OBSERVATIONS ON THE PESTS SPOTTED IN THE VINEYARDS AND THEIR PHYTOSANITARY PROTECTION IN 2021

OBSERVAȚII PRIVIND DĂUNĂTORII SEMNALAȚI ÎN PLANTAȚIILE VITICOLE ȘI PROTECȚIA FITOSANITARĂ A ACESTORA ÎN ANUL 2021

ȘTEFAN I.A.[1], TĂLMACIU M.[1], TĂLMACIU Nela[1], HEREA MONICA[1*]
*Corresponding author e-mail: monica28is@yahoo.com

Abstract. *The introduction and generalization of the integrated system for the protection of vines is intended to limit the factors leading to the deregulation of natural biological balance. Pesticides, an indispensable component of this system, are a means of combating pathogens and pests in wine-growing. Their efficient use requires integrated management at farm level or even at plot level. A phytosanitary program established at the level of the plot in a demonstration batch shall confirm by the results of the new trends in sustainable viticulture.*
Key words: chemical control, European grapevine moth, generation.

Rezumat. *Introducerea și generalizarea sistemului integrat de protecție a viței de vie are ca scop limitarea factorilor care duc la dereglarea echilibrului biologic natural. Pesticidele, componentă indispensabilă a acestui sistem, constituie un mijloc de combatere a agenților patogeni și a dăunătorilor din viticultură. Utilizarea eficientă a acestora presupune un management integrat la nivel de fermă sau chiar la nivel de parcelă. Un program fitosanitar constituit la nivel de parcelă în cadrul unui lot demonstrativ confirmă prin rezultatele obținute noile tendințe în viticultura durabilă.*
Cuvinte cheie: combatere chimică, molia viței de vie, generație.

INTRODUCTION

Within the technology of vine cultivation, one of the important technological links for obtaining quality productions is the protection against diseases and pests.

Vine moth *Lobesia botrana* Den et Schifff. it is one of the main pests and the damage caused by this pest can reach up to 25-30%.

Lobesia botrana is by far the most widespread moth in vines, causing significant damage annually, not only in our country, but in almost all regions of culture on the European continent (Tălmaciu, 1994).

It can grow up to three generations in a single year, but often the stages of generations intertwine throughout the growing season. The first generation feeds on the inflorescence, and the second and third generations attack the berries. The economic damage caused by the first generation is usually moderate because most

[1]Iași University of Life Sciences, Iași, Romania

grape varieties are able to compensate for the loss of flowers up to a certain percentage. On the other hand, in the case of the next generations, the damage can be much greater, because the larvae enter the grains and can devel op infections of the grains, where different fungi are activated, including the gray rot (Alexa, 2002).

MATERIAL AND METHOD

The observations were made in 2021 at the Vasile Adamachi didactic farm in Iasi on a demonstration lot represented by 100 vines from the Feteasca neagră and Moldova varieties. The monitoring of the evolution of the moth generations was done on the catches registered at the traps with AtraBOT type pheromones (Severin, 1994).

The pheromone traps were placed at the end of April and the beginning of May, 2 traps on each lot. The traps were read weekly, the captured butterflies were recorded and removed from the traps, and the replacement of the capsule with synthetic pheromones was done every 4-5 weeks, the adhesive part of the traps was also replaced every 4-5 weeks.

Based on the recordings made in the two experimental groups, it was possible to create an effective control scheme for pathogens and pests in the vine plantations, taking into account the phenology of the crop, climatic conditions and the presence of donors in the studied area (Georgescu, 2003).

RESULTS AND DISCUSSIONS

The application of plant protection products is an intervention with a strong and complex impact on agroecosystems with a number of advantages, but also disadvantages related especially to the toxicity of the products used. Also, the repeated application of these products leads to the phenomenon of resistance of harmful organisms to the plant protection products used, which entails the need to apply a large number of treatments and excessive costs, the method becoming unprofitable. In addition, the use of higher doses than those indicated in the package leaflets accompanying plant protection products leads to phytotoxicity (burns on leaves, stunted growth, yellowing). The choice of selective plant protection products for useful fauna and their application in the appropriate concentrations is a desideratum in the integrated management strategy.

