

4. Metodicheskiye rekomendatsii po primeneniyu phytosanitarnogo kontrolya v zashchite promyshlennykh vinogradnykh nasazhdenij Yuga Ukraini ot vreditelej i boleznej. – Yalta: NIViV “Magarach”, 2006. – 24 s.
5. Metodicheskiye ukazaniya po gosudarstvennym ispytaniyam fungitsidov, antibiotikov i protravitelej semyan selskokhozyaistvennykh kultur / Pod red. Novozhylova K.V. – M.: Kolos, 1985. – 89 s.
6. Programma razvitiya vinogradarstva i vonodeliya Respubliki Krym do 2020 goda (proekt). – Simferopol, 2014. – 22 s.
7. *Brendler Fritz* Strobilurine – Praxiserfahrungen aus dem Westen // *Getreide Mag.* - 1997. - 3, № 1. - P. 36-37.
8. *Gerhard Michael, Habermeyer Johann* Der Greening-Effekt // *Getreide Mag.* - 1998. - 4, № 2. - P. 86-88, 90.
9. *Grossmann Klaus, Retzlaff Günter* Bioregulatory effects of the fungicidal strobilurin kresoxim- methyl in wheat (*Triticum aestivum*) // *Pestik. Sci.* – 1997.- 50, № 1. – P. 11-20.
10. Growth stages of mono- and dicotyledonous plants / BBCH Monograph [2 edition]. – Edited by Uwe Meier / Federal Biological Research Centr for Agriculture and Forestry. – 2001. – 158 p. – P. 91-93.
11. *Tiedemann Andreas V., Wu Yuexyan* Physiologische Effekte von Azolen und Strobilurinen bei Weizen und Gerste // *Getreide Mag.* – 2001. – 7, № 2. – P. 78-82.

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Efficiency level of strobilurines in protection of grapes against mildew was investigated in terms of this research. It was demonstrated that treatment of grape plants by these fungicides favors high protection against that disease, permits to increase table grape crop and improve quality of its fruits.

Key words: *vine, mildew, growth-regulating properties, strobilurines, texture of grapes bunch, biological efficiency.*

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GARDEN STRAWBERRY (*FRAGARIA ANANASSA*): ASSESSMENT OF PROSPECTIVE HYBRIDS BASED ON ECONOMICALLY VALUABLE CHARACTERISTICS UNDER CONDITIONS OF THE CRIMEA

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Introduction

Strawberry is one of those fruit and berry products which are in a great demand among consumers. These berries are valuable for their food dietary and medicinal properties. They contain sugars, organic acids, microelements and vitamins – so important for human in spring period [3]. Though real strawberry assortment doesn't cover all population requirements for berries and has a fundamental defects such as: a lack of high-yielding, high-quality and frost-

resistant all-purpose cultivars, low adaptive capacity to complicated soil and climatic conditions of the Crimea (returnable frosts, dry and hot climate).

Selection of new regional strawberry cultivars, adapted to specific climatic conditions is an effective method to improve present assortment [4]. Strawberry cultivars with the highest biological and economical characteristics and wide-spread locality are the most prospective [1]. Thereby task of present researches is to assess prospective hybrids of garden strawberry based on economically valuable characteristics.

Objects and research methods

Investigations were conducted on the experimental ground of branch “The Crimean experimental station of horticulture”, 2012-2014. This plot is located on the border of two climatic regions: Low piedmont and Central steppe. Climate in the zone of experiment is semi-arid and warm with changeable winter weather, considerable variations of snow cover, frequent thaw and rainfalls. Average annual minimum of temperature is -20°C , absolute minimum is -31°C . Late frosts end later, but autumn frosts begin before change over 10°C . Soil on experimental ground is meadow and alluvial carbonate middle loamy on river loams.

Objects of this investigation are prospective hybrid forms № 20-9, 4-10, 5-10, 6-10, 7-10, selected by crossing strawberry garden cultivars of national and foreign selection. Regional cultivar Red Gonglet was chosen as a control pattern.

