

# Nya betningsmedel mot skadegörare i sockerbetor

New seed treatments against germination pests  
in sugar beet

SBU Projektkod 2002-1-2-484

**2002**

SBU Sockernäringsens BetodlingsUtveckling AB är ett  
kunskapsföretag som bedriver försöks- och odlings-  
utveckling i sockerbetor för svensk sockernäring.

SBU ägs till lika delar av Danisco Sugar och Betodlarna.

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## Nya betningsmedel mot skadeinsekter i sockerbetor

### Sammanfattning

Målet med denna försöksserie har varit att prova effekten av några nya betningsmedel (Celest och Cruiser) mot skadesvampar i sockerbetor samt att jämföra två olika formuleringar av insecticiden Cruiser (WS 70 och FS 600, fast resp. flytande). Samtliga provade betningsmedel gav ett signifikant ökat plantantal jämfört med utan svampbetning. Denna försöksserie visar inte på några signifikanta skillnader i sockerskörd eller renvikt mellan svampbetade resp. icke-svampbetade led. Samtliga led hade plantantal över 84 000 plantor/ha. Normalt ger ett plantantal på 70 – 75 000 plantor/ha ingen minskad skörd jämfört med plantantal på 80 – 90 000 plantor/ha. Minskad konkurrens mellan plantor i icke-svampbetade led och därmed ökad tillväxt kan vara en förklaring till varför sockerskörden i icke-svampbetade led är av samma storleksordning som i de svampbetade leden. Försöksserien kunde inte påvisa några signifikanta skillnader i skördevariabler eller bladluseffekt mellan de två formuleringarna av Cruiser (WS 70 och FS 600).

### Summary

The purpose of the present investigation was 1) to test new seed treatments against germination pests in sugar beet, 2) to compare two different formulations of the insecticide Cruiser: Cruiser WS 70 (solid) and Cruiser FS 600 (liquid). Seed treatment with fungicides leads to a significantly higher plant number compared to no fungicide treatment. Normally, plant stands as low as 70 – 75 000 plants/ha does not reduce yield compared with plant stands of 80 – 90 000 plants/ha. None of the treatments in this trial had less than 84 000 plants/ha. Reduced competition between plants, and thus enhanced growth, in the untreated controls (treatment one and two) may compensate for the substantial plant loss and explain why the sugar yield is of the same magnitude in all treatments. The trial series did not show any significant differences between the two formulations of Cruiser (WS 70 and FS 600) in variables measured at harvest or effect against aphids.

## Introduction

A number of germination pests and diseases in sugar beet may cause substantial damage in sugar beet fields by reducing plant number and growth. One of the most important of these pests and diseases in Sweden is the water mold fungus *Aphanomyces cochlioides*. Under favourable conditions (warm and wet soil), *A. cochlioides* typically attack young seedlings 2 – 3 weeks after emergence. The roots become brown and shrink to slender threads. In severe attacks, the entire hypocotyl (region between root and cotyledons) and cotyledons may rot and the seedling dies. These early seedling attacks of *A. cochlioides* are particularly serious to the sugar beet plant, which often becomes chronically scarred. In addition, *A. cochlioides* may infect sugar beets throughout the growing season whenever conditions are favourable, thus reducing growth. Other fungi may also cause root rot e.g. *Pythium* spp. (pre emergence damping-off) and *Rhizoctonia solani*. *Pythium* spp. attacks young seedlings within the first week after emergence. Recent inventories in Sweden have indicated that *Pythium* spp. and *Rhizoctonia solani* seem to be less common than *A. cochlioides* (L. Persson, SBU, pers. comm.)

This trial series included a total of nine different seed treatments; one untreated control, one treatment with insecticide (Cruiser WS 70) but without fungicide and, seven treatments with combinations of insecticides and fungicides (see plan, enclosure 1). The trials were laid out on four locations, all with a high potential risk of damping-off, in the southern part of Sweden – Skåne (Figure 1).

The purpose of the present investigation was 1) to test new seed treatments against germination pests and diseases in sugar beet, 2) to compare two different formulations of the insecticide Cruiser (active ingredient thiametoxam): Cruiser WS 70 (solid) and Cruiser FS 600 (liquid).

## Material and methods

In early spring 2002, soil samples were taken from a number of different locations in the south of Sweden. The soil samples were analyzed for their potential to infect young sugar beet seedlings. The soil tests were carried out by Syngenta Crop Protection (Maria Nihlgård). Sugar beet seeds were sown in pots with test soil and then put in greenhouse under conditions favourable for infection. The seedlings were evaluated every week for symptoms of damping-off (dead seedlings were removed from the pots). A soil index was then calculated according to the method by Ewaldz (1993):

$$\text{Index} = (3 * as_7 + 3 * (as_{14} - as_7) + (as_{21} - as_{14}) + 0,5 * (as_{28} - as_{21}))/3$$

where as = number of attacked seedlings at 7, 14, 21 and 28 days. This method focuses mainly on early and predominantly lethal attacks and the number of infected plants during the first two weeks is given higher weight in the calculation of soil index. Attacks that occur at a later stage in the seedlings development are regarded as less important since the plants often survive. The evaluation of the risk of damping-off (soil index 0 – 100) is shown in table 1. The soil test also indicates the most common fungi on each location. Four trial locations were chosen on the basis of the result from the soil tests; Västregård, Araslöv, Skiberöd and Borgeby (two trials were sown at Borgeby; Borgeby Gård and Borgeby 11). The result of the soil test from the four locations with the highest infection potential is shown in enclosure 9.

### **Plant number and vigour**

The number of plants in each plot was counted three times during emergence and finally after inter-row cultivation.

The general condition of the plants (vigour score) in each plot were evaluated twice using a scale from 0 – 100 where 0 was given to a plot with completely destroyed plants and 100 to plots with plants in very good condition and growth. The first evaluation of vigour took place when the plants had just developed cotyledons and the ordinary leaves were just visible. The second evaluation took place three to four weeks later. The results are shown in enclosure 5.

### **Damping-off**

Evaluation of damping-off was performed twice in early spring. The first evaluation took place when the plants had just developed cotyledons and the second evaluation two weeks later. In the sample area 50 randomly chosen plants were dug up and each plant was evaluated for symptoms of damping-off and/or insect damage on a scale from 0 (healthy plant) to 5 (dead plant). The percentage of healthy plants and percentage of plants with damping-off were then calculated. The results are shown in enclosure 6.

### **Insects**

Evaluation of insects was done only in treatments 1, 2, 4 and 5. These treatments were intended for comparison of the two different formulations of Cruiser; Cruiser WS 70 and Cruiser FS 600. The insect damage was checked regularly in the untreated plots on each location. In case of heavy insect damage in the untreated plots, all four treatments were evaluated. At the trial location Västregård in the north western part of Skåne, plants with leaf damage was found in the untreated control in May. In each plot, the number of attacked plants was recorded and the number of eating spots (or in case of severe attack, percentage of damaged leaf area) on each of 25 randomly chosen plants was counted. The results are shown in enclosure 8.

