MONITORING SPECIES *TETRANYCHUS URTICAE* Koch. IN VINE PLANTATION IN SAG, COUNTY TIMIS, DURING 2009/2010

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Abstract: *The recognition of major pest species in the vineyards of our country, the way of plants jury, the importance and the economic impact on production targets, is essential to protect plants and to productive increase. Tetranychus urticae is the species reported from all continents, being considered one of the most ubiquitous species of pests in agriculture. In Romania is widespread in all areas of vegetation, as reported in the active state the most important crops from March-April until late November.The main objective of this study was to monitor the progress of Tetranychus urticae attack to the vine plantation/vineyard from the town Sag (Timiş county). Spiders of this species colonize the lower leaves and stings they produce, tissue cells are emptied from after the absorption of sap. Acarologic material was taken was done by the acarologic method of Pierre Galet - the percentage method of the occupied leaves. Were analyzed 10 vines randomly taken from each hectare. Each leaf was observed with a pocket magnifying glass and leaves were separated from those that were occupied by at least one mite Tetranychus urticae the species. Separate leaves were then counted and accomplished the percentage of leaves occupied made of this species. In 2009, the highest percentage of attacked leaves were collected in July and August (97.5% and 91%), and the September attack frequency decreased significantly due to a decrease in temperature during autumn. In 2010, in Sag has been found a large number of leaves attacked by Tetranychus urticae in all five months of monitoring. Because of the fact that in the time period studied 2009 - 2010, the weather conditions were favorable to the development of harmful species of Tetranychus urticae and existing large reserve as well as the lack of prevention and control work were very little (or none), and the density number of this species vine leaves was high.*

Key words**:** *Tetranychus urticae, vine plantation, attack*

INTRODUCTION

The quality of table grapes and also of the wine depends largely on the elimination or reduction of harmful biotic factors (insects, mites) stagnant growth and development of plants.

The vine has a very large number of animal pests that affect both development and productivity. Vine pests are relatively high in our country being cited in the literature, over 50 species belonging to 8 orders and 29 families. Amid the vines in Romania are listed as malicious 7 species of mites.

Vine leaves attacked by *Tetranychus urticae* (common red mite) have discolored surface and covered with a gray felt. Discoloration begins at stem insertion on blade, advancing along the main veins and then covering the whole leaf surface [1,6].

Lefter and Szekely, individual or collective research have made study of knowledge on species *Tetranychus urticae* Koch., *Tetranychus viennensis* Zacher and *Eotetranychus carpini* Oud., their relations with crops and contributed to establishing the methodology for combating them [3,4,8].

For warning treatments to combat the common red mite, should be considered as a criterion for assessing density of infested stages on leaves. This issue is warnings when mite populations exceed a certain average density on leaves such as: 1-6 individuals of *Tetranychus urticae* Koch on a leaf [2,7].

MATERIAL AND METHODS

The study of species *Tetranychus urticae* harmful to the vine was performed under field conditions amid the vineyards/vine platation in the city Sag (2 ha), in Timis County. We took into consideration the correlations with climatic factors. Meteorological data (temperature, precipitation) used, were supplied by Meteorological Station of Timisoara.

Mites was taken during the growing season, the months from May to September to 15 days. There were analyzed by 10 vines randomly taken from each hectare.

Statistical processing of the material collected was done by the method of Pierre Galet - the percentage method of the occupied leaves, method developed and applied on tetranichid mites by Pierre Galét. Each sampling consisted of harvesting to 50 leaves per vine taken under study. Each leaf was observed with a pocket magnifying glass and the leaves were separated from those that were occupied by at least one mite of the *Tetranychus urticae* species. Separate leaves are counted, then it is filled out the percentage of occupied leaves.

Tetranychus urticae specimens taken on leaves were then counted and fixed in permanent preparations glass slides and studied.

For numerical evaluation of the species *Tetranychus urticae* density was used the following evaluation criteria: small for 2 mites per leaf; middle for 2-6 mites per leaf and big for 6 mites per leaf [7].

RESULTS AND DISCUSSIONS

The plantation from Sag was plant controlled on 20 vines of grapes, as that vine surface of 2 hectares was taken under study.

Table 1

Tetranychus urticae species attack assessment in plantation of Sag, Timis.

No. of sampling period	Total no. of analyzed leaves	No.of attacked leaves	Attack frequency (%)
May	1000	873	87,3
June	1000	890	89
July	1000	975	97,5
August	1000	910	91
September	1000	754	75,4

Following comments made, there was a strong *Tetranychus urticae* Koch attack. Therefore it has been identified in the 1000 leaves examined in each study period, a large number of leaves attacked by the common red mite (table 1.). The highest percentage of attacked leaves was collected in July and August (97.5% and 91%). A weaker attack of this species was recorded in September (75.4% leaves attacked).

