observed since they were planted, up to the present. The aim of the research was to find out more about the prospects of cultivating *Rosa pimpinellifolia* L. – the decorative value of the taxa, its frost resistance, and the possibility of using them in the central part of Poland, in zone 6B (Heinze and Schreiber, 1984). This paper presents the results obtained for seven cultivars. The partial results for two other cultivars (‘Harrison’s Yellow’, ‘Poppius’) were presented earlier (Monder, 2004, 2007ab, 2010a).

MATERIAL AND METHODS

Plant material

In the years 2000-2010, observations were made of shrubs of cultivars derived from the Burnet rose (*R pimpinellifolia* L.) growing on rootstock (types *Rosa canina* L. – 'Aïcha', 'Frühlingsduft', 'Frühlingsgold', 'Frühlingsmorgen', 'Maigold') or from its own roots ('Elegans', 'Harison's Yellow', 'Poppius', 'Stanwell Perpetual') gathered in the Collection of Rose Cultivars of the Botanical Garden of the PAS in Warsaw, planted in the years 1998-2006. This paper presents the results for seven varieties ('Aïcha', 'Elegans', 'Frühlingsduft', 'Frühlingsgold', 'Frühlingsmorgen', 'Maigold', 'Stanwell Perpetual'), and partial results for two varieties ('Harison's Yellow', 'Poppius') from the years 2007-2010 (Tab. 1). The number and age of the described shrubs of individual cultivars in the collection, and their origin, are shown in Table 1.

The shrubs were planted in a space which provided the plants with appropriate growth conditions. In the vegetation period of the shrubs, agrotechnical procedures were carried out according to the current technology of shrub cultivation in soil. The shrubs are covered for winter with small piles of bark or soil. The climbing variety ('Maigold') was also covered with straw.

Methods

Each year, damage caused by frost was recorded according to the scale of Łukaszewicz (1992) for wintergreen plants (the original points 2, 8, 9, were excluded, as they are not applicable for roses):

0 – undamaged plants;
1 – darkened vascular bundles on shoots, but buds develop;
2 – frost-damaged flower buds;
3 – frost-damaged leaf-buds;
4 – frost-damaged one-year-old shoot tips;
5 – frost-damaged one-year-old shoots or only their living bases;
6 – frost-damaged 2-year-old and older shoots;
7 – shoots frost-damaged to the ground surface (snow), but new shoots grow from the undamaged parts (shoot bases or roots);
8 – cracked shoots;
9 – damping off of the stem or boughs;
10 – complete plant frost damage (no signs of regeneration).

The date of the development of buds on uncut shoots was evaluated every spring, with the following division being adopted:

W – early – buds usually develop in the last week of March;
S – semi-early – buds usually develop in the first week of April;
P – late – buds usually develop in the second week of April.

The date of the development of leaves on shoots was recorded every spring, with the periods being divided as follows:

W – early – leaves usually develop 1-7 April;
S – semi-early – leaves usually develop 8-20 April;
P – late – leaves usually develop 21-31 April.

Table 1. The cultivars of *Rosa pimpinellifolia* L. belonging to the Collection of Rose Cultivars of the PAS Botanical Garden in Powsin

Cultivar	Origin	Year of planting in collection	Number of shrubs
Aïcha	Souvenir de Jacques Verschuren x Guldtop, V. Petersen 1966	2003	3
Elegans	unknown, before 1807	2000	5
Frühlingsduft	Joanna Hill x *R. pimpinellifolia* L., W.J.H. Kordes II 1949	1999	6
Frühlingsgold	Joanna Hill x *R. pimpinellifolia* var. *hispida* (Sims) Koehne, W.J.H. Kordes II 1937	2005	3
Frühlingsmorgen	(E.G. Hill x Cathrine Kordes) x *R. pimpinellifolia* var. *altaica* (Willd.) Rehder., W.J.H. Kordes II 1941	1999	4
Harison's Yellow	*R. foetida* Herrm. x *R. pimpinellifolia* L., G. F. Harison about 1924	1999	7
Maigold	Poulsen's Pink x Frühlingstag, R. Kordes 1953	1999	3
Poppius	*R. pendulina* L. x *R. pimpinellifolia* L., unknown, in XIX cent.	1999	6
Stanwell Perpetual	unknown, *R.* ×*damascena*, Lee before 1837	2006	3

In addition, the date of shrub flowering was recorded (the dates of initial, complete and final flowering); the height of shrubs was measured in the flowering period (the end of May beginning of June); the following were observed: the state of foliage – signs of damage from disease and pests; ability to create decorative fruit; and notes were made concerning the necessity for cutting in springtime and after flowering.