The number of aphids was counted on each of 25 randomly chosen plants in treatments 1, 2, 4 and 5. The percentage of attacked plants was also recorded. The number of aphids per plant and number of attacked plants was counted three times; in the beginning, middle and end of July. The results are shown in enclosure 7.

### **Harvest**

The trials at Araslöv, Västregård, Skiberöd and Borgeby Gård were harvested. The trial at Borgeby 11 suffered from severe drought in some plots and was therefore excluded from harvest. After harvest, the number of beets that showed symptoms of damping – off was counted in each plot (weakly and strongly infected beets, respectively). Beets classified as strongly infected are characterized by a severely deformed taproot whereas weakly infected beets show only moderate signs of deformation. The evaluation was carried out at the tare house in Örtofta (Agri Provtvätt, Örtofta Sockerbruk, Danisco Sugar). From the amount of plants drilled, the number of healthy and missing plants could be calculated. The results are shown in enclosure 11.

## Statistical analyses

Each trial was laid out in a randomized complete block design with four replicates. To be able to remove plants for analyses, an extra sample area was sown adjacent to the original plot. All variables were analysed with one-way analysis of variance using Proc GLM in SAS, SAS Institute Inc.

## Results and discussion

The results from the soil samples show that *A. cochliformis* was the most frequently occurring fungus on three of the trial locations (Araslöv, Skiberöd and Borgeby; Borgeby 11 and Borgeby Gård) whereas *Pythium* spp. was the most abundant fungus on Västregård. At the trial location in Araslöv weather conditions were particularly favourable for development of damping-off with heavy rain showers shortly after drilling.

### Plant number

Seen over all four trial locations, there were no significant differences in plant number between the treatments in the two first countings during emergence. In the third counting the highest number of plants was found in treatment three (TMTD, Tachigaren and Cruiser WS 70) followed by treatment five (Euparen, Tachigaren and Cruiser FS 600), 98 200 and 96 400 plants/ha, respectively (enclosure 3). The number of plants in the untreated controls was around 80 000 plants/ha. On average, fungicide treatment increases the number of plants/ha with 15 000. There were no significant differences between any of the seven different fungicide/insecticide treatments.

At Västregård (where *Pythium* spp. was the predominant fungi) all treatments resulted in good plant numbers between 96 000 – 103 000 plants/ha. The number of plants in the untreated control was 94 000 plants/ha. Although soil samples indicated a high risk for development of pre emergence damping-off caused by *Pythium* spp., weather conditions have probably not been favourable for disease development.

### Vigour score

There were only minor (but significant) differences between the treatments; treatments one and two on the one hand and all other treatments on the other hand. Plants in treatments one and two showed slightly less vigour than the rest of the treatments (enclosure 5).

### Aphids and other insects

In the first two evaluations, all insecticide treatments were significantly different from the control treatment, both in percentage of attacked plants and in the number of aphids per plant. There were no significant differences between the two formulations of Cruiser (WS 70 and FS 600) in any of these variables (enclosure 7). No aphids were found in the third evaluation.

In the end of May, leaf damage probably caused by *Chaetocnema concinna* was observed at the trial location Västregård (enclosure 8). The severity of the damage as well as the percentage of attacked plants was particularly high in the untreated control and significantly different from all the insecticide treatments. There were no significant differences between the two different formulations of Cruiser (WS 70 and FS 600).

### **Comparison of Cruiser WS 70 and FS 600**

After final emergence, there was no significant difference in plant number between the two formulations although FS 600 had 4 000 plants more than WS 70 (4 trials, LSD 5% = 6 000).

There was no significant difference in vigour between WS 70 and FS 600 (enclosure 5).

In the first evaluation of damping-off, the percentage of healthy plants in the treatment with WS 70 was less than in the treatment with FS 600, 71 and 78,1% respectively ( $p > 0,05$ , NS). The plant damage was also significantly larger for WS 70 than for FS 600 (enclosure 6). The second evaluation of plant damage showed no significant differences in percentage of healthy plants, plants with damping-off and plant damage between the two formulations.

The trial series did not show any significant differences between the two formulations of Cruiser (WS 70 and FS 600) in variables measured at harvest (enclosure 10) or effect against aphids (enclosure 7) and *C. concinna* (1 trial, enclosure 8).

### **Damping-off and influence on sugar yield**

The first evaluation of damping-off showed that the number of healthy plants in treatments one and two (without fungicides) was around 65% (summary over four trials; enclosure 6). The amount of extractable sugar was 8,9 ton/ha in these treatments. The number of healthy plants in treatments 4 – 9 varied between 71 – 78% and the average amount of extractable sugar was around 9,2 ton/ha. Despite a substantial plant loss in treatments one and two and significantly fewer healthy plants compared with in the fungicide treatments, there were no significant difference in sugar yield between treatments one and two on the one hand and the fungicide treatments on the other. The results from the individual trials also show that there are no significant differences in sugar yield between the nine seed treatments in any of the locations. Normally, plant stands as low as 70 – 75 000 plants/ha does not reduce yield compared with plant stands of 80 – 90 000 plants/ha. None of the treatments in this trial had less than 84 000 plants/ha. Reduced competition between plants, and thus enhanced growth, in the untreated controls (treatment one and two) may compensate for the substantial plant loss and explain why the sugar yield is of the same magnitude in all treatments. This theory is further supported by the clean weight of the beets in the different treatments. The clean weight in treatments one and two is around 55 ton/ha and in treatments 4 – 9 between 55 – 57 ton/ha ( $p > 0,05$ , NS).

The second evaluation of damping-off that took place two weeks after the first evaluation, showed that there were no significant differences between the treatments in general plant damage and percentage of plants infected by fungi. The percentage of healthy plants in treatments one and two (81,3% and 81,6% respectively) was significantly different from the percentage of healthy plants in treatments 3, 4, 5, 7 and 8 (>86,3% healthy plants). See enclosure 6.

### **Investigation of beets after harvest**

The investigation of beets with chronic symptoms of damping-off carried out at the tare house showed that the number of missing and presumed dead plants were particularly high in treatments one and two at Araslöv, Skiberöd and Borgeby Gård

(around 30%). The number of missing plants in the fungicide treatments varied between 8 – 20%. At Västregård the number of missing plants was around 10 – 23% in all treatments (enclosure 11).

### The correlation between soil index and sugar yield

During 2000 – 2002 a total of 12 fungicide trials have been performed at SBU. Four of these trials have had a medium potential risk of damping-off and the average sugar yield in these trials (measured in the treatment with conventional fungicide treatment Euparen, Tachigaren and Montur, in 2002 Cruiser WS 70 was used instead of Montur) has been 10,4 ton/ha. Five trials had a high potential risk of damping-off and the average sugar yield in these trials was 8,9 ton/ha (three trials were excluded due to drought or occurrence of the sugar beet cystnematode *Heterodera schachtii*). These results indicate that the occurrence of fungi in a particular soil (measured as the risk of damping-off; low, medium or high) may be correlated with the average sugar yield on a field (Figure 2). A high risk of damping-off may reduce sugar yield with around 20% compared to a medium risk of damping-off.

