

THE MAIN PESTS REPORTED, AND MEASURES OF PREVENTION AND CONTROL IN ALFALFA CROPS FROM SC AGROIND BEREZENI, VASLUI

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Abstract

Culture of alfalfa is well known in our country with a tradition of over a century and a half. It is grown in most agricultural areas except for saline or highly acidic soils and ensure the highest quality material also constitutes the raw material for preparation of feed grains and other items necessary for different categories of animals.

One of the technological links of particular importance in the technology for proper cultivation of alfalfa seed and feed is the combat pathogens and pests, in some years may even compromise the culture.

In the SC. Agroind Berezeni which has an area of 3.000 ha, in crop year 2008-2009 were followed for the main pests that can harm alfalfa crops grown for seed and feed.

Among them: *Phytodecta formicata* Brug (alfalfa defoliators), *Subcoccinella 24 punctata* (24-spot ladybird), *Hypera variabilis* Herbst. (Alfalfa leaf bug), *Sitona spp.*, *Otiorrhynchus ligustici* L (Alfalfa snout beetle).

Key words: alfalfa, curculionid, soil traps, entomological net.

Alfalfa is a plant of temperate broad ecological plasticity, adapted to different climatic and soil conditions.

It is grown on all continents around the world occupying an area of over 130 million ha, lucerne largest areas being in the U.S., Argentina, Russia and France.

In our country area grown lucerne increased reaching about lately. 343 300 ha in 1995.

Widespread culture of alfalfa explained by its high productivity, superior quality and special feed. Under normal circumstances can take 7-8 t / ha irrigated crop dry matter and 12-15 t / ha dry matter in the irrigated crop.

Alfalfa can be used with good results in the form of pasture, hay, ensilage, granules or briquettes, being an important component in diets of many types of animal fodder.

Pests from Victor Rogojanu and Perju Theodosie (1979) species harmful to crops of alfalfa are numerous and belong to many families, including:

- Cerambycidae with *Plagiorrotus floralis* and *Pali spp.*;
- Coccinellidae with *Phytodecta formicata* species, alfalfa red beetle;

Curculionidae, which includes several species: *Otiorrhynchus ligustici* (roots of alfalfa weevil), *Sitona hispidulus* F. (striped weevil), *Tanymecus palliatus* F. (beet weevil), *Hypera variabilis* Hrbst. (alfalfa leaves weevil) etc.

Some harmful species, in this paper we stopped at the order of species *Coleoptera*, family

Curculionidae, which are the most numerous and most damaging.

MATERIAL AND METHOD

Observations were made in the 2008-2009 crop year alfalfa crops belonging S.C. Agroind Berezeni S.A., Vaslui.

The area planted with alfalfa in crop year 2008-2009 is 320 ha.

In the field experiences were cultivated varieties of alfalfa Gloria and Adonis, in rare line and semirare lines (50-25 cm between rows) and thick lines (15 cm between rows). For pests in alfalfa seed was left in the second mowing, mowing for hay first performed at early flowering (25.V-5.VI).

To establish the species harmful curculionid for direct observations were made in the field, collecting the material was made using soil traps (type Barber) with entomological net or with hand.

The material collected was retained curculionid species (Order *Coleoptera*, fam. *Curculionidae*) were then determined and inventoried. To determine the material were used as conclusive as: Chatened, du Gaetan (1990), Panin, I. (1951), Ritter (1916), Rogojanu et al. (1976).

Were also made observations on the damage caused by these dangerous pests, their structure, dynamics, prevention and control measures implemented.

RESULTS AND DISCUSSIONS

Curculionide species (Order *Coleoptera*, fam. *Curculionidae*) reported in 2008-2009 agriculture were (*tab. 1*). *Otiorrhynchus ligustici*

L. (alfalfa roots wevil), *Sitona spp.* (striped of alfalfa wevil), *Tanymecus palliatus* F. (beet wevil), *Hyper sp.* (leaves of alfalfa wevil), *Tychius spp.* (alfalfa seed wevil) and *Apion spp.* (large black wevil, wevil bud etc.).

In terms of dynamics and abundance of species curculionide (Order *Coleoptera*, fam *Curculionidae*) damaging the crops of alfalfa (tab. 2) reveal that most species attack in April - May and April to June, is harmful to the adult stage and larva stage. Attack held on buds, leaves, roots, stems and seeds.

Species of economic importance in terms of their attack in 2009 reported in SC. Agroind Berezeni were *Otiorrhynchus ligustica* L. (roots of alfalfa wevil) that had an average of 3 samples/m², *Sitona lineatus* L. (striped of alfalfa wevil) that had an average of 5 samples/m², *Sitona punctilia* Steph. which had an average of 1.5 samples/m², *Sitona tibialis* Hb. Medie 2 who had samples/m², *Sitona griseus* F. which took an average of 3 samples/m², *Tanymecus palliatus* F. (beet wevil), which had an average of 2 samples/m², *Hyper variabilis* (alfalfa

leaves wevil) which had an average of 3 samples/m², *Tychius medicaginis* (alfalfa seed wevil), which had an average of 2 larvae/ inflorescence, *Apion filirostri* Kirby. which had an average of 3 adults/plant.

