SEABUCKTHORN CULTIVARS

RESISTANCE TO RHAGOLETIS BATAVA

VAR. OBSCURIOSA KOL. IN BELARUS

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INTRODUCTION

At the territory of Belarus sea buckthorn does not occur in wild state, i.e. it is an introduced plant.

Nowadays sea buckthorn is cultivated in Belarus mainly in amateur orchards.

There is a small plantation (4 ha) in the farm ‘Oblepikhovoye’ (Grodno region).

Experimental plantations are in the Institute for Fruit Growing and in the Central Botanical Garden of NAS of Belarus.

Planting of the 20 ha of SBT commercial orchard is provided by The State Complex Program of Potato, Vegetable and Fruit Growing Development in 2011-2015.

SEA BUCKTHORN PESTS IN BELARUS

It has been considered for a long time that in the conditions of Belarus pests do not damage sea buckthorn essentially.

In connection with a sharp change of a phytosanitary condition of sea buckthorn plantations in the Institute for Fruit Growing the monitoring has been carried out in 2006-2010, the results of which are presented in the table 1.

Table 1. - Results of fitosanitary monitoring of sea buckthorn plantation during vegetation period*

(Institute for Fruit Growing, Minsk region)

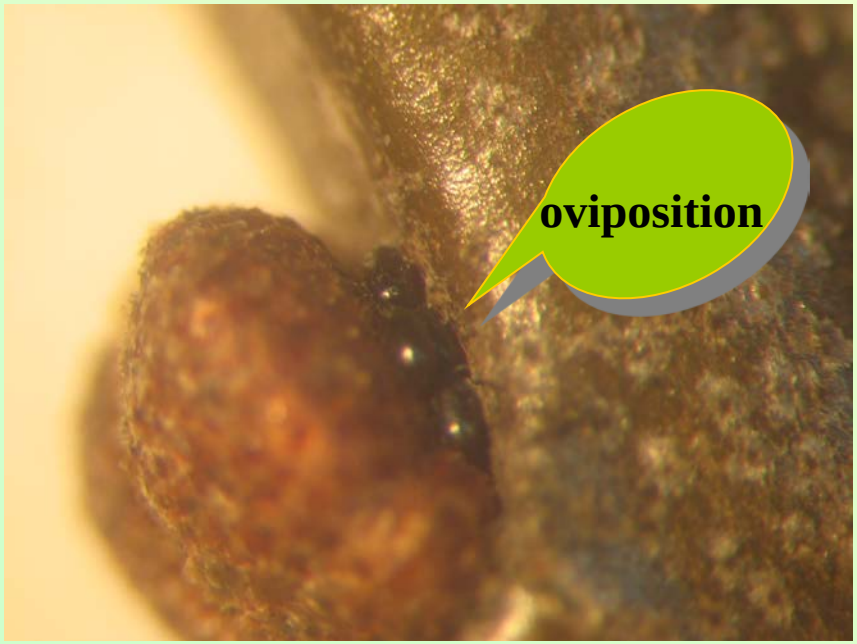
Pest, accounting unit	**2006**	**2007**	**2008**	**2009**	**2010**
1 *Capitophorus hippophaes* Walk., individuals per 2 m of branches	50.0	12.1	60.4	56.8	178.1
2 *Psylla hippophaes* Frst., individuals per 2 m of branches	192.0	28.9	56.4	79.4	384.2
3 *Cacoecia rosana* L., caterpillars per 2 m of branches	0.6	-	0.4	0.2	-
4 *Rhagoletis batava* Hering., % of damaged fruits	-	-	-	-	0-48.2
5 *Zeuzera pyrina* L., % of damaged barks	0.05	-	-	-	0.1