### References

Ewaldz, T. 1993. Determining the risk of damping-off in sugar beets. Växtskyddsnotiser 169 – 171.

Table 1. The table shows the evaluation of risk of damping-off (Ewaldz 1993)

Index	Risk	Evaluation
0 – 20	No risk	-
20 – 40	Low	Normally no problems
40 – 70	Medium	Growing sugar beets could be hazardous
70 – 100	High	Under favourable conditions, damping-off is highly likely



Figure 1. The map shows the location of the four trial locations in Skåne in the south of Sweden.

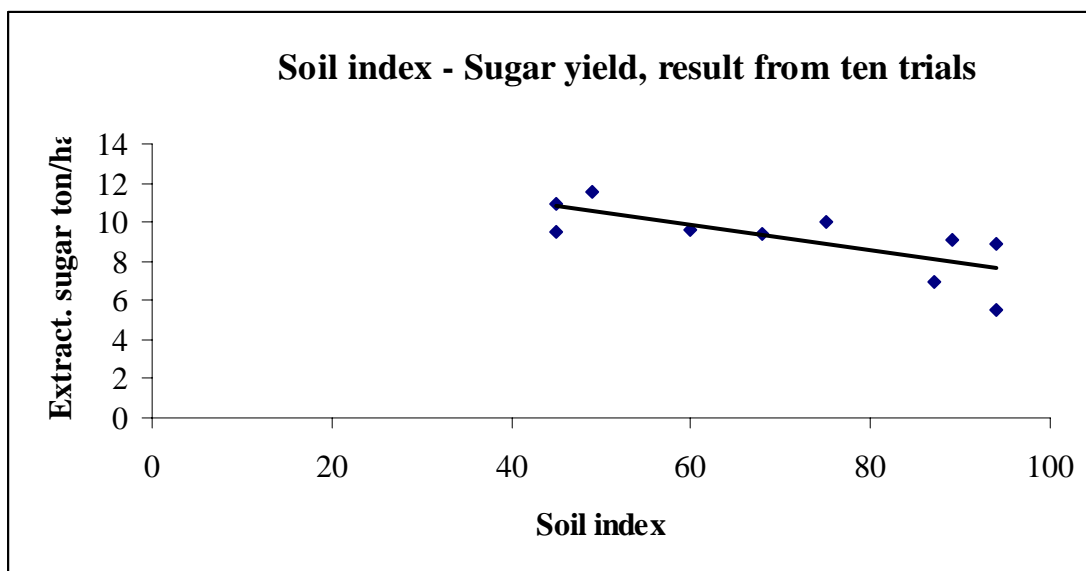


Figure 2. The figure shows the amount of extractable sugar (ton/ha) obtained with conventional seed treatment (Euparen, Tachigaren and Montur/Cruiser WS 70 2002) plotted against soil index values for ten different trial locations during 2000 – 2002.



## GEP-information

### Uppdragsgivare/Contractor:

Syngenta Crop Protection  
Mads Kristensen  
Strandlodsvej 44, 1. sal, 2300 Köpenhamn S

DupPont Sverige AB  
Jan-Åke Svensson  
Box 839, S-201 80 Malmö

### Planansvarig/Project Manager:

Åsa Olsson, SBU AB

### Försöksfrö/Trial seed

Försöksfrö har tillhandahållits av Syngenta Crop Protection. /Trial seed has been supplied by Syngenta Crop Protection

### Försöksmetodik/Methodology

RCB. Beskrivning av metoder och bedömningar: se fältkort för hänvisning till PM i SBU:s kvalitetshandbok. /Description of methods and evaluations: see field plan for references to PM in SBU quality handbook.

### Försöksplatser/Trial sites

Västregård  
Araslöv  
Skiberöd  
Borgeby Gård, Borgeby 11  
För adressuppgifter till försöksvärdarna: se de enskilda försöksrapporterna.

### Teknisk beskrivning/Technical details:

Produkt/Product	Verksam substans/ Active ingredient	Dos/Dose
1. Obehandlat/Untreated	-	
2. Obehandlat, Cruiser WS 70	<i>thiametoxam</i>	30 g
3. TMTD + Tachigaren + Cruiser WS 70	<i>thiametoxam</i>	4,8 g, 30 g
4. Euparen + Tach. + Cruiser WS 70	<i>thiametoxam</i>	30 g
5. Euparen + Tach. + Cruiser 600 FS	<i>thiametoxam</i>	30 g
6. Tachigaren + Cruiser WS 70	<i>thiametoxam</i>	30 g
7. Celest + Tach. + Cruiser WS 70	<i>fludioxonil, thiametoxam</i>	1,0 g, 30 g
8. Celest + Tach. + Cruiser WS 70	<i>fludioxonil, thiametoxam</i>	2,0 g, 30 g
9. Celest + Tach. + Cruiser WS 70	<i>fludioxonil, thiametoxam</i>	3,0 g, 30 g

Verksam beståndsdel i Tachigaren är hymexazol, använd dos i samtliga led är 14 g.  
 /Active ingredient in Tachigaren är hymexazol, dose 14 g in all treatments.  
 Euparen används i dosen 10 g i led 4 och 5. /The dose of Euparen i treatments 4 and 5 is 10 g.

### **Avvikelser/Problems**

På Borgeby Gård åts många frön upp av möss strax efter sådd. Skadan var dock inte så allvarlig som först befarats. Försöket resulterade i högt plantantal och skördades. Försöket på Borgeby 11 var ojämnt pga av rotbrand på våren och torka på sensommaren. /Problems with mice at Borgeby Gård after drilling had no effect on the overall plant number. The second trial at Borgeby 11 was uneven due to damping-off and drought.

### **Styrelsen för ackreditering och teknisk kontroll (SWEDAC)**

Laboratorier ackrediteras av Styrelsen för ackreditering och teknisk kontroll (SWEDAC) enligt svensk lag. Den ackrediterade verksamheten vid laboratorierna uppfyller kraven i **SS-EN ISO/IEC 17025 (2000)**.

Laboratories are accredited by the Swedish Board for Accreditation and conformity Assessment (SWEDAC) under the terms of Swedish legislation. The accredited laboratory activities meet the requirements in **SS-EN ISO/IEC 17 025 (2000)**.

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*Borgeby* / 2002

*Borgeby* / 2002

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Åsa Olsson  
 Project Manager  
 SBU AB

Robert Olsson  
 Managing Director  
 SBU AB

## Nya betningsmedel mot skadegörare i sockerbeter

**Syfte** Att undersöka nya betningsmedels inverkan på skadegörare i sockerbeter

**Uppdragsgivare:** Syngenta Crop Protection - SBU - DuPont

Försöksled	Mängd verksam substans		
	g a. i./u på frö	g a. i./u i pellet	g a. i./u insecticide
1 Obehandlat	-		-
2 Obehandlat, Cruiser WS 70	-		30
3 TMTD + Tachigaren + Cruiser WS 70	4,8 + 14		30
4 Euparen + Tach. + Cruiser WS 70	10 + 14		30 *
5 Euparen + Tach. + Cruiser 600 FS	10 + 14		30 *
6 Tachigaren + Cruiser WS 70		14	30
7 Celest + Tach. + Cruiser WS 70		1,0 + 14	30
8 Celest + Tach. + Cruiser WS 70		3,0 + 14	30
9 Celest + Tach. + Cruiser WS 70		6,0 + 14	30

Verksam substans i Celest är fludioxonil, i Cruiser thiametoxam.