Referring to fighting curculionids species (Order *Coleoptera*, fam. *Curculionidae*) damaging the crops of alfalfa were tested several different products phenophase insecticides in plant development.

Among the insecticides used include: Furadan 35 ST-10g/kg seed, Carbodan ST-35 for 10g/kg, Diafuran ST-35 10g/kg seed, Supersect 10 EC. 0.15%, Karate 2.5 EC, 0.03%, Decis 2.5 EC 0.03%, Sinoratox. 35 EC-0.3%.

The aim was carrying insecticide treatments to these two stages, setting the intensity of attack (I%) and degree of attack (GA%).

Differences were also calculated limit (DL) for each product and according to the untreated control.

The results are contained in tables 3.4.5 and 6 feed and alfalfa seed for 2008-2009.

Table 1

List of main curculionide damaging alfalfa

No.	Subfamily	Scientific name	Common name
1	Brachyderinidae	<i>Sitona hispidulus</i> L	Clover weevil
2		<i>Sitona punctilia</i> Steph.	Pea Leaf weevil
3		<i>Sitona lineatus</i> L.	Striped weevil of alfalfa
4		<i>Sitona tibialis</i> Hb.	Clover weevil of pea
5		<i>Sitona humeralis</i> Steph.	Clover weevil of bird's foot
6		<i>Sitona griseus</i> F.	Clover weevil of lupin
7	Tanymecinae	<i>Tanymecus palliatus</i> F.	Beet wevil
8	Curculioninae	<i>Hypera variabilis</i> Hbn.	Alfalfa leaves wevil
9		<i>Hypera transilvanicus</i> L.	Lucerne wevil
10		<i>Hypera trilineatum</i> Pinars.	Little wevil leaves
11		<i>Hypera murinus</i> Hbn.	Bean leaves wevil
12	Calandrinae	<i>Tychius femoralis</i> Bris.	Red alfalfa seed wevil
13		<i>Tychius flavus</i> Beck.	Yellow alfalfa seed wevil
14		<i>Tychius medicaginis</i> Bris.	Alfalfa seed wevil
15	Apioninae	<i>Apion pisi</i> F.	Black peas wevil
16		<i>Apion seniculus</i> Kirby.	Black bean strains wevil
17		<i>Apion aestivum</i> Germ.	Red Clover Seed Weevils
18		<i>Apion filirostris</i> Kirby.	Clover sprouts wevil

Table 2

 The structure, dynamics and abundance of species curculionide (*Coleoptera*, *Curculionidae*) in alfalfa crops SC Agroind SA Berezeni 2009

No.	Name of species	Review period	Nr. Average copies	Stage harmful
1	<i>Otiorrhynchus ligustici</i> L.	Aprilie- Septembrie	3 samples/m ² 0,5/plant	Adult Larva
2	<i>Sitona lineatus</i> L.	May- August	5 samples / m ²	Adult
3	<i>Sitona punctilia</i> Steph.	April – June	1,5 samples / m ²	Adult
4	<i>Sitona tibialis</i> Hb	April – May	2 samples / m ²	Adult
5	<i>Sitona griseus</i> F	April – May	3 samples / m ²	Adult
6	<i>Tanymecus palliatus</i> F.	May-June	2 samples m ²	Adult
7	<i>Hypera variabilis</i> Hbn	June– July	3 samples m ²	Adult
8	<i>Tychius medicaginis</i> Bris	July- September	2 larva/ inflorescence	Larva
9	<i>Apion filirostris</i> Kirby	April – June	3 adults / plant	Adult

Table 3

The effectiveness of soil insecticides to control pests in the early stages of growing alfalfa for seed at S.C.Agroind S.A. Berezeni Vaslui in 2008

No.	Insecticide	Dose	Media comments						Difference
			Control I			Control II			
			F%	I%	GA%	F%	I%	GA%	
1	Furadan 35 ST	10g/kg	2.0	100	2.0	2.6	100	2.6	***
2	Carbodan 35 ST	10g/kg	1.0	100	1.0	2.0	100	2.0	***
3	Diafuran 35 ST	10g/kg	0.6	100	0.6	1.0	100	1.0	**
4	Supersect 10 CE	0,15%	0.2	100	0.2	2.6	100	3.0	***
5	Karate 2,5 CE	0,03%	0.1	100	0.1	2.0	100	2.2	***
6	Decis 2,5 EC	0,03%	0.1	100	0.1	1.0	100	1.2	**
7	Sinoratox 35 CE	0,3%	0.3	100	0.3	0.3	100	0.9	*
8	Martor	-	10.0	100	10.0	10.5	100	139	-