Assessment of studied cultivars and hybrids was carried out according to “Program and methodic of cultivar investigation of fruit, baccate and nut-bearing cultures” [7, 8].

Assessment of biochemical composition of berries was conducted according to rating of fruit and berry products [5]. Statistical processing of study results was carried as described in methodic of field experiment [2].

Results and discussion

On the basis of requirements to cultivar and definite climatic and soil cultivation conditions, a complex of characteristics and properties were of great importance that is force of growth, blooming terms, annual stable crop capacity, size, taste and commercial qualities and biochemical composition of berries.

One of the factors limiting garden strawberry cultivation is low winter resistance. Assessment of hybrid seedlings revealed a high-leveled winter resistance. In spite of a sharp drop in temperature of 2012-2014 winters (from -16 till -24°C), studied hybrid didn't have any signs of subfreezing.

Cultivar peculiarities effect on vegetation terms of strawberry, they are mainly determined by meteorological conditions of the growing year (temperature and air humidity, conditions of wintering). According to observation results vegetation of the culture on average started in the second decade of March; beginning of blooming – in the second decade of April-the first decade of May; beginning of berry ripening – the second-third decades of May.

Investigators consider that characteristics which determine crop capacity and large-fruitedness of strawberry hybrid seedlings play the decisive role in their prospectivity [6]. Comprehensive study of economically valuable properties of strawberry permitted to define that biological and actual crop capacity is determined by combination of productivity components. Therefore a large number of berries on a bush is rather having increased a number of flower-bearing stems, than a number of berries per one flower-bearing stem. But control variant and hybrids have almost the same number of flower-bearing stems. The largest number of berries per flower-bearing stem (7,0) was registered for hybrid 6-10, the largest number of flower-bearing stems (3,8) was on hybrid 20-9 (control variant: 6,2 and 3,1 units).

Difference in crop capacity was determined by value of an average berry mass. Hybrids № 6-10, 20-9, 5-10 had the largest berries (12,8-13,0 g), that exceeded control variant by 18-20%. Crop capacity of studied hybrids ranged from 0,196 till 0,298 kg/bush. GF № 4-10, 6-10, 20-9 were characterized by maximum indicators, which exceeded control variant by 1,2 – 1,5 times (table 1).

Table 1

Comparative economically biological characteristics of garden strawberry cultivars and hybrids (2012-2014)

Cultivar form	A number of flower-bearing stems /1 bush, units	A number of berries /1 flower-bearing stem, units	Crop capacity, kg/bush	Berry assessment	
				Average mass, g	taste, point
Red Gontlet (Control)	3,1	6,2	0,207	10,8	4,4
GF № 20-9	3,8	6,4	0,298	12,9	4,8
GF № 4-10	3,5	6,6	0,277	12,0	4,5
GF № 5-10	3,0	6,0	0,234	13,0	4,5
GF № 6-10	3,5	7,0	0,278	12,8	4,8
GF № 7-10	3,0	5,5	0,196	12,0	4,6
HCP ₀₅	0,2	0,4	0,03	1,1	

According to berry biochemical composition of studied hybrids leaders by contain of ascorbic acid was hybrid № 20-9 (85,4 mg%), which are followed by hybrids № 5-10 (65,0), 6-10 (63,4). Hybrids № 7-10 (50,2) and 4-10 (48,4 mg%) had the lowest concentration of vitamin “C”.

Value of cultivar is mainly defined by its berry taste. High taste parameters (4,8 points) were registered for hybrids № 20-9 и 6-10. Sugars, organic acids and especially their ratio are quite important components which specify strawberry taste. Sugar-acid index, which reflects favorable ratio of sugar and acid, was registered for hybrids № 20-9 (7,99), 6-10 (7,19), that's why their berries can be referred to dessert (table 2).