** - Data of The Institute of Plant Protection*

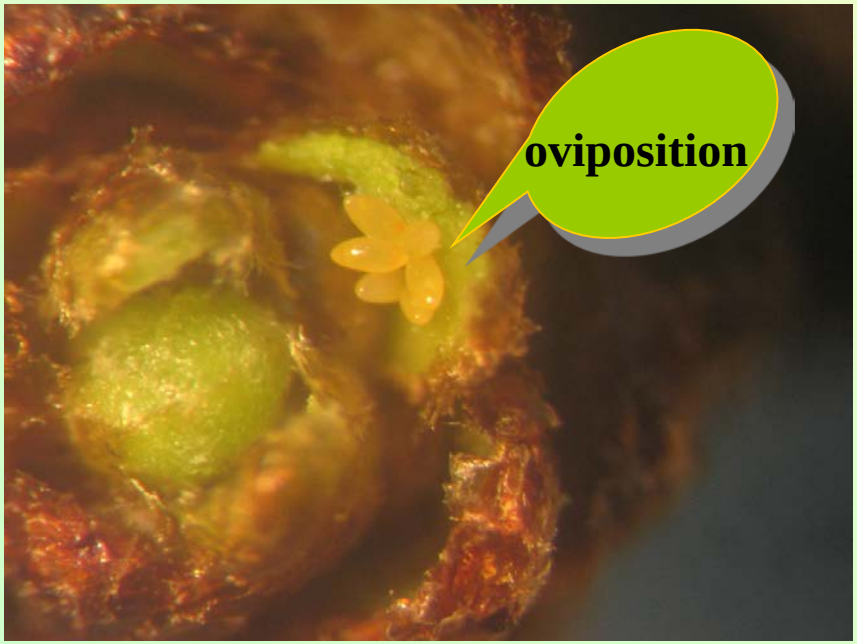
Green sea buckthorn aphid

Capitophorus hippophaes Walk.

Зеленая облепиховая тля



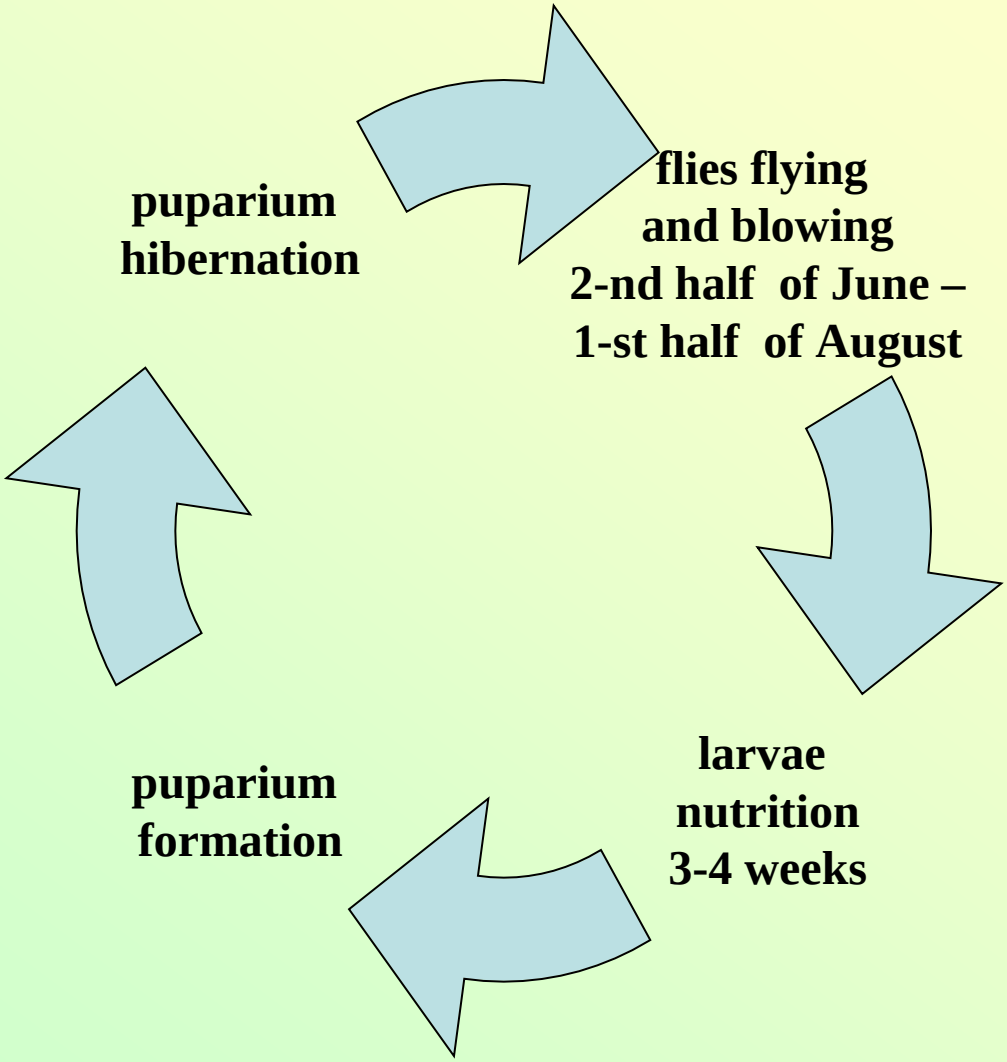
Sea buckthorn psylla
Psylla hippophaes Frst.
Облепиховая листоблошка (медяница)



