



Latvian Plant Protection Research Centre, State Ltd
Reg. No. 40003033658
Lielvārdes iela 36/38, Riga LV 1006, Latvia

Confirm: 
Chair of Board of LPPRC
I. Priekule
April 30th, 2008



REPORT
Efficacy evaluation of the repellent
Cervacol[®] Extra
as deer, elk and roe browse deterrent
on pine nursery

Performers:
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TITLE PAGE

Title: **Efficacy evaluation of the repellent Cervacol[®] Extra as deer, elk and roe browse deterrent on pine nursery**

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According to: agreement between UAB Graderlitas,
Latviu g. 54-8 LT 08113, Vilnius, Lithuania
and Latvian Plant Protection Research Centre
January 3, 2008, N^o 1/2008

Trial quality: trial was carried out following to EPPO guidelines
Nr. PP 1/135 (2), 152 (2), 181 (3), 200 (1).

Method: field trial on pine *Pinus* spp. nursery

Test product: Cervacol[®] Extra – chemical characterization – quartz
sand with polymer dispersion. Dangerous component –
etanol 1.0...5.0 %.

Reference product repellent Plantskydd, a.i. animal protein (dried blood)

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1. SUMMARY

In November 2007 the trial was arranged for efficacy evaluation of repellent Cervacol®Extra and reference product Plantskydd used on young pine plantation for protection of coniferous from deer, elk and roe winter browsing. The trial was located in forestry "Piltene", Ventspils region, Western part of Latvia.

Now test product Cervacol®Extra, now reference product Plantskydd showed relatively small and not significant differences (LSD 95) of effectiveness in control the level of damage by deer, roe and elk in comparison with untreated areas.

2. AIM

- To test an efficacy of repellent Cervacol®Extra for protection of the young pine plants from deer, elk and roe winter browsing on nursery
- To compare the efficacy of Cervacol®Extra with the reference product Plantskydd

3. METHODS AND MATERIALS

Experimental year:	22.11.2007 to 12.03.2008, the second year in young conifer plantation
Crop:	pine <i>Pinus</i> spp.
Test animals:	representatives of <i>Artiodactyla</i> : deer <i>Cervus elaphus</i> L., roe <i>Capreolus capreolus</i> L. and elk <i>Alces alces</i> L.
Trial way:	trial in commercial conifer plantation under natural conditions.
Trial site:	forestry "Piltene", Ventspils region, Latvia.
Planting:	pine pot-plants, planted in April, 2007, by specific pike.
Test product:	quartz sand with polymer dispersion. Dangerous component – etanol 1.0...5.0 %.
Reference product:	repellent Plantskydd, content: animal protein dried blood 87 %, vegetable fat 3 %, common salt 5 %, water 5 %. The product has to be suspended in warm water, let settle for at least 20 minutes and filtered through gauze or fine sieve

- Treatments:**
1. Control – untreated
 2. Cervacol[®]Extra - 2.0 kg per 1000 plants
 3. Plantskydd - 1.1 kg per 1000 plants
- Plot size:** 20 plants in plot, treatment 140 plants
- Replicates:** 7, designed in randomized blocks
- Equipment:** produce an even layer of Cervacol[®]Extra for some 10 cm on the top part upwards to also cover the top bud of the tree. Not mix with water.
For Plantskydd produce knapsack electric battery sprayer MATABI mod. Elegance 18 plus.
- Type of application:** treated only tops of plants
- Preconditions for treatment:** temperature above zero, 24 h without rain after treatment.
- Time of application:** 22.11.2007 (plants 10 – 25 cm high).
- Time of assessments:**
- 1) 07.02.2008 (in winter)
 - 2) 12.03.2008 (in spring)
- Type of assessments:** browsing damages evaluated according to scale:
- 1 – no damages
 - 2 – browsing damages 10%
 - 3 - browsing damages 50%
 - 4 - browsing damages 75%
 - 5 – plant completely browsed.

Assessment of direct effect of product to the plants: before was no damage,
07.02.2008., 12.03.2008

Data processing:

The data were subjected to analysis of variance and treatment means were separated at the 95 % probability level (LSD₉₅) using F – test and Student test. Significant difference is showed in the table by letters. Data with the same letter in each column are not significantly different.

The trial was carried out following to EPPO Guidelines for efficacy evaluation of plant protection products: PP 1/135 (2), 152 (2), 181 (3), 200 (1).