Table 2

Biochemical composition of strawberry, (on average for 2012-214)

Cultivar form	Ascorbic acid, mg %	Titrable acidity, %	Sugar, %			Dry matters, %	SAI (sugar-acid index)
			glucose	sucrose	total sugar		
Red Gontlet (control)	33,7	1,17	5,51	-	5,51	8,30	4,70
GF № 20-9	85,4	0,80	5,34	1,05	6,39	9,00	7,99
GF № 4-10	48,4	1,14	4,28	-	4,28	7,33	3,75
GF № 5-10	65,0	0,98	4,43	-	4,43	7,96	4,52
GF № 6-10	63,4	0,80	5,14	0,61	5,75	8,33	7,19
GF № 7-10	50,2	1,08	4,43	-	4,43	8,30	4,10

Conclusions

All studied hybrids have attractive large-sized berries (12,0-13,0 g). Hybrids GF № 20-9, 4-10, 6-10 were characterized by maximum crop capacity (17,3-18,6 t/ha). High taste quality (4,8 points) and sugar-acid index were registered for hybrids GF № 20-9, 6-10 (dessert berries). All studied hybrid plants weren't damaged by typical strawberry diseases.

References

1. *Burmistrov A.D.* Yagodniye kultury. – L.: Kolos, 1972. – S. 49-137.
2. *Dospekhov B.A.* Metodika polevogo opyta (S osnovami statisticheskoy obrabotki rezultatov issledovaniy). – M.: Kolos, 1985. – 208 s.
3. *Kopylov V.I.* Zemlyanika. – Simferopol: Poli PRESS, 2007. – 368 s.
4. *Katinskaya Yu.K.* Zemlyanika. – L. Selkhozizdat, 1961. – 168 s.
5. *Kondratenko P.V., Shevchuk L.M., Levchuk L.M.* Metodyka otsinky yakosti plodovo-yagidnoyi produktsii. – K.: SPD “Zhytyelev S.I.”, 2008. – 79 s.
6. *Kopan V.P., Kopan K.M., Yareshchenko O.M., Khodakivska Yu.B.* / Metody, rezultaty i perspektivy selektsii plodovyh ta yagidnyh kultur v Institutu sadivnytstva YAAN / V.P. Kopan K.M., Kopan O.M., Yareshchenko Yu.B., Khodakivska // Sadivnytstvo. – 2005. – Vyp. 57. – S. 47-65.
7. Programma i metodika sortoizucheniya plodovyh, yagodnyh i orekhoplodnyh kultur // VNIISPK; [pod red. Ye.N. Sedova i T.P. Ogoltsovoy]. – Orel: Izd-vo VNIISPK, 1999. – 608 s.
8. Programma I metodika sortoizucheniya plodovyh i orekhoplodnyh kultur // VNIISPK; [pod red. G. A. Lobanova]. – Michurinsk: BNIIS, 1973. – 492 s.

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The article presents assessment results of prospective garden strawberry hybrids (Kry mchanka, Aroza, Belrubi, Red Gontlet, Sunrise) based on the complex of economically valuable properties: crop capacity, average mass, biochemical composition of a berry, frost- and fungous diseases-resistance. These hybrids were bred by crossing of cultivars from national and foreign selections.

The most promising hybrids for high crop capacity, large fruitedness and high tastes were marked out in terms of the research: № 20-9, 4-10, 6-10.

Key words: *strawberry, cultivar, blooming, mass of a berry, crop capacity, large fruitedness, biochemical composition, the Crimea.*

PLANT PROTECTION

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ASSESSMENT OF NEW PHYTOFAGE INJURIOUSNESS - *ARBORIDIA KAKOGAWANA* MATS. – ON AREA OF THE CRIMEAN VINEYARDS

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Introduction

Arboridia kakogawana Mats. (Hemiptera, Auchenorrhyncha, Cicadellidae, Typhlocybinæ) is an invasive (alien) species in the Crimea. Its natural habitat is Japanese islands (Matsumura, 1932), Korean peninsula (Dworakowska, 1970) and south of Far East of Russia (Anufriyev and Yemeljanov, 1988), where it was found on wild grape cultivars in mixed and broad-leaved forests [2, 3, 6, 8, 9, 10, 12, 13, 15].