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APPLICATION OF FUNGICIDE ALUMINUM 80 WP IN THE FIGHT AGAINST MARSSONIA OR WALNUT GNOMONIOSIS (*Gnomonia leptostyla* Rr/ Et de Not., f.c. (*Marssonia juglandis* Lib.). IN THE REPUBLIC OF MOLDOVA

DUMITRASH Yu.*, MAGER M.**, CHERNETS Al.***
Research Institute of Horticulture and Food Technologies (Viticulture and Winemaking), Chisinau, Republic of Moldova
**https://orcid.org/0000-0003-0524-148X,*
***https://orcid.org/0000-0003-2734-6805,*
****https://orcid.org/0000-0003-3552-1757,*
e-mail iurie-dumitrash@rambler.ru

Summary. The results of testing the fungicide Aluminum 80 WP indicate that the preparation can be used in rotation with other fungicides no more than 2-3 times during the growing season in the fight against marssonia of walnut at a rate of 4.0-5.0 kg/ha.

Keywords: *walnut, fungicide, brown spot.*

Introduction. The walnut is one of the most important nut crops in Moldova since ancient times, having found wide application and distribution here. The walnut is in 3rd place in terms of the total area occupied, yielding only to the apple and plum trees. Walnuts are cultivated in the republic on an area of more than 5,000 hectares according to industrial technology, The zoned assortment is 35 varieties. The gross harvest of this crop reaches about 3.5 thousand tons.

Industrial production of walnut fruits provides for compliance with the rules of modern agrotechnical care for plantations. Obtaining high-quality commercial products necessitates the systematic implementation of measures to protect crop plants. In the conditions of industrial production of the fruits of this crop, in order to organize the protection of walnuts, it is necessary to have detailed information on the species composition of pathogens and pests and effective means of combating them. The contact fungicide Aluminum 80 WP, (. active ingredient fosetil de aluminiu, 800 g/kg) was tested in 2020 on walnut (Juglans regia L.). in the fight against marssonia of walnut.

Materials and methods. The studies were carried out at the Technological Experimental Station "Codrul" in walnut plantations planted in 2003, feeding area bing 10x10 m, Cazaku variety. Experiment scheme: 1. Control (without treatment), 2. Standard (Bordelessa 20 SC) 5.0 l/ha, 3. Aluminum 80 WP 4.0 kg/ha, 4. Aluminum 80 WP 5.0 kg/ha, [2]. The experiment is laid down in 4 variants.Each variant includes three repetitions. In each repetition, 5 trees with the same crown parameters are used. To determine the biological effectiveness of a fungicide against a pathogen that causes brown spot (marssonia) or walnut gnomoniasis (Gnomonia leptostyla Rr/ Et de Not., f.c. Marssonia juglandis Lib.). censuses were carried out on fruits (July 23).

According to the test method, the biological effectiveness of the preparation was determined by the ratio of the number of leaves and fruits affected by the disease in the experimental variant of the control, [3].

Results and disscusions. Brown spot or marssonia (Marssonia juglandis - conidial stage) is caused by the fungus Gnomonia leptostyla. That is the most common and harmful disease of the walnut. The disease affects leaves and green fruits. This disease is often called marssonia by the name of the pathogen .The disease manifests itself annually with varying intensity. In rainy years, epiphytoties occur, and in July-August there is a massive defeat of the culture, drying out and falling off of the leaves. The disease manifests itself in the rainy period in the first decade of May or a little later. Spots of marssonia or brown leaf spots are initially light, then darken, acquiring a dark brown color. Dark dotted pycnidia appear on the spots on the underside of the leaf. The spots on the fruits are depressed and then black. In this regard, the disease is also called "nut anthracnose", [1].

Table 1

Biological effectiveness of the fungicide Aluminum 80 WP in the fight against brown spots of walnut leaves and walnut fruits. Republic of Moldova, 2020.

N	Experiment options	Application-dose, l, kg/ha	Spread of the disease, %		The intensity of the development of the disease, %		Biological efficiency, %	
			on the leaves	on fruits	on the leaves	on fruits	on the leaves	on fruits
1	Control (no processing)	-	63,3	41,3	9,15	5,16	-	-

2	Standard in Experiment (Bordolessa20SC)	5,0	6,0	3,3	0,63	0,34	93,1	93,4
3	Aluminium 80WP	4,0	9,3	5,3	0,97	0,55	89,4	89,3
4	Aluminium 80WP	5,0	6,3	4,3	0,68	0,42	92,6	91,9

DL_{05}=1,62

In 2020, the conditions for the onset of the disease were favorable. Therefore, the spraying of experimental walnut trees was carried out during the period of intensive growth of shoots and fruits - May 18, 30, June 14 and 29. The test of the preparation Aluminum 80 WP was carried out according to the proven walnut protection system. The use of preparations largely exerted fungicidal pressure on the process of infection and spread of the disease, which causes brown spotting of young leaves and walnut fruits.

The results of the accounting (July 23) and the calculation of the biological effectiveness of the fungicide Aluminum 80 WP are presented in Table 1. The table materials demonstrate the biological effectiveness of chemical treatments carried out during the growth of leaves and fruits. Data analysis shows how the level of protection of the leaf apparatus and fruits is traced depending on the dose of the preparation.

The biological effectiveness of the tested fungicide Aluminum 80 WP at the application rate (4.0 - 5.0 kg/ha) was somewhat inferior to the reference indicator, and amounted to 89.4% - 92.6% in the fight against brown spots of walnut leaves and 89.3% - 91.9% walnut fruit.

Conclusions. In the process of testing the fungicide Aluminum 80 WP in the fight against walnut brown spot at consumption rates (4.0–5.0 kg/ha), it showed biological effectiveness at the level of the standard and amounted to 89.4% - 92.6% on leaves, and on fruits - 89.3% - 91.9%.

An analysis of the test results obtained indicates that the fungicide Aluminum 80 WP can be applied 2-3 times during the growing season at a rate of 4.0-5.0 kg/ha in the fight against brown leaf spot and walnut fruits in rotation with other fungicides.

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