Table 4

The effectiveness of soil insecticides to control pests in the early stages of green vegetation and seed alfalfa meal, S.C. Agroind SC Berezeni Vaslui in 2009

No.	Insecticide	Dose	Media comments						Difference
			Control I			Control II			
			F%	I%	GA%	F%	I%	GA%	
1	Furadan 35 ST	10g/kg	2.0	100	2.0	2.6	100	2.6	***
2	Carbodan 35 ST	10g/kg	1.0	100	1.0	2.0	100	2.0	***
3	Diafuran 35 ST	10g/kg	0.6	100	0.6	1.0	100	1.0	***
4	Supersect 10 CE	0,15%	10,6	4,0	0,4	4,6	13,0	6,3	***
5	Karate 2,5 CE	0,03%	12,3	4,6	0,6	6,06	14,6	6,0	***
6	Decis 2,5 EC	0,03%	7,3	3,3	0,2	3,5	9,5	6,6	***
7	Sinoratox 35 CE	0,3%	8,0	4,1	0,2	3,1	8,5	5,8	***
8	Martor	-	27,8	7,3	2,0	3,6	30,0	-	-

Table 5

Tested the effectiveness of insecticides to combat pests in alfalfa crops by seed treatments during the growing season about SC Agroind SA Berezeni - Vaslui, in 2008

No.	Product	Dose l/ha	Leaves attacked GA%	The difference from the control	Flower attacked	The difference from the control	Grains	The difference from the control	No. larvae in pods	Hay production	Difference kg/ha
1	Supersect 10 EC	0,100	0,15	-2,76	2,53	-8,31	2,90	-8,41	5,0	296	121
2	Alphaguard 10EC	0,150	0,22	-2,69	3,61	-7,20	4,00	-7,31	4,7	283	108
3	Karate 2,5EC	0,300	0,19	-2,72	3,50	-7,34	3,90	-7,41	5,0	277	102
4	Decis 2,5 CE	0,300	0,16	-2,75	3,93	-6,91	3,83	-7,48	4,7	265	90
5	Sumi-alpha 5EC	0,300	0,14	-2,77	2,93	-7,91	3,40	-7,91	4,8	278	103
6	Sinoratox 35 EC	3,0	0,24	-2,67	3,07	-7,77	3,82	-7,49	5,0	276	101
7	Control		2,19	-	10,01	-	11,31	-	3,8	175	-

CONCLUSIONS

In the SC Agroind SA Berezeni - Vaslui alfalfa culture occupies an important place is cultivating over 320 hectares of the 520 filled with fodder.

Alfalfa is attacked by a number of pests, mainly insects, belonging to several orders: *Coleoptera*, *Lepidoptera*, *Diptera*, *Hymenoptera*, *Heteroptera* etc.

The literature cites a number of pests that cause great damage, especially those belonging to the order *Coleoptera*, family *Curculionidae*

(ladybug). The species most common are: *Sitona lineatus* L. - striped weevil, *Hyper variabilis* Hrbst. alfalfa leaves weevil; *Tychius flavus* Beck. - yellow alfalfa seed weevil; *Tychius medicagnis* Baris. - alfalfa seed weevil, *Apion pisi* F. - black peas weevil; *Otiorrhynchus ligustica* L. - roots of alfalfa weevil etc.

As the dynamics of the main pest of alfalfa crops under SC Agroind SA Berezeni Vaslui, this was followed throughout the growing season and found the presence of species from April to September.

Table 6

Tested the effectiveness of insecticides to combat pests in alfalfa crops by seed treatments during the growing season about SC Agroind SA Berezeni - Vaslui, in 2009

No.	Product	Dose l/ha	Leaves attacked GA%	The difference from the control	Flower attacked	The difference from the control	Grains	The difference from the control	No. larvae in pods	Hay production	Difference kg/ha
1	Fastac OCE	0,150	0,14	2,75	0,09	6,67	0,9	6,8	5,4	135	50
2	Decis 2,5EC	0,300	0,23	2,70	0	6,76	1,5	6,2	6,3	132	47
3	Decis forte 12,5	0,060	0,18	2,71	0	6,67	1,3	6,4	5,5	137	52
4	Bulldock 2,5EC	0,300	0,17	2,74	0,56	6,20	1,5	6,2	6,8	124	39
5	Politrin 200EC	0,100	0,13	2,76	0,18	6,58	1,3	6,4	6,2	135	50
6	Sumi-alpha 2,5EC	0,400	0,25	2,70	0,26	6,50	0,7	7,0	6,5	120	35
7	Sumi-alpha 5EC	0,200	0,23	2,70	0	6,76	1,8	5,9	6,9	131	46
8	Alphaguard 10EC	0,150	0,18	2,74	0,36	6,40	1,4	6,3	7,3	128	43
9	Cypermethrin 00EC	0,150	0,17	2,74	0,19	6,57	0,9	6,8	6,2	120	35
10	Control	-	2,87	-	6,76	-	7,7	-	5,3	85	-

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