Weather conditions

In the years 1999-2010, exceptionally unfavourable weather conditions in the autumn and winter period occurred three times: 2002/2003, 2005/2006, 2009/2010. The average 24-hour temperatures measured in the Botanical Garden from November to April are presented in Figure 1. In those periods, the coldest months were January and February, with the lowest 24-hour temperatures, i.e. below -20 ºC. The lowest minimal winter temperature in this period was about -30 ºC. There were heavy snowfalls during each of those winters, with the heaviest in the 2009/2010 season. The sum of monthly precipitation in the years 2002-2003, 2005-2006, 2009-2010, based on the measurements carried out in the Botanical Garden, are presented in Figure 2.

RESULTS AND DISCUSSION

'Aïcha' is quite a thick, strong growing shrub, without suckers. The strong shoots are brown-green, and very prickly. The flowers are quite large (diameter of approx. 10 cm),

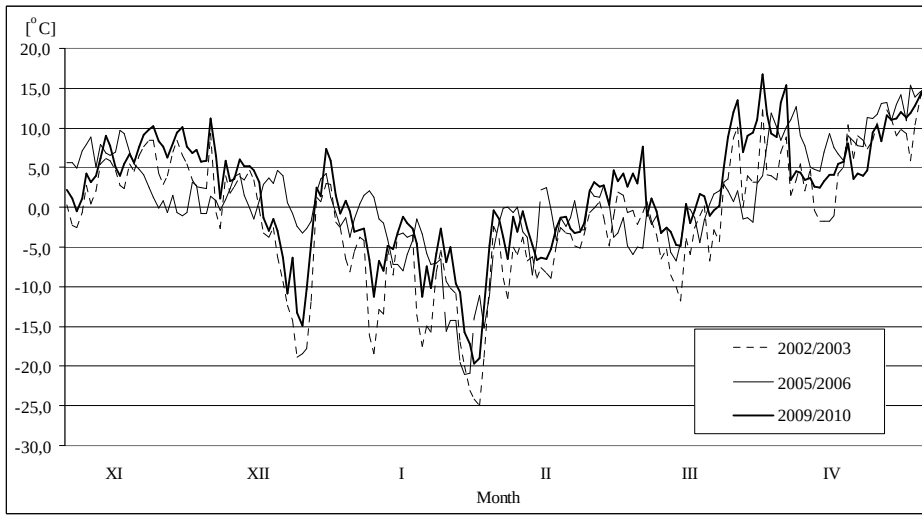

Figure 1. Average twenty-four hour air temperatures [°C] from November to April in autumn-winter seasons: 2002/2003, 2005/2006, 2009/2010, in PAS Botanical Garden in Powsin