\* Bridging = överbrygningsförsök, dvs två olika formuleringar av Cruiser (WS 70 och 600 FS) i samma dos (30 g) jämförs.

Parcellbredd: 6 rader Försöksbredd: 25,92 m Försöklängd: 68 m Försöksyta: 1762,6 m<sup>2</sup>  
Parcelllängd, brutto: 12 m, netto: 10 m

**Krav på försöksplats:** så högt tryck av svamp och insekter som möjligt.

**Provtagningsytor mellan block I och II samt block III och IV.**

**Såtidpunkt:** normal

**Antal frö/m:** 5,0

### Försöksåtgärder:

- 1 Generalprov 6
- 2 Svampprov
- 3 Parcellvis sådd
- 4 Planträkning under uppkomst, 3 ggr
- 5 Planträkning efter radrens.
- 6 Vigour score (SBU)
- 7 Rotbrand + damage score, alla led, två gånger (HS alt. SBU)
- 8 Insektsavläsningar (SBU)
- 9 Skörd

2002-03-05 ÅO

## Nya betningsmedel mot skadegörare i sockerbetor

### Fältplan/Fieldplans

#### Västregård

IV	3	1	7	5	2	9	8	6	4
III	1	8	5	3	9	7	6	4	2
II	8	6	3	1	7	5	4	2	9
I	2	9	6	4	1	8	7	5	3

#### Araslöv

IV	6	8	5	9	4	1	7	2	3
III	4	6	3	7	2	8	5	9	1
II	2	4	1	5	9	6	3	7	8
I	5	7	4	8	3	9	6	1	2

#### Skiberöd

IV	5	9	1	6	8	2	7	3	4
III	3	7	8	4	6	9	5	1	2
II	1	5	6	2	4	7	3	8	9
I	4	8	9	5	7	1	6	2	3

#### Borgeby

IV	8	4	2	1	9	3	6	5	7
III	6	2	9	8	7	1	4	3	5
II	4	9	7	6	5	8	2	1	3
I	7	3	1	9	8	2	5	4	6

**Nya betningsmedel mot skadegörare i sockerbeter****A. Planräkningar/Plant number**

Sammanslagning 4 försök/4 trials (Araslöv, Skiberöd, Västregård, Borgeby 11)

Behandling/Treatments			Planräkning 1000-tal/ha Plant number 1000nds/ha			Planräkning Plant number efter radrensn. after inter-row cult.
			1	2	3	
			4 försök	4 försök	4 försök	4 försök
	Fungicid	Insecticid				
1 Obehandlat	-	-	20,2	47,1	79,8	79,2
2 Obehandlat, Cruiser WS 70	-	30	20,3	50,0	82,3	80,0
3 TMTD + Tachigaren + Cruiser WS 70	4,8 + 14	30	25,1	54,3	98,2	97,3
4 Euparen + Tach. + Cruiser WS 70	10 + 14	30	21,2	53,2	94,7	92,8
5 Euparen + Tach. + Cruiser 600 FS	10 + 14	30	21,6	56,3	96,4	96,8
6 Tachigaren + Cruiser WS 70	14	30	20,8	49,3	90,4	94,1
7 Celest + Tach. + Cruiser WS 70	1,0 + 14	30	23,7	51,0	94,3	97,2
8 Celest + Tach. + Cruiser WS 70	3,0 + 14	30	19,6	48,6	92,1	93,8
9 Celest + Tach. + Cruiser WS 70	6,0 + 14	30	23,8	53,3	95,9	94,1
<b>CV</b>			16,3	11,2	5,7	4,5
<b>LSD 5%</b>			5,2	8,4	7,6	6
<b>RSQ</b>			0,57	0,87	0,82	0,90
<b>Prob.</b>			0,3617 ns	0,4148 ns	0,0002	<0,0001
<b>Prob., parvis/pairwise</b>			-	-	<0,0001	<0,0001

There were no significant differences between the treatments in the two first countings during emergence.

In the third counting the highest number of plants was found in treatment three (TMTD, Tachigaren, Cruiser) followed by treatment seven (Celest 1,0, Tachigaren, Cruiser).

On average, fungicide treatment increases the number of plants from around 80 000 (treatments one and two) to 95 000 (mean over treatments four to nine).

**B. Sammanslagning av 3 försök där vanligaste patogenen var *Aphanomyces cochlioides***  
**Results from 3 trials in which the most common pathogen was *Aphanomyces cochlioides***

**Araslöv, Skiberöd, Borgeby 11**

Behandling/Treatments			Planträkning 1000-tal/ha Plant number 1000nds/ha			Planträkning Plant number efter radrensn. after inter-row cult. 3 försök
			1	2	3	
			3 försök	3 försök	3 försök	
	Fungicid	Insecticid				
1 Obehandlat	-	-	18,1	45,8	76,4	74,2
2 Obehandlat, Cruiser WS 70	-	30	19,8	51,7	79,6	77,3
3 TMTD + Tachigaren + Cruiser WS 70	4,8 + 14	30	22,6	54,3	96,9	95,3
4 Euparen + Tach. + Cruiser WS 70	10 + 14	30	20,4	58,2	94,7	91,8
5 Euparen + Tach. + Cruiser 600 FS	10 + 14	30	19,6	59,6	96,2	95,1
6 Tachigaren + Cruiser WS 70	14	30	21,1	54,3	92,4	93,0
7 Celest + Tach. + Cruiser WS 70	1,0 + 14	30	21,7	54,3	96,4	96,1
8 Celest + Tach. + Cruiser WS 70	3,0 + 14	30	19,5	54,6	93,0	92,0
9 Celest + Tach. + Cruiser WS 70	6,0 + 14	30	22,7	56,0	95,1	93,1
<b>CV</b>			17,6	7,1	4,8	4,4
<b>LSD 5%</b>			6,3	6,7	7,6	6,9
<b>RSQ</b>			0,48	0,95	0,91	0,93
<b>Prob.</b>			0,8210 ns	0,0264	0,0001	<0,0001
<b>Prob., parvis/pairwise</b>			-	0,0005	<0,0001	<0,0001

**C. Försöksresultat från försöksplatsen Västregård där vanligaste patogenen var *Pythium* spp.  
Results from Västregård where the most common pathogene was *Pythium* spp.**

