The 16th ANNUAL MEETING
"DURABLE AGRICULTURE –AGRICULTURE OF THE FUTURE"

RESULTS REGARDING THE ATTACK OF UNCINULA NECATOR AND FUCKELIAN BOTRYOTINIA IN THE CLIMATE CONDITIONS OF 2019-2020 FROM THE VINE CULTURE FROM THE SEGARCEA VITICULTURAL FARM, ARCHDIOCESE, DOLJ COUNTY

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INTRODUCTION

The attack of the main phytopathogenic agents of the vine can lead to significant quantitative and qualitative losses, so it is very important to respect all the links in the technology of vine cultivation and especially to apply correctly the protection products specific to this crop.

In practice, the rational control of diseases and pests of the vine is based on four key elements: knowledge of the culture, knowledge of pests, risk assessment, application of prevention and control techniques (Liliana Tomoioagă, 2013).

The epidemic character of the diseases it is conditioned by the aggression and virulence of the pathogen, the stage of development of the pathogen, its speed of spread and the way of survival from one vegetation period to another, the number of pathogens (Rodi Mitrea, 2006).

Establishing the optimal deadlines for applying the treatments is done taking into account the recommended type of control and the type of disease (Ioan Roșca, 2018).

In order not to appear forms of resistance to pathogens, it is recommended to alternate the products during the treatments, but with products that contain different active substances (Ioan Sigismund Ianoși), 2002.

MATERIAL AND METHODS

In order to control the previously reported phytopathogenic agents,in the Segarcea Archdiocese of Craiova vineyard, 7 phytosanitary treatments were carried in the years 2019 and in 2020, according to the warning bulletins issued by the National Phytosanitary Authority, through the Dolj Phytosanitary Office and a number of products were applied in the treatment scheme shown in Table 1.

Table 1
Treatment scheme applied in the years 2019-2020 in the viticultural farm Segarcea, Archdiocese of Craiova

No. treatment	Used product	Active substance %	Dose/ha	Target organism	Remarks
1	Microthiol Special	Micronized sulphur - 80%	3 kg	Uncinula necator	Year 2019
	Karathane Gold 350 EC	Meptyldinocap – 0,35%	0,5L	Uncinula necator	Year 2020
	Nissorun 10 WP	Hexitiazol– 10%	0,5 kg	Tetranycus urticae	Years 2019 -2020
2	Karathane Gold 350 EC	Meptyldinocap – 0,35%	0,5 l	Uncinula necator	Year 2019
	Flint Max 75WG	Trifloxystrobin – 25% and Tebuconazole - 50%	0,17 kg	Uncinula necator	Year 2020
	Cyperguard 25 EC	Cypermethrin	0,2l	Lobesia botrana	Year 2020
3	Vivando	Metrafenone – 50%	0,2l	Uncinula necator	Year 2019
	Systhane Plus 24CE	Myclobutanil-24%	0,2l	Uncinula necator	Year 2020
	Mospilan 20 SG	Acetamiprid - 20%	0,25 kg	Lobesia botrana	Year 2020
4	Teldor 500 SC	Fenhexamid - 50%	1 l	Botryotinia fuckeliana	Years 2019-2020
	Vivando	Metrafenone – 50%	0.2l	Uncinula necator	
5	Flint Max 75 WG	Trifloxystrobin – 25% and Tebuconazole -50%	0,17kg	Uncinula necator	Years 2019-2020
6	Microthiol Special	Micronized sulphur -80%	3 kg	Uncinula necator	Years 2019-2020
7	Microthiol Special	Micronized sulphur – 80%	3 kg	Uncinula necator	Year 2019
	Flint Max 75 WG	Trifloxystrobin – 25% and Tebuconazole -50%	0,17kg	Uncinula necator	Year 2020
	Cantus	Boscalid - 50%	1 kg	Botryotinia fuckeliana	Years 2019-2020

The 7 treatments within the treatment scheme were applied to the following dates: 6.05.2019; 27.05.2019; 9.06.2019; 26.06.2019; 10.07.2019; 24.07.2019; 3.08.2019, and for 2020 year, the 7 treatments were applied to the following data: 22.04.2020; 23.05.2020; 10.06.2020; 24.06.2020; 11.07.2020; 28.07.2020; 9.08.2020.

The estimation of the attack produced by the micromycetes *Uncinula necator* and *Botryotinis fuckeliana*, was performed on the leaves and bunches as appropriate, according to the methodologies used in the Forecast and Warning Stations.

For each pathogen, within each variety, the frequency (F%), intensity (I%) were established and the degree of attack (DA%) was calculated, the data collected being processed according to the usual formulas.

RESULTS AND DISCUSSIONS

In the climatic conditions of the years 2019-2020, following the 7 treatments every year, as shown in table 2 and the table 3,the degree of attack of the *Uncinula necator* fungus registered different waves depending on the variety and the attacked organ.

The year 2019 but also the year 2020, were warm years but also with precipitation, which made the development of the pathogen *Uncinula necator* to be less obvious, and the 7 treatments applied during the vegetation period both in 2019 and in 2020, controlled the powdery mildew (tables 2 and 3).