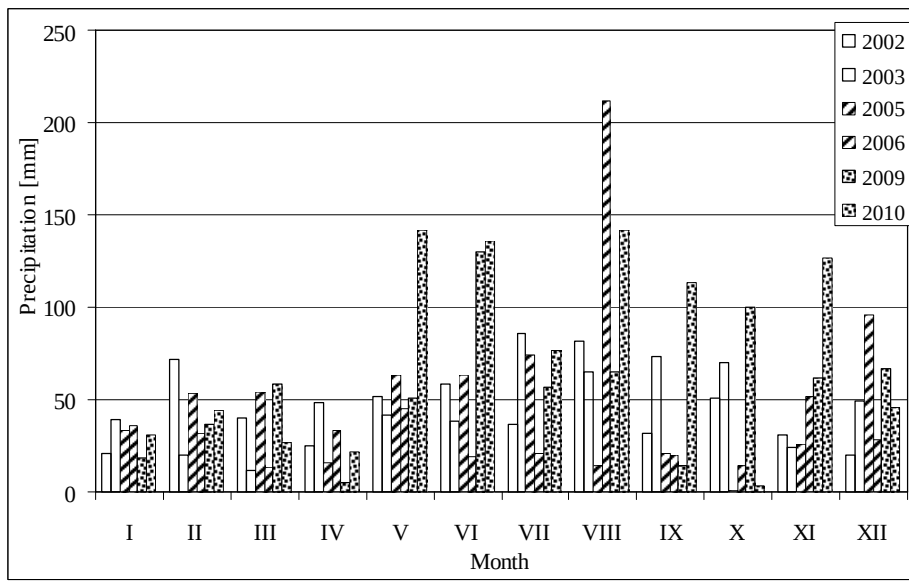

Figure 2. Sum of monthly precipitation [mm] in years: 2002-2003, 2005-2006, 2009-2010, in PAS Botanical Garden in Powsin

Table 2. Scale on frost damage for deciduous plants by Łukasiewicz (1992) of cultivars derived from the Pimpinellifolia (*Rosa pimpinellifolia* L.) in PAS Botanical Garden, in Powsin

Cultivar	Year										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Aïcha	0	0	0	0	0	0	0	0	0	0	0
Elegans	0	0	0	0	0	0	0	0	0	0	0
Frühlingsduft	0	0	0	0	0	0	0	0	0	0	0
Frühlingsgold	-	-	-	-	-	-	0	0	0	0	0
Frühlingsmorgen	0	0	0	1	0	0	4	0	0	4	0
Harison's Yellow	-	-	-	-	-	-	-	0	0	0	0
Maigold	1	1	4	6	5	4	6	4	0	6	6
Poppius	-	-	-	-	-	-	-	0	0	0	0
Stanwell Perpetual	-	-	-	-	-	-	-	0	0	0	0

yellow, semi-full, flat, and have red stamens. In the years 2000-2010, there was no frost damage (Tab. 2). The shrubs did not require spring cutting every year. In the years 2007 and 2010, there were small symptoms of shoot dieback and some cutting was needed. The flowers appeared for about 3 weeks, from the 3rd decade of May until the 3rd decade of June. Individual flowers also appeared in the summer months. Overblown inflorescences were not removed. There was no fruit-setting. In 2010, the shrubs reached a height of approx. 200 cm (Tab. 3). The shrubs were not damaged by blackspot.

'Elegance' is a well-stocked, many-branched shrub with underground suckers. The shoots are gray and dark brown, very prickly, and thin. The flowers are white, rather small (diameter of approx. 5 cm), semi-full to full, spherical, and slightly fragrant. In the years 2000-2010, the shrubs showed no frost damage (Tab. 2). The shrubs did not require any cutting in springtime. The shrubs flowered for the first time, three years after planting. Flowering began in the last decade of May and lasted 3-4 weeks. No decorative fruit set, and the shrubs did not require the cutting of overblown inflorescences. The shrubs were of a similar height in the flowering period and in autumn. Height did not exceed 100 cm (Tab. 3). During the years of our observation, there were no diseases or pests on the shrubs of this cultivar that might put their decorativeness at risk.

Table 3. Evaluation of growth and flowering of cultivars derived from the Pimpinellifolia (*Rosa pimpinellifolia* L.) in PAS Botanical Garden in Powsin

Cultivar	Average date of bud breaking	Average date of leaves developing	Average date of initial flowering	Average date of complete flowering	Average date of final flowering	Height of shrubs at the time of flowering in 2003 [cm]	Height of [cm] shrubs at the time of flowering in 2006	Height of shrubs at the time of flowering- in 2010 [cm]
Aïcha	semi-early	semi-early	15.05-28.05	22.05-6.06	15.06-1.07	-	150	200
Elegans	late	late	17.05-1.06	27.05-10.06	15.06-1.07	60	100	100
Frühlings-duft	early / semi-early	early / semi-early	15.05-26.05	17.05-5.06	12.06-19.06	200-230	200-230	200-230
Frühlings-gold	semi-early	early	17.05-25.05	20.05-30.05	10.06-17.06	-	60	200
Frühlings-morgen	early / semi-early	semi-early	17.05-25.05	23.05-3.06	7.06-15.06	150	150	150
Harison's Yellow	early	semi-early	10.05-22.05	15.05-28.05	10.06-20.06	-	-	170
Maigold	late	late	5.06-12.06	10.06-18.06	18.06-30.06	100	100	120
Poppius	early	early	12.05-21.05	15.05-25.05	15.06-25.06	-	-	200
Stanwell Perpetual	early	semi-early	15.05-1.06	20.05-5.06	20.06-7.07	-	-	100