Behandling/Treatments			Planträkning 1000-tal/ha Plant number 1000nds/ha			Planträkning Plant number efter radrensn. after inter-row cult.
	Datum/Date		1 020415	2 020418	3 020422	020718
	Fungicid	Insecticide				
1 Obehandlat	-	-	26,3	51,0	89,8	94,3
2 Obehandlat, Cruiser WS 70	-	30	21,9	44,8	90,4	88,3
3 TMTD + Tachigaren + Cruiser WS 70	4,8 + 14	30	32,6	54,4	102,4	103,1
4 Euparen + Tach. + Cruiser WS 70	10 + 14	30	23,4	38,3	94,5	96,1
5 Euparen + Tach. + Cruiser 600 FS	10 + 14	30	27,4	46,4	97,1	101,8
6 Tachigaren + Cruiser WS 70	14	30	20,1	34,1	84,6	97,4
7 Celest + Tach. + Cruiser WS 70	1,0 + 14	30	29,7	41,2	88,3	100,5
8 Celest + Tach. + Cruiser WS 70	3,0 + 14	30	19,8	30,7	89,6	99,2
9 Celest + Tach. + Cruiser WS 70	6,0 + 14	30	27,1	45,3	98,4	97,1
<b>CV</b>			28,3	20,4	7,2	3,38
<b>LSD 5%</b>			10,5	12,8	9,7	4,82
<b>RSQ</b>			0,43	0,59	0,54	0,73
<b>Prob.</b>			0,2135 ns	0,0161	0,0205	<0,0001
<b>Prob., parvis/pairwise</b>			-	0,0008	0,0009	<0,0001

There were no significant differences between the treatments in the first counting of plants.  
The number of plants was significantly different between the two different formulations of Cruiser after final emergence.  
With the exception of treatment two, all other treatments have between 94 - 103 000 plants per ha.

**Nya betningsmedel mot skadegörare i sockerbetor****Planträkning efter radrensning för varje försöksplats****Plant number after inter-row cultivation for each site.**

Behandling/Treatment	Planträkning efter radrensning, tusental/ha Plant number after inter-row cult., thousands/ha					4 försök 4 trials (Borgeby Gård excl.)	diff. fr. led 1 diff. fr. tr. 1
	Araslöv	Västregård	Skiberöd	Borgeby 11	Borgeby gård		
1 Obehandlat	68,5	94,3	84,4	69,8	84,9	79,2	-
2 Obehandlat, Cruiser WS 70	82,8	88,3	81,3	67,7	79,2	80,0	0,8
3 TMTD + Tachigaren + Cruiser WS 70	97,1	103,1	104,2	84,6	96,9	97,3	18,1
4 Euparen + Tach. + Cruiser WS 70	93,0	96,1	105,5	76,8	95,1	92,8	13,6
5 Euparen + Tach. + Cruiser 600 FS	97,1	101,8	102,4	85,9	97,1	96,8	17,6
6 Tachigaren + Cruiser WS 70	97,1	97,4	101,6	80,2	96,1	94,1	14,9
7 Celest + Tach. + Cruiser WS 70	96,4	100,5	103,7	88,3	94,5	97,2	18,0
8 Celest + Tach. + Cruiser WS 70	96,9	99,2	102,6	76,6	93,8	93,8	14,6
9 Celest + Tach. + Cruiser WS 70	97,1	97,1	102,3	80,0	91,7	94,1	14,9
<b>CV</b>	5,42	3,38	4,65	6,96	4,7	4,5	-
<b>LSD 5%</b>	7,26	4,82	6,69	8,01	6,28	6,00	-
<b>RSQ</b>	0,86	0,73	0,84	0,83	0,76	0,90	-
<b>Prob.</b>	<0,0001	<0,0001	<0,0001	0,0002	0,0002	<0,0001	-
<b>Prob., parvis/pairwise</b>	<0,0001	<0,0001	<0,0001	<0,0001	<0,0001	<0,0001	-

On average, fungicide treatment has increased the number of plants with around 14 000 - 18 000 plants/ha.



**Nya betningsmedel mot skadegörare i sockerbeter****Betplantan/Beet plant****Sammanslagning 4 försök****Araslöv, Borgeby 11, Västregård, Skiberöd**

Behandling/Treatment	Betkondition		Vigour Score 1	Vigour Score 2
	Fungicid	Insect.	0 - 100 4 försök	0 - 100 4 försök
1 Obehandlat	-	-	88	88
2 Obehandlat, Cruiser WS 70	-	30	88	88
3 TMTD + Tachigaren + Cruiser WS 70	4,8 + 14	30	89	91
4 Euparen + Tach. + Cruiser WS 70	10 + 14	30	89	91
5 Euparen + Tach. + Cruiser 600 FS	10 + 14	30	90	91
6 Tachigaren + Cruiser WS 70	14	30	89	90
7 Celest + Tach. + Cruiser WS 70	1,0 + 14	30	91	90
8 Celest + Tach. + Cruiser WS 70	3,0 + 14	30	90	92
9 Celest + Tach. + Cruiser WS 70	6,0 + 14	30	89	92
<b>CV</b>			1,2	1,8
<b>LSD 5%</b>			2	2
<b>RSQ</b>			0,94	0,91
<b>Prob.</b>			0,0037	0,0095
<b>Prob., parvis/pairwise</b>			0,0005	0,0016

**Vigour score**

Evaluation 1: The vigour score in the fungicide treatments is slightly higher than in the untreated controls. Treatments five and eight are significantly different from the untreated controls.

Evaluation 2: All the fungicide treatments are significantly different from the untreated controls. Treatments six and seven are significantly different from treatments eight and nine.

## Nya betningsmedel mot skadegörare i sockerbetor

## Fältbedömning/Insects and plant condition

## Sammanslagning 4 försök/4 trials:

## Araslöv, Borgeby 11, Västregård, Skiberöd

Behandling/Treatment			Fältbedömning 1 Plant condition 1			Fältbedömning 2 Plant condition 2			
	Friska pl Healthy pl %	Skadebed. Damage 0-5	Rotbrand Damping-off %	Friska pl Healthy pl %	Skadebed. Damage 0-5	Rotbrand Damping-off %	Friska pl Healthy pl %	Skadebed. Damage 0-5	Rotbrand Damping-off %
	4 försök	4 försök	4 försök	4 försök	4 försök	4 försök	4 försök	4 försök	4 försök
	Fungicid	Insecticid							
1 Obehandlat	-	-	66,1	0,9	23,9	81,3	0,5	15,4	
2 Obehandlat, Cruiser WS 70	-	30	64,5	1,0	27,0	81,6	0,5	18,4	
3 TMTD + Tachigaren + Cruiser WS 70	4,8 + 14	30	80,0	0,5	12,9	88,4	0,4	12,5	
4 Euparen + Tach. + Cruiser WS 70	10 + 14	30	71,0	0,8	21,4	86,6	0,4	13,1	
5 Euparen + Tach. + Cruiser 600 FS	10 + 14	30	78,1	0,5	14,1	88,1	0,4	11,9	
6 Tachigaren + Cruiser WS 70	14	30	71,0	0,8	21,1	83,5	0,5	15,1	
7 Celest + Tach. + Cruiser WS 70	1,0 + 14	30	76,1	0,6	16,0	86,9	0,4	12,9	
8 Celest + Tach. + Cruiser WS 70	3,0 + 14	30	77,1	0,6	16,5	86,9	0,4	13,1	
9 Celest + Tach. + Cruiser WS 70	6,0 + 14	30	75,5	0,7	18,2	86,0	0,5	15,0	
CV			7,7	24,8	29,3	3,8	22,0	21,6	
LSD 5%			8,2	0,3	8,1	4,7	0,1	4,5	
RSQ			0,67	0,84	0,87	0,86	0,88	0,89	
Prob.			0,0057	0,0083	0,0233	0,0243	0,2135 ns	0,1374 ns	
Prob., parvis/pairwise			0,0019	0,0007	0,0015	0,0045	-	-	

**Fältbedömning/Evaluation of damping-off**

The percentage of healthy plants at the first evaluation of damping-off was over 70 percent for all the treatments including fungicides. The percentage of healthy plants in the untreated controls (treatments 1 and 2) were less than 67%. The effect of fungicide treatment is also reflected in the general plant damage for each treatment. The general plant damage for the untreated controls were close to one whereas the different fungicide treatments varied from 0,5 - 0,8.