Table 2-Biological efficacy of some products in combating mildew in some vine varieties, in 2019 year

Variety	Attack on the leaf			Attack on the bunches		
	F%	I%	DA%	F%	I%	DA%
Merlot	21,32	0,98	0,21	20,42	1,47	0,30
Cabernet Sauvignon	21,94	1,60	0,35	20,67	2,18	0,45
Chardonnay	24,52	3,75	0,92	22,32	4,35	0,97
Romanian Tămâioasă	33,75	3,02	1,02	25,66	4,75	1,22
Sauvignon Blanc	30,24	2,78	0,84	25,2	3,49	0,88

For the red wine varieties, the DA% values on the leaves were between 0,21% for the Merlot variety and 0,35% for the Cabernet Sauvignon variety, while for the white wine varieties they were slightly higher, 0,84% for the Sauvignon Blanc variety, respectively 1,02% for the Romanian Tămâioasă variety.

The values of the degree of attack on bunches were slightly higher, being between 0,30% for the Merlot variety and 1,22% for the Romanian Tămâioasă variety.

The degree of attack, regardless of the variety and the organ analyzed, was influenced to a greater extent by the incidence of the attack, compared to its virulence.

Thus, the frequency of attack (F%) on leaves, as can be seen from the data in the same table, had values between 21,32% and 33,75%, while the values of intensity (I%) of attack on leaves were between 0,98% and 3,75%.

The frequency of the attack on clusters had values between 20,42% and 25,66%, respectively, and the intensity of the attack ranged between 1,47% and 4,75%.

Table 3 - Biological efficacy of some products in combating mildew in some vine varieties, in 2020 year

Variety	Attack on the leaf			Attack on the bunches		
	F%	I%	DA%	F%	I%	DA%
Merlot	21,30	0,97	0,20	20,41	1,46	0,28
Cabernet Sauvignon	21,94	1,60	0,34	20,67	2,18	0,45
Chardonnay	24,52	3,74	0,92	22,32	4,35	0,97
Romanian Tămâioasă	33,74	3,02	1.02	25,64	4,73	1,20
Sauvignon Blanc	30,24	2,78	0,83	25,21	3,49	0,88

For red wine varieties, the DA% values on the leaves were between 0,20% for the Merlot variety and 0,34% for the Cabernet Sauvignon variety, while for the white wine varieties, they were slightly higher, at 0,83% for the Sauvignon Blanc variety, respectively 1,02% for the Romanian Tămâioasă variety.

The values of the degree of attack on bunches were slightly higher, being between 0,28% for the Merlot variety and 1,20% for the Romanian Tămâioasă variety.

The degree of attack, regardless of the variety and the organ analyzed, was influenced to a greater extent by the incidence of the attack, compared to its virulence.

Thus, the frequency of attack (F%) on the leaves, as can be seen from the data in the same table, had values between 21.30% and 33,74%, while the values of intensity (I%) of attack on leaves were between 0,97% and 3,74%.

The frequency of the attack on bunches had values between 20,41% and 25,64%, respectively, and the intensity of the attack ranged between 1,46% and 4,73%.

The presence of Botryotinia fuckeliana micromycete in the analyzed varieties showed a weak attack, because during the accumulation of sugar in the grains there was a dry weather, which made the 2 preventive treatments applied both in 2019 and in 2020 in framework of the treatment scheme to have a good biological efficacy (tables 4 and 5).

Table 4-Biological efficacy of some products in combating gray rot in some vine varieties, in 2019

Variety	Attack on the bunches		
	F%	I%	DA%
Merlot	11,01	0,82	0,09
Cabernet Sauvignon	12,12	0,99	0,12
Chardonnay	13,24	2,42	0,32
Romanian Tămâioasă	15,00	3,73	0,56
Sauvignon Blanc	13,99	3,36	0,47

This year, the values of the degree of attack on bunches ranged between 0,09% and 0,12% for red wine varieties and between 0,32% and 0,56% for white wines.

The incidence of the attack did not exceed 15%, while the virulence of the attack ranged between 0,82% and 3,73%.

Table 5-Biological efficacy of some products in combating gray rot in some vine varieties, in 2020

Variety	Attack on the bunches		
	F%	I%	DA%
Merlot	11,01	0,81	0,08
Cabernet Sauvignon	12,12	0,99	0,12
Chardonnay	13,24	2,42	0,31
Romanian Tămâioasă	15,00	3,73	0,56
Sauvignon Blanc	13,99	3,36	0,47

In 2020, the values of the degree of attack on bunches ranged between 0,08% and 0,12% for the varieties for red wines and between 0,31% and 0,56% for those for white wines. The incidence of the attack did not exceed 15%, while the virulence of the attack ranged between 0,81% and 3,73%

The climatic conditions of the year 2019-2020 favoured the attack of the *Guignardia Bidwellii* fungus responsible for the appearance of the black rot, which was reported in all the analyzed varieties.

The introduction in the treatment scheme of the Flint Max 75 WG product managed to keep the attack within limits that did not cause production losses.

CONCLUSIONS

The experience area is characterized by ecopedological conditions favourable to the cultivation of vine but also to the development of key pathogens for this plant (*Uncinula necato*r and *Botryotinia fuckeliana*).

The 5 varieties of vines studied under the direct influence of the applied treatment scheme and the climatic conditions, behaved differently at the attack of pathogens.

A good resistance to the attack of the pathogen *Uncinula necator* both on the leaves and on the bunches had especially the varieties Merlot and Cabernet Sauvignon, with values between 0,20% and 0,45%, and regarding the attack on the grains of the micromycete *Botryotinia fuckeliana*, this was a subunit to all the varieties analyzed.

Fig.1 Uncinula necator attack, original

Fig. 2 Botryotinia fuckeliana attack, original

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