'Harison's Yellow' spreads intensely via suckers. The shoots are red-brown, with numerous thorns, not very thick or strong, and branched in the upper part. The flowers are yellow, flat, and medium-sized (diameter of approx. 6 cm). In the years 2007-2010, there was no winter damage to the shrubs of this variety (Tab. 2), but it its shoots were slightly frost-damaged during more severe seasons (Monder, 2004, 2007b). The shrubs did not require springtime cutting. The first flowers bloomed early, sometimes as early as the end of the first decade of May. Flowering lasted approx. 3 weeks. There was no fruit-setting, and the shrubs did not require the cutting of inflorescences after flowering. A few years after being planted, the shrubs reached a height of approx. 170 cm (Tab. 3). Every year, in the second half of summer, the shrubs suffered blackspot damage, which was one cause of the partial loss of leaves before autumn. According to Boyd (2007), *R.* x *harisonii* Rivers can suffer from blackspot and may benefit from application of a suitable fungicide. The cultivar should be used as a park rose for bigger areas

due to its strong expansion via suckers.

'Frühlingsgold' does not create very dense shrubs, and it does not have suckers. 'Frühlingsgold' has grey-brown, very prickly shoots. Its flowers are large (diameter of approx. 10 cm), light-yellow, individual to semi-full, and concave. There was no frost damage in the years 2006-2010 (Tab. 2). The shrubs did not require spring cutting. The flowers bloomed for about 3 weeks, from the 3rd decade of May until the 2nd decade of June. In 2010, spherical, rather small, wine-red fruit set. In 2010, the shrubs reached a height of approx. 200 cm (Tab. 3). Blackspot damage was minimal and did not affect the decorativeness of the shrubs.

'Frühlingsmorgen' is not a very loose shrub, and is without suckers. 'Frühlingsmorgen' is grey-green, very prickly, and has quite thick shoots. Its individual, concave, large flowers (diameter of approx. 10 cm) are shell pink with red stamens. After the 2002/2003 winter, there was a bit of damage to the shoots – darkened vascular bundles in the shoots, yet the development of the shrubs in the springtime proceeded as usual. After the 2005/2006 and 2008/2009 winter seasons, one-year-old shoot tops were frost-damaged (Tab. 2). In addition, in the last few winters, higher susceptibility to shoot dieback was observed, which made it necessary to carry out spring cutting. The flowers appeared from the beginning of the 3rd decade of May for a period of approx. 3 weeks. Every year, round, brick-red colour, egg-shaped fruit set. The shrubs reached a height of approx. 150 cm (Tab. 3). There was not much damage caused by blackspot and it did not considerably affect the decorativeness of the shrubs.

'Frühlingsduft' is a strong but not very thick growing shrubs. It is without suckers, and has grey-brown, very prickly shoots. The flowers are medium-sized (diameter of approx. 8 cm), peach-coloured, semi-full, and spherical. In the years 2000-2010, there was no frost damage (Tab. 2). The shrubs did not require spring cutting, and every couple of years the shrubs were only slightly pruned. The flowers appeared for approx. 3 weeks, from the 3rd decade of May until the 2nd decade of June. Overblown inflorescences were not removed. There is no fruit-setting, and after a few years the shrubs reached a height of approx. 230 cm (Tab. 3). In all the research years, blackspot was observed on the shrubs in the second half of summer. Some leaves fell, but this did not significantly affect the decorativeness of the shrubs.

'Poppius' grows intensively, spreading very quickly via suckers. The shoots have numerous needle-shaped thorns, and are green to brown and purple. In autumn, leaves turn purple-brown. The flowers are pink, semi-full to full, spherical, and medium-sized (diameter of approx. 6 cm). In the years 2007-2010, the shrubs of this variety had no frost damage (Tab. 2), nor was there frost damage in earlier research (Monder, 2004, 2007b). The shrubs did not

require cutting in spring. The flowers appear as early as the 2nd decade of May, and flowering lasts more than 4 weeks. Dark-purple, round, medium-sized (diameter of 1.2-1.5 cm) decorative fruit appears after flowering. The shrubs in the collection reached a height of approx. 200 cm (Tab. 3). Damage caused by blackspot was slight and did not affect the decorativeness of the shrubs.