Wood leopard moth
Zeuzera pyrina L.
Древесница въедливая

European Leafroller
Cacoecia rosana L.
Листовертка розанная

SCHEME OF SEA BUCKTHORN FLY DEVELOPMENT



Sea buckthorn fly
Rhagoletis batava Hering.
Облепиховая муха

At the beginning of ripening

Fly larva

At full ripening

OBJECTS

23 varieties and 7 hybrids created in Russia and Belarus.

Varieties of the selection of Botanical Garden of Moscow State University - ‘Botanicheskaya’*, ‘Finskaya’, ‘Mendeleevskaya’, ‘Nivelena’*, ‘Podarok Sadu’*, ‘Trophimovskaya’*, ‘Yolochka’, ‘Zhyoltaya Rannyaya’;

Varieties and promising hybrids of the selection of V.T.Kondrashov ‘Baikal’, ‘Desert maslichnyi’, ‘Karamelka’, ‘Petrovka’, ‘Syurpriz Baltiki’, ‘Zheltoplodnaya’, ‘Zolotaya kosa’, ‘Zolotoi klyuchik’; 7/71

Varieties and promising hybrids of the selection of Nizhnij Novgorod State Agricultural Academy (V.A.Fefelov) - ‘Dar Kazakovu’, ‘Dyuimovochka’, ‘Mariya’, ‘Riabinka’, ‘Vasilisa’, ‘Zarevo’, 15/88, 18/89, 21/90, 38/90;

Russian-Belorussian cultivar ‘Plamennaya’*;

Promising hybrids of the selection of The Institute for Fruit Growing - 03-22-00, 11-28-00.

* - varieties catalogued into the State Register

METHODS

- The fruits damage rate was detected during the mass ripening period.
  The research was carried out according to the method developed in The M.A.Lisavenko Research Institute of Horticulture for Siberia (Orel, 1999).