In the second evaluation of damping-off, all treatments had over 80% healthy plants. The largest number of healthy plants were found in treatment three (88,4%) closely followed by treatment five (88,1). There were no significant differences between the treatments in general plant damage or in the percentage of plants with symptoms of damping-off.

## Nya betningsmedel mot skadegörare i sockerbeter

### Bladlöss/Aphids

3 försök

Behandling/Treatment			Bladlöss/Aphids						
			Bedömn. 1 / Eval. 1		Bedömn. 2 / Eval. 2		Bedömn. 3 / Eval. 3		
			antal/pl	% angr. pl	antal/pl	% angr. pl	antal/pl	% angr. pl	
			no./plant	% plants aff.	no./plant	% plants aff.	no./plant	% plants aff.	
		4 försök	4 försök	4 försök	4 försök	4 försök	4 försök		
	Fungicid	Insecticid							
1	Obehandlat	-	-	26,5	16	126,6	38	0	0
2	Obehandlat, Cruiser WS 70	-	30	6,2	3	13,8	7,3	0	0
3	TMTD + Tachigaren + Cruiser WS 70	4,8 + 14	30	-	-	-	-	-	-
4	Euparen + Tach. + Cruiser WS 70	10 + 14	30	3,8	3,3	10,7	11,3	0	0
5	Euparen + Tach. + Cruiser 600 FS	10 + 14	30	5,1	4	13,6	8,3	0	0
6	Tachigaren + Cruiser WS 70	14	30	-	-	-	-	-	-
7	Celest + Tach. + Cruiser WS 70	1,0 + 14	30	-	-	-	-	-	-
8	Celest + Tach. + Cruiser WS 70	3,0 + 14	30	-	-	-	-	-	-
9	Celest + Tach. + Cruiser WS 70	6,0 + 14	30	-	-	-	-	-	-
<b>CV</b>				26,5	28,8	65,3	44,4	-	-
<b>LSD 5%</b>				5,5	3,8	53,7	14,4	-	-
<b>RSQ</b>				0,97	0,96	0,88	0,88	-	-
<b>Prob.</b>				0,0002	0,0004	0,0045	0,0057	-	-
<b>Prob., parvis/pairwise</b>				<0,0001	0,0002	0,0019	0,002	-	-

### Evaluation of aphids

The evaluation of aphids were performed on the four treatments focusing on insecticide treatments.

Evaluation 1 and 2: All insecticide treatments were significantly different from the control treatment, both in percentage of attacked plants and in the number of aphids per plant.

No aphids were found in the third evaluation.

## Nya betningsmedel mot skadegörare i sockerbetor

## Insektsbedömningar/Insects

## Västregård

Behandling/Treatment			Betjordloppa	
			<i>Chaetocnema concinna</i>	
			Angrepp Damage	Antal angripna plantor % No. of plants attacked %
	Datum/Date		020523	020523
	Fungicid	Insecticid		
1 Obehandlat	-	-	2,5	94,5
2 Obehandlat, Cruiser WS 70	-	30	0,7	40,5
3 TMTD + Tachigaren + Cruiser WS 70	4,8 + 14	30	-	-
4 Euparen + Tach. + Cruiser WS 70	10 + 14	30	0,5	32,5
5 Euparen + Tach. + Cruiser 600 FS	10 + 14	30	0,6	30,5
6 Tachigaren + Cruiser WS 70	14	30	-	-
7 Celest + Tach. + Cruiser WS 70	1,0 + 14	30	-	-
8 Celest + Tach. + Cruiser WS 70	3,0 + 14	30	-	-
9 Celest + Tach. + Cruiser WS 70	6,0 + 14	30	-	-
<b>CV</b>			32,69	14,57
<b>LSD 5%</b>			0,6	11,5
<b>RSQ</b>			0,91	0,96
<b>Prob.</b>			<0,0001	<0,0001
<b>Prob., parvis/pairwise</b>			<0,0001	<0,0001

***Chaetocnema concinna***

The damage caused by *C. concinna* as well as the percentage of attacked plants were particularly high in the untreated control and significantly different from the insecticide treatments.

There were no significant differences between the two different formulations of Cruiser (treatments four and five).

# Nya betningsmedel mot skadegörare i sockerbeter

## Skörd/harvest

### Bilaga 9

Behandling/Treatment			Utvinnbart socker, ton/ha / Extractable sugar, ton/ha					
			Araslöv	Västregård	Skiberöd	Borgeby Gård	4 försök 4 trials	
	Fungicid	Insecticid						
1	Obehandlat	-	-	7,6	9,0	9,5	9,4	8,9
2	Obehandlat, Cruiser WS 70	-	30	7,6	9,2	9,9	8,9	8,9
3	TMTD + Tachigaren + Cruiser WS 70	4,8 + 14	30	8,4	9,2	10,1	9,9	9,4
4	Euparen + Tach. + Cruiser WS 70	10 + 14	30	6,9	9,1	9,5	10,0	8,9
5	Euparen + Tach. + Cruiser 600 FS	10 + 14	30	7,9	9,3	9,8	9,9	9,2
6	Tachigaren + Cruiser WS 70	14	30	7,4	9,3	9,9	10,1	9,2
7	Celest + Tach. + Cruiser WS 70	1,0 + 14	30	7,8	9,2	9,9	9,9	9,2
8	Celest + Tach. + Cruiser WS 70	3,0 + 14	30	8,5	9,2	9,4	10,0	9,3
9	Celest + Tach. + Cruiser WS 70	6,0 + 14	30	8,2	9,1	9,9	9,9	9,3
<b>Medelvärde alla led/mean over all treatments</b>				<b>7,8</b>	<b>9,2</b>	<b>9,7</b>	<b>9,8</b>	<b>9,1</b>
CV				14,9	4,69	0,88	6,00	3,47
LSD 5%				1,7	0,63	3,5	0,86	0,46
RSQ				0,44	0,34	0,50	0,54	0,91
Prob.				0,6751 ns	0,9925 ns	0,0824 ns	0,1277 ns	0,1696 ns
Prob., parvis/pairwise				-	-	-	-	-
Svampindex före sådd / soil index before drilling				87	89	45	75	-
Riskbedömning rotbrand / risk damping-off				Stor	Stor	Mellan	Stor	-
Vanligast förekommande svamp				<i>Aphanomyces</i> <i>Pythium</i>	<i>Pythium</i> <i>Aphanomyces</i>	<i>Aphanomyces</i>	<i>Aphanomyces</i> <i>Pythium</i> <i>Rhizoctonia</i>	- - -

There were no significant differences between the treatments in any of the trial locations. The average amount of extractable sugar was below 8 ton/ha at Araslöv. The amount of extractable sugar was over 9 ton/ha at the trial locations Västregård, Skiberöd and Borgeby Gård.

