

Control of grape moth (*Lobesia botrana* D & Schiff) by mating disruption technique in Albanian vineyards

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Summary

Albania has planted 10 thousand ha vineyard. In the years 1990 the surface was 19 thousand ha, but after privatization of agriculture, the surface is reducing almost 50 %. On the other hand the production is increase, because private farmers have improved very much agricultural practices in vineyard.

Grape moth (*Lobesia botrana* D & Schiff) as in many countries is key pest in Albanian vineyard too. In Albania *L.botrana* develop three generations. Control of *Lobesia botrana* with confusion pheromones with product ISONET. L, began in Albania in the year, 2001. Product is buy from Swiss Bio-fabric "Andermat Biocontrol AG" In the year 2009 with pheromones are treated 20 ha. The demands of farmers to implement this friendly method are increasing from year to year. The cost of treatment with pheromones is 18.3 % more expensive than control with conventional insecticides. If we take in to account the avoidance of negative effect to secondary insect pest as spider mite, trips, cicada ect and protection of beneficial insect and environment from chemical residues, the cost of this friendly method is smaller and need to implement it in the future in bigger surface of Albanian vineyard.

Grape moth in Albanian vineyard

Monitoring of grape moth by pheromone traps began in year 1994 and has continued almost every year. *Lobesia botrana* in Albania conditions develop three generations.

The first moth starts hatching from winter chrysalides in the first week of April and continues at the end of October.

The pick of flight for first generation has happened last week of April.

The pick of flight for second generation has happened last week of June.

The pick of flight for third generation has happened last week of July.

According to our observation in Albania don't exist the grape berry moth (*Eupoecelia ambiguella*), this fact has simplify the scheme of *Lobesia botrana* control with confusion pheromones.

The mating disruption technique against *Lobesia botrana* began in Albanian vineyards in the year 2001 and in the year 2009 this method is implemented in 20 ha.

In the year 2002 began field test to estimate the efficacy of this modern method

The cost of biotechnical method with confusion pheromones is 18,3% expensive than control with conventional insecticides.

Material and methods

The field test is carried out in three variants

V1. Control, without treatment (0,3 ha)

V2. Treated with conventional scheme (0,5 ha)

V3.Treated with **Isonet L**, product imported from Biofabrica "Andermat Biocontrol AG" Switzerland.

The dispenser in spaghetti form are hanged in the vineyard at the middle of May during the blossom period of grape.

Are hanged 500 dispenser for ha. It is calculated each dispenser to cover 25-30 m².The grape is planted 2 m between the rows and 1,5 m between the plants. The dispenser is hanged each

5-6 meter in the row. In one of rows between tow rows are not hanged the dispenser. So is created a surface $4 \times 6 \text{ m} = 24 \text{ m}^2$ for each dispenser.

The field test is carried out in village near Tirana, in hilly zone.

Grape cultivar is autochthon so called Sheshi Bardhe and Shesh Zi (White Shesh and Black Shesh.) The cultivars are use for table and for wine too. With such cultivar are planted about 35 % of vineyard in Albania.

To estimate the efficacy of the method in harvesting time are analyzed 200 bunch for each variant. The data are calculate larve/100 bunches.

Three years results 2002-2004 in Tirana region

Variant	Desribe of variants	Number of larves in 100 bunches					Threshold : larves in 100 bunches
		2002	2003	2004	Total	Average	
V1	Control, without tretment	46	50	57	153	51	100 bunches
V2	Convencional insecticides	14	6	14	11.3	12	
V3	Isomate L 500,dispenser pro ha	1	1	2	4	1.3	5 larvs per 100 bunches

As we see the results the infection in Variant treated with pheromones is 97,5 % smaller than variant control and 76.5 % smaller than Variant two treated with conventional insecticides.

If we calculate the treatment cost of V2 and V3 we can say exist not big difference between conventional and biotechnical method with confusion pheromones.

In Albania market a dispenser is sold 0,31 Euro . For 500 dispenser per ha treatment costs is $500 \times 0.31 \text{ Euro} = 155 \text{ Euro}$. The work for hanging the dispenser in the field cost 20 Euro; that means the total cost is **170 Euro** per ha.

In the following table we can see the treatment cost with conventional insecticides

Cost calculation for 1 ha vineyard treated with conventional insecticides

Generation	Quantity Liter / ha	Cost of insectici de pro Liter in Euro	Cost of insecticide per ha in Euro	Cost of working power and mechanic	Total cost of treatment
First	-	-	-	-	Treatments against first generation in many cases is avoided
Second	2	20	40	30	70
Third	2	20	40	30	70
Totali	4	20	80	60	140

The biotechnical method with confusion pheromones is 18,3 % more expensive than protection of grape with conventional insecticides. The treatment with pheromones is possible to reduce more than 20 %, because low surface treated with pheromones until now is only 20 ha, and actual the price for dispenser is high.