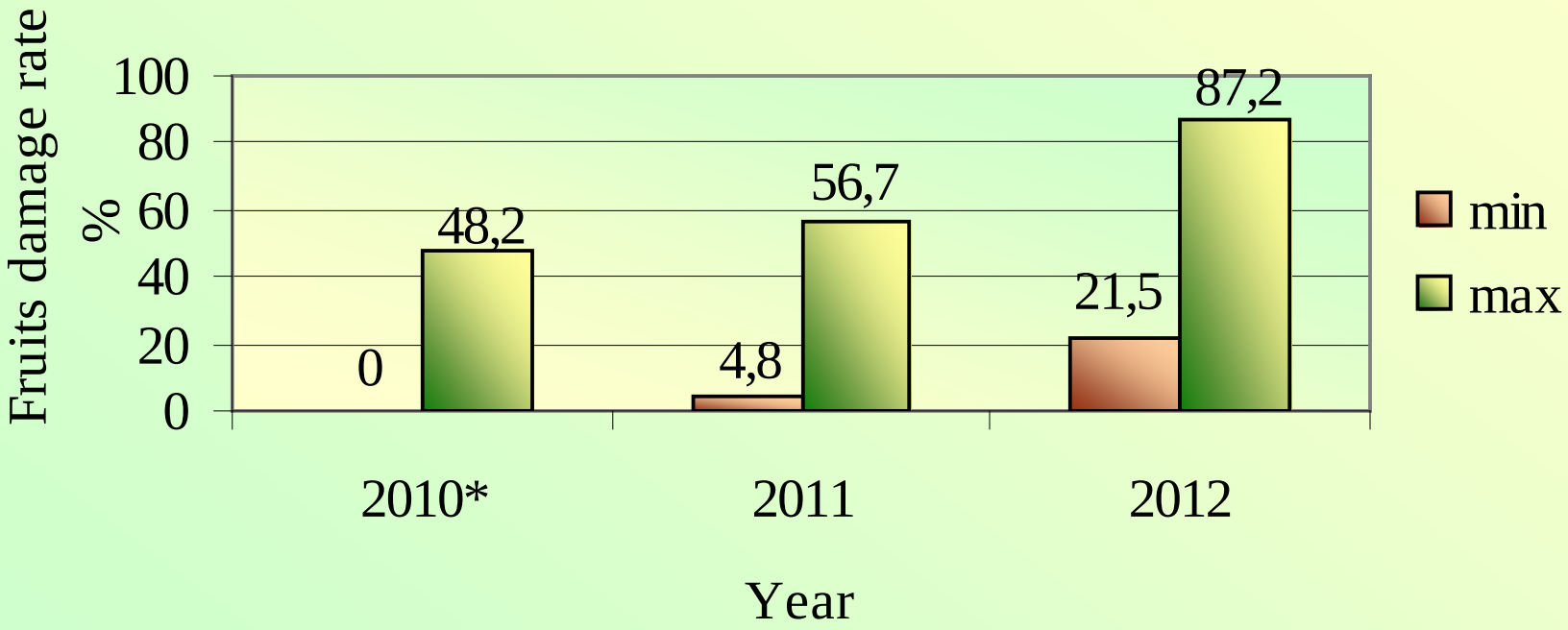
- Distribution of varieties and hybrids on susceptibility to Sea buckthorn fly was carried out according to the List of Descriptors for the species *Hippophae rhamnoides* L. (St.-Petersburg, 1993).

- For statistical data processing program STATISTIC 6.0 was used.

The purpose of the research was to determine the most resistant varieties to *Rhagoletis batava* Hering.