'Maigold' is a climbing variety, one of the few derived from the Burnet rose with this growth pattern. It does not grow very strongly, and it does not create suckers. The shoots are brown-green, with numerous thorns. It has quite large flowers (diameter of approx. 10 cm), dark yellow-orange, semi-full to full. Despite careful protection of the shrubs with a mound and a straw mulch in the years 2000-2010, there was frost damage after every winter season, excluding 2007/2008. Frost damage during more severe winters had already been noticed before (Monder, 2004 and 2007b). The shrubs suffered the most frost damage from the winters of 2002/2003, 2005/2006 and 2008/2009, when some shoots were also damaged (Tab. 2). The damaged shoots were removed low, which resulted in a lack of flowers or weak flowering. The shrubs reacted well in spring, but during flowering their height was not typical for this variety. According to Gustavsson (1999), the variety reaches 3 m. In the years 2001, 2002, 2004, 2005, 2007, 2008, 2010 the flowers of this variety usually appeared from the 1st to the 3rd decade of June. Overblown inflorescences were removed for aesthetic reasons. At the end of the vegetation season, the plants reached a maximum height of approx. 200 cm, but after strong spring cutting their height in the summers usually only reached approx. 100 cm (Tab. 3). Every year of the research, in the second half of summer, blackspot slightly damaged the shrubs, and a small part of the leaves fell. In addition, the shrubs were damaged by diseases causing shoot dieback, which also contributed to the necessity for strong cutting.

'Stanwell Perpetual' is a shrub with crawling grey-brown, very prickly shoots. The flowers are white to shell pink, full, flat, and medium-sized (diameter of approx. 8 cm). In the years 2007-2010, there was no frost damage (Tab. 2). The shrubs did not require regular spring cutting. The flowers appeared from the 1st–2nd decade of May for approx. 4 weeks, and also individually throughout summer, which is an exception for roses from this group. There was no fruit-setting. The removal of overblown flowers was not necessary. The shrubs did not exceed a height of 100 cm (Tab. 3), 3 years after planting. In the years 2007-2010, there was no damage caused by diseases and no pests that would lower the decorativeness of the shrubs. According to Boyd (2007), blackspot can cause considerable damage so the variety may require plant protection chemicals.

The resistance to frost and winter conditions is a very important aspect of plant and rose cultivation. Poland

has very cold winters during which rose shrubs, particularly susceptible varieties, can suffer severe damage and even be completely killed by frost. Most frost susceptible roses are hybrid roses. Floribundas and polyanthas are susceptible to a lesser degree (Oszkinis and Mazurkiewicz, 1957). Even minor frost damage means that most roses will need to be cut down somewhat. Frost damage that is point 6 on the scale by Łukasiewicz (1992), means the roses should be cut to ground level. Leaving even minor frost damaged shoots on the shrubs, particularly on susceptible varieties, means drying in the vegetative season. In addition, these shoots are more prone to fungal disease (Wojdyła and Wiśniewska-Grzeszkiewicz, 2000).

From among 338 tested tea hybrids and floribundas roses, in the collection of ground roses of the Division of Ornamental Plants of Agricultural Academy in Poznań, 260 i.e. 76.9% were badly damaged. The authors considered a variety as hardy, if the older origins of a variety can be uncovered in the soil (Czekalski et al., 1990).

After the long, snowy, freezing winter of 2009/2010, an evaluation was made of the condition of the shrubs of 368 cultivars from different groups (hybrid teas, floribundas, polyanthas, shrubs, miniatures, climbers and ramblers) growing in the Collection of Rose Cultivars in the PAS Botanical Garden in Powsin. All the shrubs suffered damage from 4 to 7 and several cultivars to 10 on the Łukasiewicz scale. The shrubs, ramblers and climbers overwintered quite well. Hybrid teas, floribundas and miniatures suffered the most severe damage. Most of them had to be cut to ground level. Climbers and ramblers flowering on two-year-old shoots suffered the heaviest ornamental value loss (Monder, 2010 b).