**Nya betningsmedel mot skadegörare i sockerbeter****Skörd/Harvest****Sammanställning av 4 försök/4 trials****Araslöv, Skiberöd, Västregård, Borgeby Gård**

<b>Behandling/Treatments</b>	No. plants	Clean	Sugar content		Amino-N	K + Na	Extr. sugar		Cleanness	
	Ant. plantor	weight	Sockershalt	Polsocker	Blåtal		Utv. socker	Renhet		
	1000-nds/ha	Renvikt	%	%	mg/100g	mM/	%	ton/ha	rel a	
	1000-tal/ha	ton/ha			beta	100 g beta			%	
1 Obehandlat	84,0	54,6	18,05	9,84	15,1	4,2	90,1	8,9	100	92,48
2 Obehandlat, Cruiser WS 70	84,4	54,9	18,00	9,85	14,6	4,2	90,1	8,9	100	92,92
3 TMTD + Tachigaren + Cruiser WS 70	101,3	57,2	18,23	10,39	13,1	4,1	90,5	9,4	106	92,55
4 Euparen + Tach. + Cruiser WS 70	99,9	54,8	17,97	9,83	13,8	4,1	90,3	8,9	100	92,59
5 Euparen + Tach. + Cruiser 600 FS	100,9	56,2	18,14	10,18	13,3	4,1	90,4	9,2	104	92,72
6 Tachigaren + Cruiser WS 70	99,9	56,0	18,17	10,16	13,5	4,1	90,3	9,2	104	92,73
7 Celest + Tach. + Cruiser WS 70	100,1	56,5	18,09	10,19	13,8	4,1	90,3	9,2	104	92,31
8 Celest + Tach. + Cruiser WS 70	99,5	56,9	18,10	10,27	13,8	4,2	90,2	9,3	104	92,47
9 Celest + Tach. + Cruiser WS 70	98,7	57,1	18,08	10,28	14,5	4,1	90,1	9,3	104	92,46
<b>CV</b>	3,77	3,47	0,84	3,41	5,85	1,70	0,23	3,47	-	0,33
<b>LSD 5%</b>	5,31	2,84	0,22	0,50	1,19	0,10	0,30	0,46	-	0,45
<b>RSQ</b>	0,88	0,93	0,98	0,91	0,95	0,88	0,66	0,91	-	0,97
<b>Prob.</b>	<0,0001	0,4037 ns	0,3508 ns	0,1944 ns	0,0364	0,0051	0,0483	0,1696 ns	-	0,2425 ns
<b>Prob., parvis/pairwise</b>	<0,0001	-	-	-	0,0044	0,0009	0,0043	-	-	-

Seen over all four trial locations there were no significant differences between the treatments in amount of extractable sugar. However, there is a tendency for fungicide treatments (treatments 5 - 9) to show slightly higher yield than non-fungicide treatment (treatments 1 and 2). The amount of extractable sugar in treatment 4 was somewhat low and comparable to the amount of extractable sugar in treatments 1 and 2.

**Araslöv**

Tabellen visar resultat från bedömningen av svampangripna betor i provtvätten; antalet starkt resp. svagt angripna plantor/ha samt resultat från planräkningar under uppkomst. /The table shows the results from the evaluation of beets with symptoms of damping-off performed at the tare house; the number of infected plants/ha as well as plant number during emergence.

Led	Plants/treatment		Plants/ha (1000nds/ha)		Counting			Diff. in no. of plants between:			No. of plants	
	Plantor/led		Plantor/ha (1000tal/ha)		Planräkning			Skillnad i ant. plantor mellan:			Ant. plantor	
	Strong	Weak	Strong	Weak	1	2	3	Counting/planräkning			At harvest	Healthy
	Starkt	Svagt	Starkt	Svagt				1 - 2	2 - 3	1 - 3	Skörd	Friska
1	7	25	0,5	1,6	19,5	55,5	68,2	35,9	12,8	48,7	68,5	66,4
2	7	26	0,4	1,7	27,1	73,4	84,6	46,4	11,2	57,6	82,8	80,7
3	10	34	0,6	2,2	22,7	73,7	94,8	51,0	21,1	72,1	97,1	94,3
4	11	29	0,7	1,9	20,8	74,0	95,1	53,1	21,1	74,2	93,0	90,4
5	9	26	0,6	1,7	22,7	79,2	95,1	56,5	15,9	72,4	97,1	94,8
6	10	35	0,7	2,2	24,0	72,9	94,0	49,0	21,1	70,1	97,1	94,2
7	11	33	0,7	2,1	23,7	71,4	94,5	47,7	23,2	70,8	96,4	93,5
8	9	28	0,6	1,8	23,2	74,0	93,0	50,8	19,0	69,8	96,9	94,5
9	11	30	0,7	2,0	26,8	73,2	98,7	46,4	25,5	71,9	97,1	94,5



**Araslöv, fortsättning/continued**

Led	Number of plants (1000nds/ha) Antal pl/ha (1000-tal/ha)						Percentage of plants within each group (%) Andel plantor i resp. grupp (%)			
	Drilled Sådd	At harvest vid skörd	Strong Starkt	Weak Svagt	Healthy Friska pl	Missing Saknas	Strong Starkt	Weak Svagt	Healthy Friska pl	Missing Saknas
1	114,6	68,5	0,5	1,6	66,4	46,1	0,4	1,4	58,0	40,2
2	114,6	82,8	0,4	1,7	80,7	31,8	0,4	1,5	70,4	27,7
3	114,6	97,1	0,6	2,2	94,3	17,5	0,5	1,9	82,3	15,2
4	114,6	93,0	0,7	1,9	90,4	21,6	0,6	1,7	78,9	18,9
5	114,6	97,1	0,6	1,7	94,8	17,5	0,5	1,5	82,8	15,2
6	114,6	97,1	0,7	2,2	94,2	17,5	0,6	2,0	82,2	15,2
7	114,6	96,4	0,7	2,1	93,5	18,2	0,6	1,8	81,6	15,9
8	114,6	96,9	0,6	1,8	94,5	17,7	0,5	1,6	82,4	15,5
9	114,6	97,1	0,7	2,0	94,5	17,5	0,6	1,7	82,4	15,2

**Västregård**

Tabellen visar resultat från bedömningen av svampangripna betor i provtvätten; antalet starkt resp. svagt angripna plantor/ha samt resultat från planräkningar under uppkomst. /The table shows the results from the evaluation of beets with symptoms of damping-off performed at the tare house; the number of infected plants/ha as well as plant number during emergence.