4. WEATHER CONDITIONS DURING TRIAL PERIOD

Weather conditions during the trial period were non typical for Latvia. Winter was warm with small amount of precipitation (1.6...42.5 mm). The average air temperature during the 1st...2nd ten-day period of January was only a few degrees below zero (-3.6 °C). The snow cover was insignificant during this period. Noteworthy snow cover (15 cm) appeared only in the 1st 10-day period of January. As a result the young coniferous plants were severely browsed by deer, elk and roe.

Concrete weather data obtained from Latvian Environment, Geology and Meteorological Agency, Ventspils Meteostation (Table 1).

Table 1
Meteorological data in Ventspils region during the trial period

Year, month, 10-day periods	Mean air temperature, °C	Precipitation, mm	Thickness of snow cover, cm
2007 November, III	3.1	40.9	0
December, I II III	5.3	42.5	0
	2.9	1.6	0
	3.4	20.0	0
2008 January, I II III	-3.6	16.2	15.0
	-3.6	17.5	0
	2.9	30.6	3.0
February, I II III	3.4	15.5	1.0
	1.8	3.8	2.0
	4.3	16.9	0
March, I II	3.0	35.6	0
	3.0	22.5	0

5. RESULTS

Neither during laying out of trial (22.11.2007), no browse damages were established. Noteworthy snow cover (15 cm) appeared only in the 1st 10-day period of January. As a result the young coniferous plants were severely browsed by deer, elk and roe.

There was no or was thin snow cover and often of precipitation trial period, therefore roe, elk and deer were eaten very much coniferous.

The tested product Cervacol®Extra and reference product Plantskydd showed relatively small differences (LSD 95) in their efficacy. Difference between damage level in treated and untreated plots was no significant (Table 2), in 07.02. and 12.03.

The biological efficacy of test product Cervacol®Extra and reference product Plantskydd was very low, what influenced weather conditions and such conditions sufficiently increased damage level of coniferous.

Table 2

Effect of repellent Cervacol®Extra and reference product Plantskydd in reduction of deer, elk and roe winter browsing on young pine plants (forestry Piltene, Ventpils region, 2007/2008)

Treatments	Dosage, kg per 1000 plants	Browse damages in scores (1...5)		Biological efficacy to control, %
		After treatment		
		07.02.	12.03.	
Untreated	-	1,24 ab	1,26 b	-
Cervacol®Extra	2,0	1,44 a	1,58 a	0
Plantskydd	1,1	1,16 b	1,20 b	5,6
LSD 95		0,204	0,1847	

No phytotoxic effect of Cervacol®Extra directly on the pine plants was noted.

6. CONCLUSIONS

Now test product Cervacol®Extra now reference product Plantskydd showed relatively small and not significant differences (LSD 95) of effectiveness in control the level of damage by deer, roe and elk.



LATVIJAS REPUBLIKAS ZEMKOPIBAS MINISTRIJA
VALSTS AUGU AIZSARDZIBAS DIENESTS

Sertifikāts

Nr. 1.

Izsniegts **VSIA „Latvijas Augu aizsardzības pētniecības centrs”**
(komersanta nosaukums, reģistrācijas numurs, juridiskā adrese)

Reg. Nr. 40003033658

Lielvārdes iela 36/38, Rīga LV- 1006

par tiesībām veikt normatīvajos aktos par augu aizsardzības līdzekļu reģistrāciju
noteiktos efektivitātes pārbaudes izmēģinājumus:

Lauks- graudaugi –kodnes, herbicīdi, fungicīdi, insekticīdi; kartupeļi – herbicīdi, fungicīdi,
insekticīdi; līķu kultūras – herbicīdi; dārzeņi- fungicīdi, insekticīdi; rapsis – kodnes,
herbicīdi, fungicīdi, insekticīdi; garšaugi – herbicīdi;
siltumnīca- dārzeņi – fungicīdi, insekticīdi; dekoratīvās kultūras- insekticīdi;
auglaugu stādījumi- augļu koki- fungicīdi, insekticīdi;
mežs – audzes –fungicīdi.

Sertifikāts izsniegts: 20.09.2006
(datums)

Sertifikāts derīgs līdz: 19.09.2011.
(datums)

Valsts augu aizsardzības dienests
Augu aizsardzības līdzekļu
efektivitātes daļas vadītāja
(amats, paraksts un tā atšifrējums)

R. Čudere