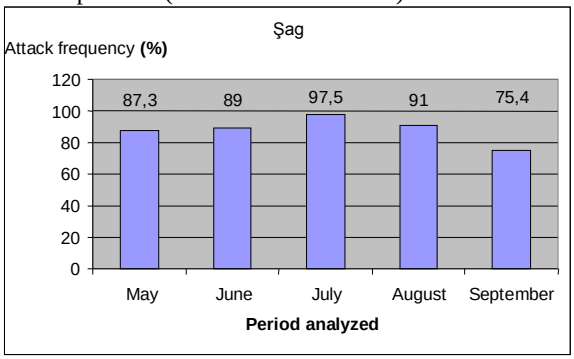

Figure 1: Evaluation of *Tetranychus urticae* Koch species attack frequency during May-September 2009

July and August are characterized by high temperatures above 22 °C and low rainfall (average 94.2 mm), *Tetranychus urticae* mites species have favorable conditions to develop and attack. Frequency of attack in these months was 90% (figure 1). In September, the low temperature reduces also the population of mites on vine leaves.

Amid the plantation from Sag has been recorded a middle numerical density of *Tetranychus urticae* per m^2 (table 2).

Table 2

Tetranychus urticae species attack assessment in plantation of Sag, Timis, in 2009

No.of samples	U.M.	May	June	July	August	September	Total	Numerical density/m^2
R1	no.ind.	136	154	178	210	102	780	-
	med./leaf	2,72	3,08	3.56	4.2	2.04	-	middle
R2	no.ind.	116	176	201	176	120	789	-
	med./leaf	2,32	3,52	4.02	3.52	2.4	-	middle
R3	no.ind.	89	128	273	197	89	776	-
	med./leaf	1,78	2,56	5.46	3.94	1.78	-	middle
R4	no.ind.	120	143	246	251	111	871	-
	med./leaf	2,4	2,86	4.92	5.02	2.22	-	middle
R5	no.ind.	100	132	198	210	132	772	-
	med./leaf	2	2,64	3.96	4.2	2.64	-	middle
R6	no.ind.	98	82	267	199	142	788	-
	med./leaf	1,96	1,64	5.34	3.98	2.84	-	middle
R7	no.ind.	84	142	302	288	87	903	-
	med./leaf	1,68	2,84	6.04	5.76	1.74	-	middle
R8	no.ind.	125	154	320	298	98	995	-
	med./leaf	2,5	3,08	6.4	5.96	1.96	-	middle
R9	no.ind.	131	100	287	198	200	916	-
	med./leaf	2,62	2	5.74	3.96	4	-	middle
R10	no.ind.	89	132	321	330	110	982	-
	med./leaf	1,78	2,64	6.42	6.6	2.2	-	middle
R11	no.ind.	178	154	229	186	79	826	-
	med./leaf	3,56	3,08	4.58	3.72	1.58	-	middle
R12	no.ind.	225	254	325	292	98	1194	-
	med./leaf	4,5	5,08	6.5	5.84	1.96	-	middle
R13	no.ind.	125	301	145	102	176	724	-
	med./leaf	2,5	6,02	2.9	2.04	3.52	-	middle
R14	no.ind.	245	158	320	201	108	1032	-
	med./leaf	4,9	3,16	6.4	4.02	2.16	-	middle
R15	no.ind.	261	201	187	122	201	972	-
	med./leaf	5,22	4,02	3.74	2.44	4.02	-	middle
R16	no.ind.	125	172	227	192	102	818	-
	med./leaf	2,5	3,44	4.54	3.84	2.04	-	middle
R17	no.ind.	243	211	111	100	176	841	-
	med./leaf	4,86	4,22	2.22	2	3.52	-	middle
R18	no.ind.	146	156	320	130	120	872	-
	med./leaf	2,92	3,12	6.4	2.6	2.4	-	middle
R19	no.ind.	152	89	92	291	203	827	-
	med./leaf	3,04	1,78	1.84	5.82	4.06	-	middle
R20	no.ind.	225	154	301	194	102	976	-
	med./leaf	4,5	3,08	6.02	3.88	2.04	-	middle

May-September period of 2010 is characterized by an amount of rainfall of 290 mm and the temperature average was 19.5°C.

In 2010, in Sag has been found a large number of leaves attacked by *Tetranychus*

urticae in all five months of monitoring (table 3.).

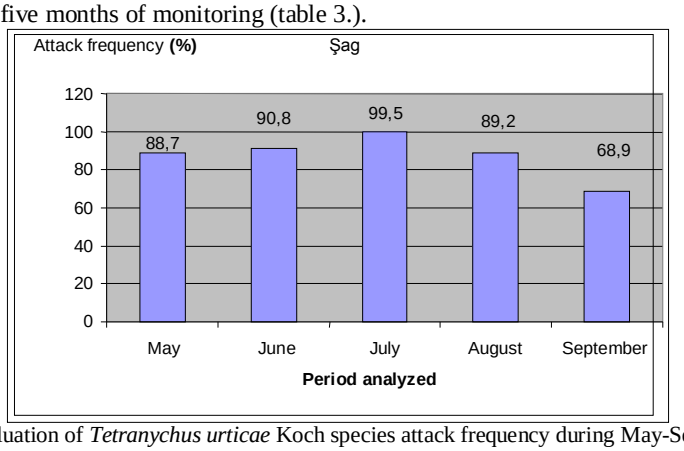

Figure 2: Evaluation of *Tetranychus urticae* Koch species attack frequency during May-September 2010