RESULTS

Resistance dynamics to sea buckthorn fly

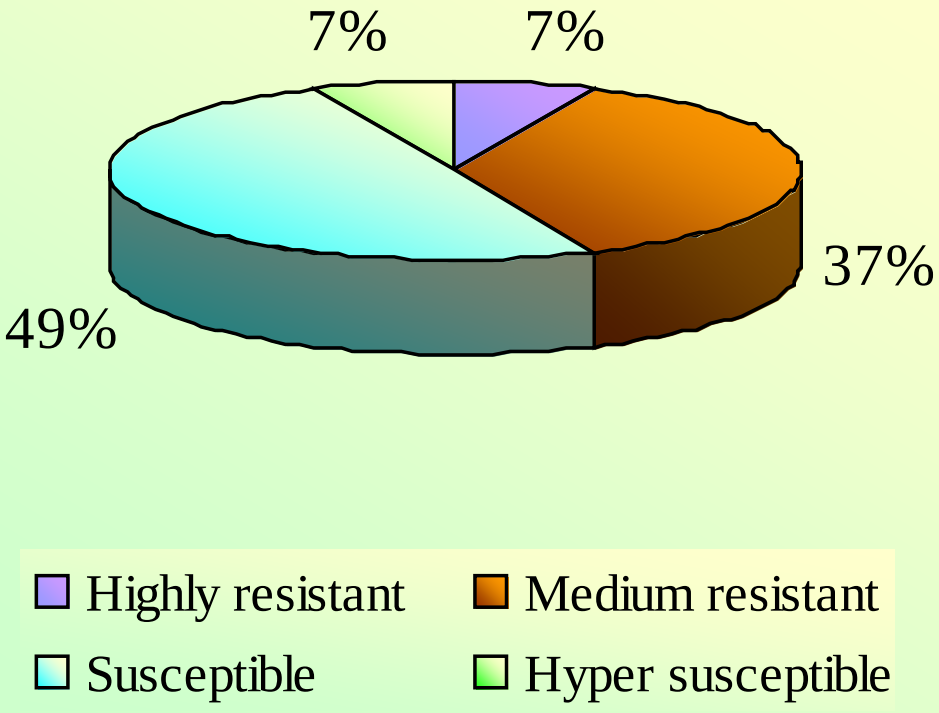


* - Data of the Institute of Plant Protection

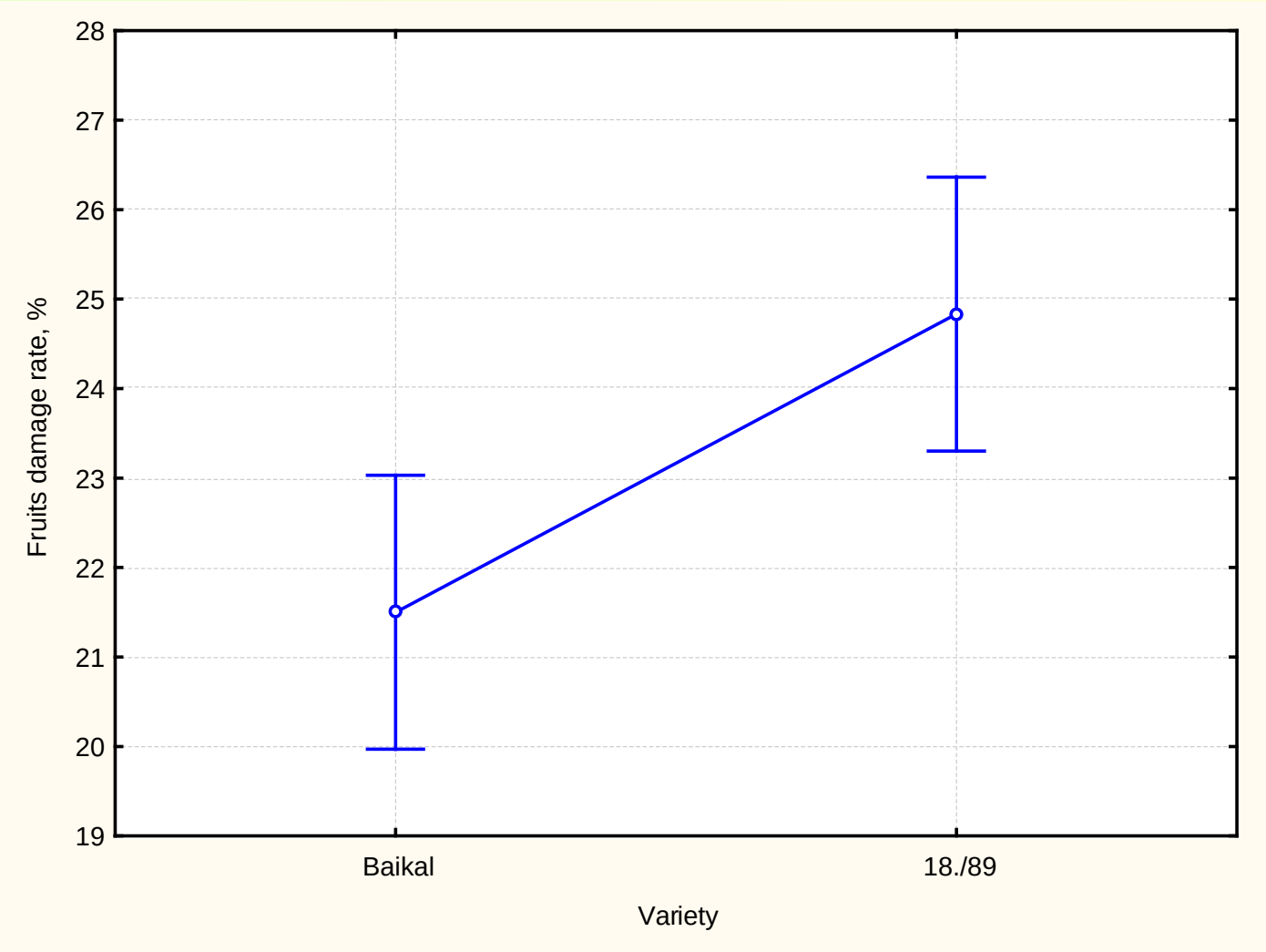
Table 2 – Distribution of sea buckthorn varieties on resistance degree to *Rhagoletis batava* Hering