To sum up, it can be stated that the cultivars derived from Burnet rose are varied in terms of the features examined. The very high frost-resistance of the varieties: 'Aïcha', 'Elegans', 'Frühlingsduft', 'Frühlingsgold', 'Poppius', 'Stanwell Perpetual', proved to be a big advantage. Yearly cutting of the shrubs of these varieties was not necessary. According to the guidelines for flowering roses, a recommended sanitary and rejuvenation cutting was performed every few years (at best after flowering), on the previous year's shoots as well as removing redundant suckers (Gustavsson, 1999; Boyd, 2007).

The advantages of Pimpinella roses also include a 2-3 week earlier initial flowering, in comparison to other varieties of roses (Monder, 2007ab, 2008, 2010b).

The varieties in question, excluding 'Maigold', can be recommended first of all for bigger growing fields. 'Maigold' should be planted only in sheltered places. 'Harison's Yellow', 'Stanwell Perpetual', and especially 'Poppius', because of their growth pattern and their sucker spreading habit (two of the three mentioned varieties) can be used as ground covers and as soil-protection roses.

The observed nine rose varieties derived from the Pimpinellifolia are

generally disease-free (Boyd, 2007), which is confirmed by this research and do not require any regular protection from fungus diseases. In the years 2000-2010, no other typical, common rose diseases such as rust, or powdery mildew were observed on them.

REFERENCES

Boyd P.D.A. 2007. Scots Roses then and now. The plantsman. The Royal Horticultural Society., pp. 104-111.

Boyd P.D.A. 2009. The World Heritage of Scots Roses. In Papers presented at the World Rose Convention, Vancouver, Canada, June 2009. World Federation of Rose Societies. pp. 152-155.

Czekalski M., Oszkinis K., Żyła S. 1990. Uszkodzenia mrozowe róż powstałe podczas zimy 1986/1987. OGRODNICTWO, 1-3: 44-45.

Gustavsson L.-Å. 1999. Rosenlexikon. Rosinante Forlag A/S. Kopenhaga.

Heinze W., Schreiber D. 1984. Eine neue Kartierung der Winterhärte Zonen für Gehölze in Mitteleuropa. Mitt. DTSCH. DENDROL. GES. 75: 11-56.

Latocha P. 2002. Rośliny okrywowe w ekstremalnych warunkach miejskich – korzyści i ryzyko ich stosowania. Przyroda i miasto, IV, pp. 221-225.

Łukasiewicz A. 1992. Zahamowanie rozwoju pąków u niektórych drzew iglastych po surowej zimie 1986/1987 i wynikająca stąd potrzeba uzupełnienia skali przemrożeń u drzew i krzewów. BULL. BOT. GAR., MUSEUMS COLL. 1: 53-57.

Oszkinis W., Mazurkiewicz Z. 1957. Róże, PWRiL, Warszawa.

Monder M.J. 2004. Observations of overwintering of historical roses in roses collection of Botanical Garden of Polish Academy of Sciences in Warsaw after frosty winter 2002/2003. BULL. BOT. GAR., MUSEUMS COLL. 13: 197-207.

Monder M.J. 2007a. Charakterystyka wzrostu i wartości dekoracyjnej wybranych odmian parkowych róż historycznych. XI Nursery Conf. Problemy i perspektywy produkcji szkółkarskiej roślin ozdobnych, Skierniewice, Poland, Wydawnictwo Inst. Sadow. Kwiac., pp. 31-40.

Monder M.J. 2007b. Zasoby genowe i ocena wybranych odmian róż historycznych w kolekcji Ogrodu Botanicznego CZRB PAN. ZESZ. PROBL. POST. NAUK ROLN. 517: 487-494.

Monder M.J. 2008. Ocena wzrostu i kwitnienia 10 wybranych odmian róż z grupy okrywowych. ZESZ. PROB. POST. NAUK ROL. 525: 261-269.

Monder M.J. 2009. Różnorodność i charakterystyka wybranych odmian pochodzących od róży pomarszczonej (*Rosa rugosa* Thunb.). XIII Nursery Conf., Produkcja drzew i krzewów ozdobnych oraz ich wykorzystanie w terenach zurbanizowanych, Skierniewice, Poland, Wydawnictwo Inst. Sadow. Kwiac., pp. 21-28.

