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Cultivars of fruit mulberry tree for organic gardening

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The purpose. To create highly adaptive to biotic and abiotic factors of environment cultivars of fruit mulberry tree and to proved experimentally an opportunity of their use in organic gardening. **Methods.** Sampling of stable forms in centre of diseases of mulberry tree. Selection of the most stable cultivars of fruit mulberry tree from epy collection gene pool with their subsequent use in selection process. **Results.** For the first time on the basis of gene pool of the collection of mulberry tree fruit cultivars of mulberry tree with high stability to impact of external factors of environment which are suitable for deriving organic products are created. Crop of infructescences, their size and disease resistance is higher in comparison with a check variety Kharkov 3. **Conclusions.** It is possible to grow stable against adverse conditions of environment cultivars of fruit mulberry tree without application of both chemical protective means against diseases and pests, and chemical fertilizers. Therefore they can be used in system of production of organic gardening.

Key words: organic gardening, plants of mulberry tree, *Morus alba* L., cultivar, infructescences

Over the past 10-15 years the production of organic products in the fast-paced world [2]. To integrate Ukraine into the global trading system developed scientific and technical program "Development of the organic market and certification in organic agriculture." This policy will help to solve many pressing problems, including environmental pollution synthesized chemicals used in the process of human agricultural activity, prevent degradation under intensive agriculture and improve the health of the population [1].

Further development of organic production provide the Law of Ukraine "On the production and circulation of organic agricultural products and raw materials", which was adopted in 2013. An important consequence of the implementation of its provisions into practice the organization will work on creating a national system to monitor the production of the organic sector products [2].

Analyzed the main reasons producers transition to ecological gardening basics of growing fruit crops [2].

However, our country still lags far behind in the production of organic products. Analysis of the causes of the backlog discussed in many scientific articles, mainly economic direction [4.10].

The National Academy of Agrarian Sciences of Ukraine in September 2012 defined the main directions of research in organic gardening, "providing manufacturers regional technology growing production, further theoretical and practical justification, as well as areas for organic gardening, drafting regulations on the production of biological crop protection plants and products for processing fruit during storage "[2].

Mulberry fruit in the scientific literature is still not seen as a culture for creating organic products, despite the fact that the trading network can buy expensive imported organic dried seed heads mulberry. As Morino source of flavonoids, vitamins (B1, B2, C PP), gamma-carotene, organic acids (malic and citric), essential oils, sugars, iron salts and other biologically active substances [6], this is a very useful product is not available the majority of our population due to low purchasing power.

In scientific medicine mulberry fresh stems are used in hypochromic anemia associated with hipoatsydnym gastritis, biliary dyskinesia while on a hyperkinetic type, acute enterocolitis, dysentery and dysbiosis. We give a positive treatment experience large amounts of fresh fruits and miokardiostrofiyu patients with heart disease [6].

Therefore, due to the great demand for nursery growers mulberry sericulture Institute UAAS were started breeding work on removing fruit sorts of mulberry [14]. However, the ability of established sorts grown by organic gardening conditions not investigated.

The information paper is devoted to creating environmental factors high adaptation fruit yielding mulberry sorts and providing information horticultural producers on their benefits.

Purpose - to create high adaptation to biotic and abiotic environmental factors sorts of fruit mulberry and experimentally demonstrate their ability for organic gardening.

Research Methodology. Sorts of fruit mulberry organic gardening to create the department of sericulture and technical entomology National Scientific Center "Institute of Experimental and Clinical Veterinary Medicine" in the 2000-2015 biennium.

Experiments conducted in compliance with the organic cultivation of mulberry plants, the main ones are: complete elimination of crop protection chemicals and fertilizers; the soil between the rows and trunks band kept in natural herbage tree trunks bands with mulching trees; CZK formation is not artificial, natural and improved [2].

The base starting material to create new sorts of mulberry was the gene pool, which has 113 sorts and forms of different geographical origin [12].

The scheme included the experiment: selection of source material mulberry, phenological monitoring the development of plants, collection suplid mulberry, obtaining seeds from suplid, determination of biological parameters obtained suplid and seeds sowing seeds in the soil, determination of resistance to diseases and pests.

Phenological observations carried out by setting the date for the development of mulberry methods: sortoispytanija State [7] and the examination of the difference mulberry sorts, uniformity and stability. [13]

Vintage suplid evaluated by weight (kg / tree).

Quality suplid mulberry, namely, taste, size suplid, attractiveness of appearance and quality suplid overall assessment was performed by the method [9].