Table 3

Tetranychus urticae species dynamics in plantation from Sag, Timis, in 2010

No.of samples	U.M.	May	June	July	August	September	Total	Numerical density/m^2
R1	no.ind.	342	454	290	201	112	1399	-
	med./leaf	6,84	9,08	5,8	4,02	2,24	-	high
R2	no.ind.	378	420	241	276	220	1535	-
	med./leaf	7.56	8.4	4.82	5.52	4.4	-	high
R3	no.ind.	389	428	293	297	189	1596	-
	med./leaf	7.78	8.56	5.86	5.94	3.78	-	high
R4	no.ind.	420	343	346	271	121	1501	-
	med./leaf	8.4	6.86	6.92	5.42	2.42	-	high
R5	no.ind.	300	432	298	310	142	1482	-
	med./leaf	6	8.64	5.96	6.2	2.84	-	high
R6	no.ind.	378	382	277	399	192	1628	-
	med./leaf	7.56	7.64	5.54	7.98	3.84	-	high
R7	no.ind.	384	242	402	388	187	1603	-
	med./leaf	7.68	4.84	8.04	7.76	3.74	-	high
R8	no.ind.	256	454	420	128	198	1456	-
	med./leaf	5.12	9.08	8.4	2.56	3.96	-	high
R9	no.ind.	201	300	487	178	213	1379	-
	med./leaf	4.02	6	9.74	3.56	4.26	-	high
R10	no.ind.	189	332	331	230	210	1292	-
	med./leaf	3.78	6.64	6.62	4.6	4.2	-	middle
R11	no.ind.	278	178	329	386	179	1350	-
	med./leaf	5,56	3,56	6,58	7,72	3,58	-	middle
R12	no.ind.	325	154	325	392	198	1394	-
	med./leaf	6,5	3,08	6.5	7,84	3,96	-	middle
R13	no.ind.	125	301	245	402	176	1249	
	med./leaf	2,5	6,02	4,9	8,04	3.52	-	middle
R14	no.ind.	201	258	420	301	108	1288	-
	med./leaf	4,02	5,16	8,4	6,02	2.16	-	middle
R15	no.ind.	261	221	387	222	111	1202	
	med./leaf	5,22	4,42	7,74	4,44	2,22	-	middle
R16	no.ind.	225	272	327	192	102	1118	-
	med./leaf	4,5	5,44	6,54	3.84	2.04	-	middle
R17	no.ind.	233	311	211	200	156	1111	
	med./leaf	4,66	6,22	4,22	4	3,12	-	middle
R18	no.ind.	246	356	320	330	120	1372	-
	med./leaf	4,92	7,12	6.4	6,6	2.4	-	middle
R19	no.ind.	152	189	192	291	188	1012	
	med./leaf	3,04	3,78	3,84	5.82	3,76	-	middle
R20	no.ind.	125	254	301	294	102	1076	-
	med./leaf	2,5	5,08	6.02	5,88	2.04	-	middle

Amid the plantation from Sag treatment plant was not made in 2009-2010, therefore the attack frequency of the species *Tetranychus urticae* was very high, close to 100% (July 99, 5%).

In September there was a decrease of approximately 20% of attacked leaves due to the decrease in atmospheric temperature (figure 2.).

In the city Sag, in 2010, the attack of species *Tetranychus urticae* was intense and the number of copies on a single leaf has exceeded 6, hence the high number density per m^2 (table 3).

The data in table 4 expresses failure treatment plant that the Sag plantation in 2009-2010 had and this led to the identification of a large number of *Tetranychus urticae* individuals in that plantation.

Table 4

Tetranychus urticae Koch species dynamics in 2009-2010 to the area taken under study

Year research	**Locality where the observations were made**
	Şag
2009	17779
2010	27047
Total	**44826**

CONCLUSIONS

From the research conducted during the two years 2009 - 2010, it was found in the plantation under study, a strong attack by *Tetranychus urticae.*

In 2009, *Tetranychus urticae* was medium in numerical density, and in 2010 was a higher numerical density.

From previous years remained a huge reserve of *Tetranychus urticae* in the plantation, because there were no treatment plant and the reasons provided in the fall of each year was quite high, as for that in May when the first measurements were performed, it has been detected a large number of attacked leaves .

Therefore, and in 2011, this pest numerical density was higher in the planting of the Sag city (Timis county) because of the repeated weakness and drying of the vine strings.

The failure to achieve treatment plant on time and with appropriate chemicals, in prescribed doses lead to increased pest mass, in this case of the species *Tetranychus urticae*, which devalues the leaves, considered living plants, and immediately it will help the decrease of the production of grapes.

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