Resistance group	Fruits damage rate, %	Variety
Highly resistant	11.0-25.0	‘Baikal’, 18/89
Medium resistant	26.0-50.0	‘Botanicheskaya’, ‘Dar Kazakovu’, ‘Mariya’, ‘Riabinka’, ‘Syurpriz Baltiki’, ‘Zheltoplodnaya’, ‘Zhyoltaya rannyaya’, ‘Zolotaya kosa’, ‘Zolotoi klyuchik’, 15/88, 03-22-00
Susceptible	51.0-75.0	‘Desert maslichnyi’, ‘Karamelka’, ‘Dyuimovochka’, ‘Mendeleevskaya’, ‘Nivelena’, ‘Plamennaya’ ‘Petrovka’, ‘Podarok sadu’, ‘Vasilisa’, ‘Yolochka’, ‘Zarevo’, 7/71, 21/90, 38/90, 11-20-00
Hyper susceptible	> 75 %	‘Trophimovskaya’, ‘Finskaya’

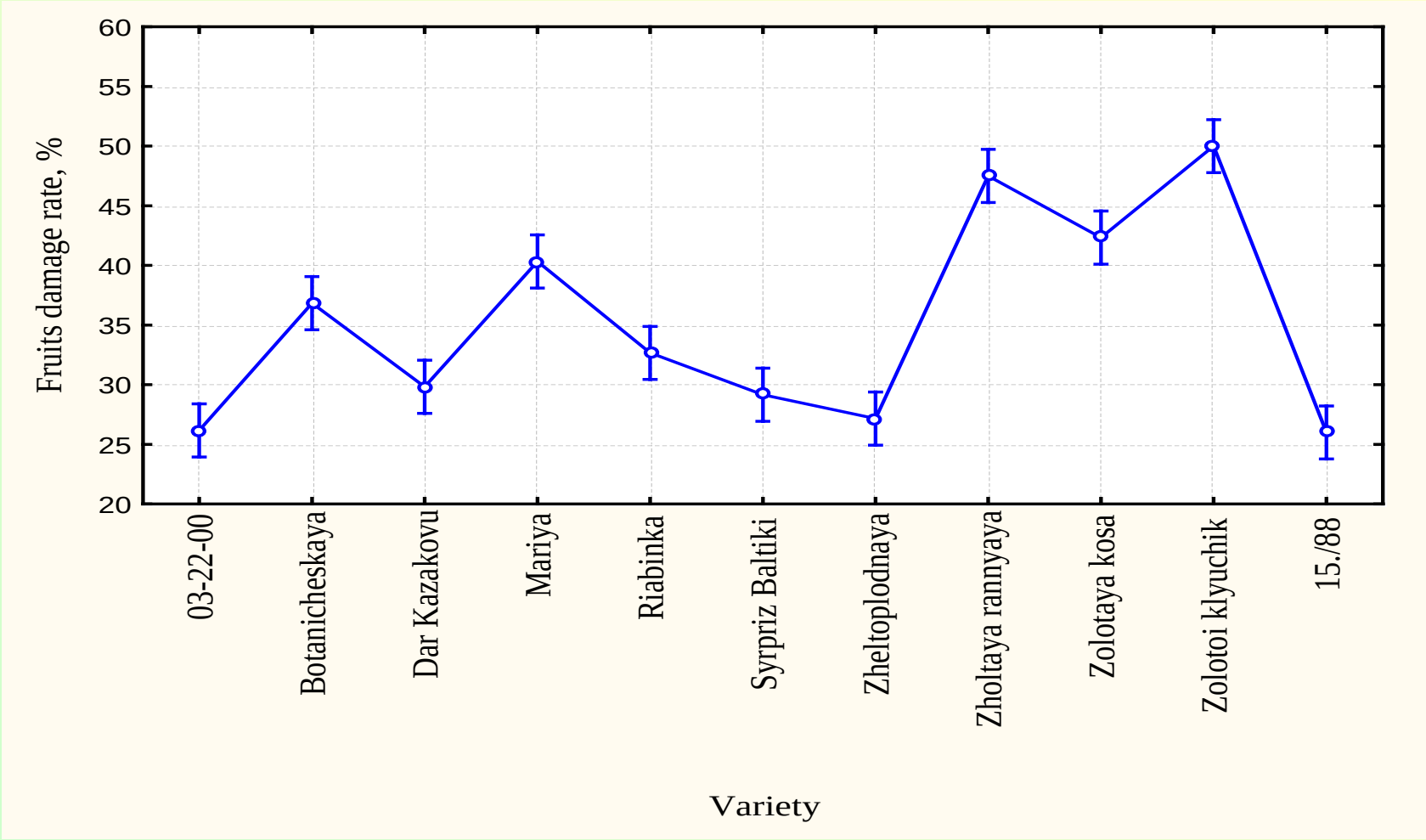
Varieties amount within resistant groups