Monder M.J. 2010a. The Pimpinellifolia Hybrids (*Rosa pimpinellifolia* L.) in the Collection of Cultivable Varieties of Roses in Botanical Garden of PAS in Warsaw. ACTA SOC. BOT. POL. 79, Suppl. 1: 20-21.

Monder M.J. 2010b. Ocena stanu krzewów 368 odmian róż po sezonie zimowym 2009/2010 w Ogrodzie Botanicznym PAN w Warszawie. ROCZNIK PTD, LVIII, pp. 39-52.

Popek R. 1996. Biosystematyczne studia nad rodzajem *Rosa* L. w Polsce i krajach ościennych. Wydawnictwa Naukowe WSP. Kraków, pp. 34-37.

Wojdyła A., Wiśniewska-Grzeszkiewicz H. 2000. Występowanie zamierania pędów na gatunkach i odmianach róż. Polish Roses Conf. Róże w szkółce i pod osłonami, Skierniewice, Poland, Wydawnictwo Inst. Sadow. Kwiac., pp. 47-51.

Zaraś E., Latocha P. 2000. Okrywowe krzewy liściaste i iglaste jako elementy korzystnie wpływające na środowisko miejskie. Przyroda i Miasto, III, pp. 187-201.

OCENA WZROSTU I KWITNIENIA ODMIAN POCHODZĄCYCH OD RÓŻY GĘSTOKOLCZASTEJ (*Rosa pimpinellifolia* L.) ROSNĄCYCH W KOLEKCJI ODMIAN UPRAWNYCH RÓŻ W OGRODZIE BOTANICZNYM CZRB PAN W WARSZAWIE

Marta Joanna Monder

S T R E S Z C Z E N I E

W latach 2000-2010 prowadzono obserwacje krzewów odmian pochodzących od róży gęstokolczastej (*R. pimpinellifolia* L.) gromadzonych w Kolekcji Odmian Uprawnych Róż Ogrodu Botanicznego CZRB PAN w Warszawie obejmujące 9 odmian (‘Aïcha’, ‘Elegans’, ‘Frühlingsduft’, ‘Frühlingsgold’, ‘Frühlingsmorgen’, ‘Harison’s Yellow’, ‘Maigold’, ‘Poppius’, ‘Stanwell Perpetual’). Corocznie u krzewów odnotowywano uszkodzenia spowodowane przez mróz; zapisywano datę pękania pąków i rozwoju liści na wiosnę; oceniano regenerację uszkodzonych w czasie zimy krzewów; notowano datę początku, pełni i końca kwitnienia; obecność objawów porażenia przez choroby i szkodniki; zdolność do tworzenia ozdobnych owoców oraz uwagi dotyczące konieczności wykonywania cięcia wiosennego i po kwitnieniu. Sezony zimowe 2002/2003, 2005/2006 oraz 2009/2010 należały do niekorzystnych dla róż. Odmiany pod względem badanych cech charakteryzowały się dużym zróżnicowaniem. Do zalet wielu odmian należy wysoka mrozoodporność, wczesne kwitnienie, małe wymagania pod względem cięcia, dobra zdrowotność; niektóre tworzą odrosty korzeniowe (‘Elegans’, ‘Harison’s Yellow’, ‘Poppius’, ‘Stanwell Perpetual’). Wysoka odporność na mróz charakteryzuje: ‘Aïcha’, ‘Elegans’, ‘Frühlingsduft’, ‘Frühlingsgold’, ‘Poppius’, ‘Stanwell Perpetual’. Najmniej mrozoodporną okazała się odmiana ‘Maigold’. Najwcześniej zakwitają ‘Harison’s Yellow’, ‘Frühlingsmorgen’ i ‘Poppius’. Odmiany pochodzące od róży gęstokolczastej powinny znaleźć szersze zastosowanie jako róże parkowe oraz okrywowe i glebochronne (‘Elegans’, ‘Harison’s Yellow’, ‘Poppius’, ‘Stanwell Perpetual’).

Słowa kluczowe: róże parkowe, róże okrywowe, odporność na mróz, tereny zieleni