Another crop technique that leads to limiting the unjustified use of plant protection products is the monitoring of harmful organisms in order to know the population dynamics, establishing the “key" species that justify the application of treatments and highlighting natural enemies that can limit the population of harmful organisms.

Depending on the pests encountered in the plantation in correlation with the phenophases of the vine and the climatic conditions, the chemical treatment schemes were established.

In order to control the pests, a number of 8 chemical treatments were applied, which were carried out in most cases at warning, and the numerical density of the populations exceeded the PED.

For each pest generation, only one treatment was applied 1-3 days after the registration of the maximum flight curve. After 7-10 days from the treatments, observations were made on 50 stems analyzing 10 inflorescences (for G1) or grapes (for G2 and G3) to establish the effectiveness of the applied products. The treatments were applied using a towed pump.

Table 1

The chemical treatments applied to vineyards on the farm Vasile Adamachi in 2021

	Growth phenophase	Pathogen	Active substance	Product name	Recommend dose
T1	BBCH 12-13 A second (third) visible leaves	Mildew	350 g/l meptildinocap	Karathane Gold	0.5lt/ha
T2	BBCH 53 Its inflorescences developed but the flower buds are still compact	Grapevine downy mildew Mildew European grapevine moth G1 Foliar fertilizer	mancozeb 80% 200 g/lfluopiram+200 g/l tebuconazol 240 g/l spinosad bor	Dithane™ M-45 Luna Expirience 400 SC Laser 240 SC TradeBor	2.0 kg/ha 0.375 lt/ha 0.2 lt/ha 1.5 lt/ha
3	BBCH 60 The first flower blooms and the heads of the first flower come off the receptacle	Grapevine downy mildew Mildew Foliar fertilizer	oxathiapiprolin 10%+folpet 160 g/l proquinazid+ 80 g/ltetraconazol bor	Zorvec™ Zelavin® Bria Talendo Extra TradeBor	0.2 lt/ha+1.25 kg/ha 0.300 lt/ha 1.5 lt/ha
4	BBCH 69 At the end of flowering, all the flowers have fallen heads / corolla and you can see the 5 free stamens	Grapevine downy mildew Mildew Botrytis bunch rot	Oxathiapiprolin 10%+folpet 240 g/l myclobutanil and 80% sulphur 400 g/l pirimetanil	Zorvec™ Zelavin® Bria Systhane™ Forte and Cosavet Pyrus	0.2 lt/ha+ 1.25 kg/ha 0.2 lt/ha 3 kg/ha 1.5 lt/ha
5	BBCH 73 The development of the berries, the berries stand out well in the bunch	Grapevine downy mildew Mildew European grapevine moth G2	66.7% fosetil de Al + fluopicolide 4.44% 20% proquinazid 240 g/l spinosad	Profiler 71,1 WG Talendo® Laser 240 SC	2.5 kg/ha 0.225 lt/ha 0.2 lt/h

6	BBCH 77 Compaction of the bunch, the grains have increased their size / 70% of the final size and are beginning to touch each other	Grapevine downy mildew Mildew Foliar fertilizer	4.8% cymoxanil + folpet 48% 500 g/kg tebuconazol + 250 g/kg trifloxistrobin NPK	Curzate F Flint Max TrafosK	2.5 lt/ha 0.16 kg/ha 4 kg/ha
7	BBCH 81 The beginning of the ripening of the grains - in the varieties with colored pellet, they begin to change their color and the compaction of the grains increases	Grapevine downy mildew Mildew Foliar fertilizer	30% cimoxanil + 22.5% famoxadone 20% proquinazid 350 g/l meptildinocap NPK + Ca	Eqation® Pro Talendo® Karathane Gold 350 EC TrafosK+Ca	0.4 kg/ha 0.225 lt/ha 0.5 lt/ha 4 kg/ha
8	BBCH 85 Grapes in first-fruits, for white varieties the grains are translucent, and for those with colored pellets - the grains are completely colored. The grains are soft to the touch	Mildew Botrytis bunch rot European grapevine moth G3 Foliar fertilizer	350 g/l meptildinocap 500 g/l fenhexamid 240 g/l spinosad Ca	Karathane™ Gold 350 EC Teldor Laser 240 SC Foliar Ca	0.5 lt/ha 1 lt/ha 0.2 lt/ha 3 kg/ha

I. Treatment No. 1 - The second (third) visible leaf

1. For the mildew - *Uncinula necator* - Karathane Gold 350 EC - with the recommended dose of 0.5 lt/ha.

II. Treatment no 2 - prefloral- The inflorescences have developed, but the flower buds are still compact

1. For grapevine downy mildew - Dithane™ M-45 - with the recommended dose of 2.0 kg/ha, or Mikal Flash in a concentration of 0.25%.