Determination of biological parameters obtained from seeds suplid carried out by methods known scientists [11,17]. Studied percentage of seed purity, laboratory germination, vigor, economic life, the weight of 1000 pieces. seeds, mg, mean seminal rest, days.

Accounting morphometric parameters were carried out at the end of the growing season 7 Mulberry plants of each sort. The height and length of plant roots in variants of experiments determined ruler, and the diameter trunk - caliper.

Every sort of collection nursery studied the scheme: botanical description, phenological rhythm assessment grades the degree of resistance to the most common diseases (vilt, tsylindrosporioz, bacteriosis) and unfavorable abiotic environmental factors, as well as indicators of productivity suplid.

Accounting hardiness grades determined after spring foliage. The degree of damage from frost determined by a scale of nine.

The spread of diseases calculated by the percentage of affected or damaged plants to the total number surveyed. The degree of destruction was determined as a percentage for each plant examined, and in the whole class. A control experiment was sort of Kharkiv 3.

The study was conducted according to guidelines developed for the conditions of Ukraine [15]. Gardening performed according to guidelines developed for growing field and experiment [6]. Statistical analysis of the results - with generally accepted biometric techniques [3, 5].

Results. On the basis of field research identified a number of mulberry fruit agriculturally valuable signs to determine their overall resilience to stressful environmental factors, yield and quality suplid.

Evaluation results for the sorts of fruit mulberry complex agronomic traits in terms of Kharkiv region found 7 best sorts.

The table mulberry sorts belong to the species Morus alba, medium-tall, high-yielding, resistant to disease, pests, winter-hardy and drought-resistant. Benchmark grade mulberry Kharkiv 3 features a lower resistance to disease (tsylindrosporiozu and bacteriosis) suplid size and yield.

Characteristics of fruit mulberry sorts for organic gardening.

Sort	Fruit shape	Color of the fruit	Length of the fruit, cm	Width of the fetus, cm	Taste of the fruit	Harvest from the tree seven years, kg / tree
Kharkiv 3 (control)	oval-cylindrical	black purple	2,0 – 2,2	1,0	pleasant, sweet	12
Nadiy	cylindrical, compact	black-purple	2,0 – 2,5	1,3	pleasant, sweet	16
Meref'yanska	cylindrical	black,	2,5 – 3,0	1,3	sweet, juicy	16
Ukrainian 7	cylindrical black	black purple	2,2 – 2,5	1,3	pleasant, sweet	16
Ukrainian 107	cylindrical	light pink	2,5 – 3,0	1,3	honey-sweet	15
Ukrainian 510	oval black	black and purple	2,8 – 3,2	1,5	pleasant, sweet	16
Plodova4	oval-cylindrical	black purple	3,0 – 3,5	1,2	sweet, juicy	16
Kharkiv 14	round-cylindrical	black glossy	2,0 – 2,2	1,3	sweet	15

Thus, experimental studies have shown that created new sorts of fruit mulberry high adaptation abiogenically to adverse environmental factors (dehydration, severe cold, poor soils). These sorts of mulberry fruit were also resistant to biotic factors (pests and diseases). Growing mulberry sorts obtained for certified soil without the use of chemical fertilizers and methods of protection will help get competitive organic products in the form of fresh raw materials and in processed form. Consequently, growing mulberry sorts created quite possible for the "Rules organic production (raw materials) herbal" [16].

Due to the early reception of environmentally friendly products, the best sorts of mulberry seed heads can compete with strawberries, saturating the market with organic fruits and berries greater range. A set of sorts of fruit mulberry stretched fruiting period (Surprise, Pobyvanka and August) can use fresh seed heads almost all summer.

Growing fruit mulberry sorts offered will allow to receive high-quality products as organic farmers and gardeners with small individual plots in the conditions of their location on environmentally friendly soil. Large areas of plantations of mulberry seed heads provide useful country throughout the year in the form of fresh, dried and canned products. Lower costs of growing such fruit Mulberry without the cost of chemical protection and mineral nitrogen fertilizers reduce production costs, which will create price competition in favor of domestic producers of organic products.

Conclusions.

Created resistant to adverse environmental conditions mulberry fruit sorts can be grown without the use of chemical plant protection from diseases and pests, and chemical fertilizer, so it meet the requirements of the production system of organic gardening. sorts characterized by high resistance to disease (tsylindrosporiozu and bacteriosis) suplid size and their yield compared with the control sort Kharkiv 3. Fruit sorts Nadiy, Meref'yanska, Ukrainian 7, Ukrainian 107, Ukrainian 510, Plodova 4,

Kharkiv 14 and available in the farm implement farms, gardens for spa appointments and individual plots of land to produce early environmentally friendly products.

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