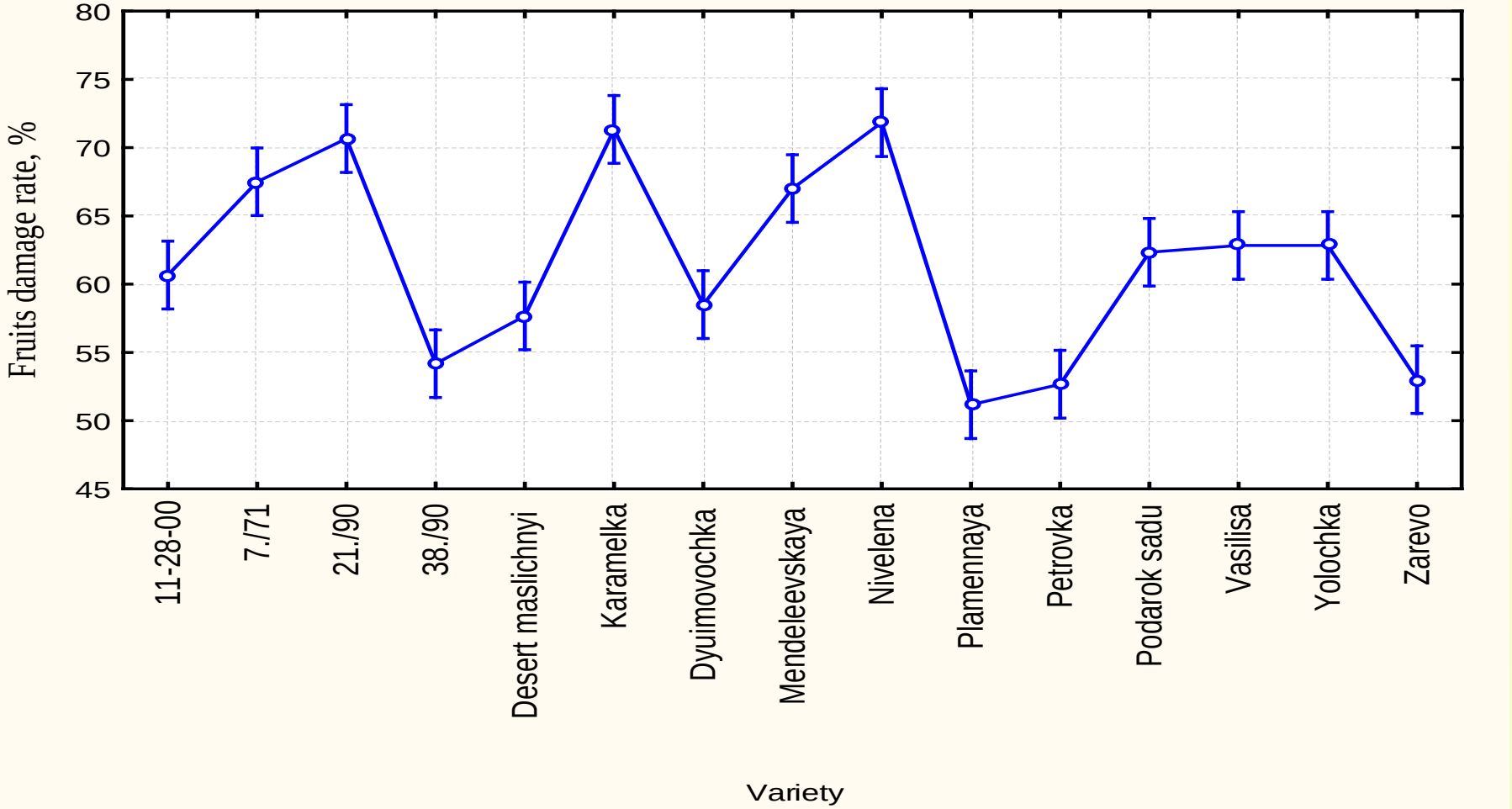
Fruits damage rate of highly resistant varieties and hybrids