2. For mildew - Luna Expirience 400 SC - with the recommended dose of 0.375 lt/ha or Tilt in a concentration of 0.02%.

3. For European grapevine moth - *Lobesia botrana* (G1) - Laser 240 SC with the recommended dose of 0.2 lt/ha or Actara - in a concentration of 0.01%.

III. Treatment no 3 - The first flower blooms, and the heads of the first flower come off the receptacle

1. For grapevine downy mildew - Zorvec™ Zelavin® Bria - with the

recommended dose of 0.2 lt/ha + 1.25 kg/ha, or Mikal Flash in a concentration of 0.25%.

2. For powdery mildew and gray rot - *Botritis cinerea* - Talendo Extra - with the recommended dose of 0.300 lt/ha.

IV. Treatment no. 4 - The end of flowering, all the flowers have fallen heads / corolla and the 5 free stamens are observed.

1. For grapevine downy mildew - Zorvec™ Zelavin Bria - with the recommended dose of 0.2 lt/ha + 1.25 kg/ha, or Mikal Flash in a concentration of 0.25%.

2. For mildew - Systhane™ Forte and Cosavet - with the recommended dose of 0.2 lt/ha with 3 kg/ha, or TILT in a concentration of 0.02%.

3. For gray rot - *Botritis cinerea* - Pyrus - with the recommended dose of 1.5 lt/ha.

4. To control mites - *Eriophies vitis* - Nissorun - in a concentration of 0.05% or Milbeknock in a concentration of 0.075% or Sanmite in a concentration of 0.075%.

V.Treatment no.5 - at 14 days after treatment no 4

1. For grapevine downy mildew - Profiler 71.1 WG with the recommended dose of 2.5 kg/ha.

2. For mildew - Talendo Extra- with the recommended dose of 0.300 lt/ha.

3. For moth- *Lobesia botrana* (G2) - Laser 240 SC with the recommended dose of 0.2 lt/ha or Actara - in a concentration of 0.01%.

VI. Treatment no. 6 - before entering the lever

1. For grapevine downy mildew - Curted F- with the recommended dose of 2.5 lt/ha or Alcupral - 0.5%.

2. For mildew - Flint Max with the recommended dose of 2.5 lt/ha or Topsin - 0.15%.

VII. Treatment no.7 - at the entrance to the lever

1. For gray rot - Eqation Pro - with the recommended dose of 0.1% or Swich-0.06% or Cantus-0.1%.

2. For Mildew - Talendo Extra - with the recommended dose of 0.300 lt/ha and Karathane Gold 350 EC - with the recommended dose of 0.5 lt/ha.

3. For moth -*Lobesia botrana* - Laser 240 SC with the recommended dose of 0.2 lt/ha or Decis Mega - in a concentration of 0.02%.

VIII. Treatment no. 8 - two weeks before harvest

1. For mildew - Karathane Gold 350 EC - with the recommended dose of 0.5 lt/ha, or Tilt in a concentration of 0.02%.

2. For gray rot - *Botritis cinerea* - Teldor- with the recommended dose of 1 lt/ha.

3. For moth - *Lobesia botrana* (G1) - Laser 240 SC with the recommended dose of 0.2 lt/ha or Actara - in a concentration of 0.01%.

CONCLUSIONS

1. Grape moths, but especially *Lobesia botrana* is the species that manifested its presence was considered a key pest that was monitored using AtraBot pheromone traps.

2. Other pests that have been reported were the species of mites, *Tetranychus urticae* and *Eriophyes vitis.*

3. A number of 8 chemical treatments were applied in the vineyards to control pathogens and pests in the two experimental groups observed.

4. These own results constitute the basis of scientific contributions to the modernization of the integrated pest control and especially of the vine moths, eliminating production losses and the degree of pollution in vineyards.

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