Fruits damage rate of medium resistant varieties and hybrids



Fruits damage rate of susceptible varieties and hybrids



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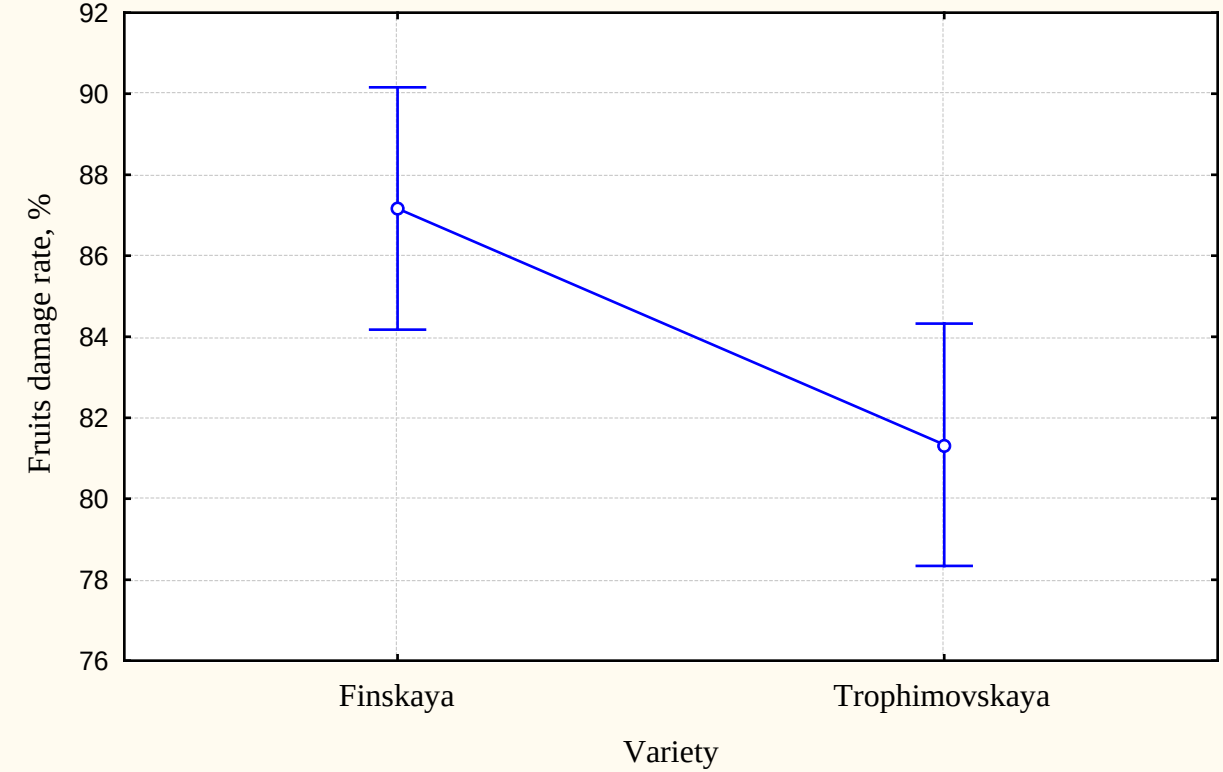
Fruits damage rate of hyper susceptible varieties



CONCLUSION

Sea buckthorn fly (*Rhagoletis batava* Hering.) is the most dangerous sea buckthorn pest in Belarus. Yield loss amount made 21.5-87.2% depending on a variety.

It was not revealed the varieties not damaging by the Sea buckthorn fly.

Cultivar ‘Baikal’ and hybrid 18/89 were the most resistant in the research - fruits damage rate made 21.5 and 24.8 % respectively.

Working out the European project directed on pest biology study and on effective protection method is required.

THANK YOU FOR ATTENTION!