Led	Plants/treatment		Plants/ha (1000nds/ha)		Counting			Diff. in no. of plants between:			No. of plants	
	Plantor/led		Plantor/ha (1000tal/ha)		Planräkning			Skillnad i ant. plantor mellan:			Ant. plantor	
	Strong	Weak	Strong	Weak	1	2	3	Counting/planräkning			At harvest	Healthy
Starkt	Svagt	Starkt	Svagt	1 - 2				2 - 3	1 - 3	Skörd	Friska	
1	2	10	0,1	0,6	26,3	51,0	89,8	24,7	38,8	63,5	94,3	93,5
2	2	13	0,1	0,8	21,9	44,8	90,4	22,9	45,6	68,5	88,3	87,4
3	2	11	0,1	0,7	32,6	54,4	102,4	21,9	47,9	69,8	103,1	102,3
4	2	11	0,1	0,7	23,4	38,3	94,5	14,8	56,3	71,1	96,1	95,3
5	2	10	0,1	0,7	27,4	46,4	97,1	19,0	50,8	69,8	101,8	101,0
6	2	10	0,1	0,7	20,1	34,1	84,6	14,1	50,5	64,6	97,4	96,6
7	3	15	0,2	1,0	29,7	41,2	88,3	11,5	47,1	58,6	100,5	99,3
8	3	13	0,2	0,8	19,8	30,7	89,6	10,9	58,9	69,8	99,2	98,2
9	1	10	0,1	0,7	27,1	45,3	98,4	18,2	53,1	71,4	97,1	96,4

**Västregård**

Led	Number of plants (1000nds/ha) Antal pl/ha (1000-tal/ha)						Percentage of plants within each group (%) Andel plantor i resp. grupp (%)			
	Drilled Sådd	At harvest vid skörd	Strong Starkt	Weak Svagt	Healthy Friska pl	Missing Saknas	Strong Starkt	Weak Svagt	Healthy Friska pl	Missing Saknas
1	114,6	94,3	0,5	1,6	93,5	20,3	0,4	1,4	81,6	17,7
2	114,6	88,3	0,4	1,7	87,4	26,3	0,4	1,5	76,2	23,0
3	114,6	103,1	0,6	2,2	102,3	11,5	0,5	1,9	89,2	10,0
4	114,6	96,1	0,7	1,9	95,3	18,5	0,6	1,7	83,2	16,1
5	114,6	101,8	0,6	1,7	101,0	12,8	0,5	1,5	88,2	11,1
6	114,6	97,4	0,7	2,2	96,6	17,2	0,6	2,0	84,3	15,0
7	114,6	100,5	0,7	2,1	99,3	14,1	0,6	1,8	86,7	12,3
8	114,6	99,2	0,6	1,8	98,2	15,4	0,5	1,6	85,7	13,4
9	114,6	97,1	0,7	2,0	96,4	17,5	0,6	1,7	84,1	15,2

**Skiberöd**

Tabellen visar resultat från bedömningen av svampangripna betor i provtvätten; antalet starkt resp. svagt angripna plantor/ha samt resultat från planräkningar under uppkomst. /The table shows the results from the evaluation of beets with symptoms of damping-off performed at the tare house; the number of infected plants/ha as well as plant number during emergence.

Led	Plants/treatment		Plants/ha (1000nds/ha)		Counting			Diff. in no. of plants between:			No.of plants	
	Plantor/led		Plantor/ha (1000tal/ha)		Planräkning			Skillnad i ant. plantor mellan:			Ant. plantor	
	Strong	Weak	Strong	Weak	1	2	3	Counting/planräkning			At harvest	Healthy
	Starkt	Svagt	Starkt	Svagt				1 - 2	2 - 3	1 - 3	Skörd	Friska
1	9	34	0,6	2,2	13,3	40,6	86,5	27,4	45,8	73,2	84,4	81,6
2	6	37	0,4	2,4	15,1	39,3	83,3	24,2	44,0	68,2	81,3	78,5
3	6	37	0,4	2,4	19,3	45,8	107,6	26,6	61,7	88,3	104,2	101,4
4	5	38	0,3	2,5	20,3	52,4	103,7	32,0	51,3	83,3	105,5	102,7
5	8	42	0,5	2,7	17,7	47,7	106,8	30,0	59,1	89,1	102,4	99,1
6	6	33	0,4	2,1	15,9	46,9	102,6	31,0	55,7	86,7	101,6	99,1
7	8	39	0,5	2,6	15,1	43,2	103,9	28,1	60,7	88,8	103,7	100,6
8	5	43	0,3	2,8	21,6	47,1	107,6	25,5	60,4	85,9	102,6	99,5
9	7	43	0,4	2,8	22,4	52,3	105,5	29,9	53,1	83,1	102,3	99,1

**Skiberöd, fortsättning/continued.**

Trea Led	Drilled Sådd	Number of plants (1000nds/ha) Antal pl/ha (1000-tal/ha)					Percentage of plants within each group (%) Andel plantor i resp. grupp (%)			
		At harvest vid skörd	Strong Starkt	Weak Svagt	Healthy Friska pl	Missing Saknas	Strong Starkt	Weak Svagt	Healthy Friska pl	Missing Saknas
1	114,6	84,4	0,6	2,2	81,6	30,2	0,5	1,9	71,2	26,4
2	114,6	81,3	0,4	2,4	78,5	33,4	0,3	2,1	68,5	29,1
3	114,6	104,2	0,4	2,4	101,4	10,4	0,4	2,1	88,5	9,1
4	114,6	105,5	0,3	2,5	102,7	9,1	0,3	2,2	89,6	8,0
5	114,6	102,4	0,5	2,7	99,1	12,3	0,5	2,4	86,5	10,7
6	114,6	101,6	0,4	2,1	99,1	13,0	0,3	1,9	86,4	11,4
7	114,6	103,7	0,5	2,6	100,6	11,0	0,5	2,2	87,7	9,6
8	114,6	102,6	0,3	2,8	99,5	12,0	0,3	2,5	86,8	10,5
9	114,6	102,3	0,4	2,8	99,1	12,3	0,4	2,4	86,5	10,7

**Borgeby Gård**

Tabellen visar resultat från bedömningen av svampangripna betor i provtvätten; antalet starkt resp. svagt angripna plantor/ha samt resultat från planräkningar under uppkomst. /The table shows the results from the evaluation of beets with symptoms of damping-off performed at the tare house; the number of infected plants/ha as well as plant number during emergence.

Led	Plants/treatment Plantor/led		Plants/ha (1000nds/ha) Plantor/ha (1000tal/ha)		Counting Planräkning			Diff. in no. of plants between: Skillnad i ant. plantor mellan: Counting/planräkning			No. of plants Ant. plantor	
	Strong Starkt	Weak Svagt	Strong Starkt	Weak Svagt	1	2	3	1 - 2	2 - 3	1 - 3	At harvest Skörd	Healthy Friska
	1	2,0	12,8	0,1	0,8	-	-	85,2	-	-	-	84,9
2	2,0	12,3	0,1	0,8	-	-	82,8	-	-	-	79,2	78,2
3	0,8	12,0	0,1	0,8	-	-	95,6	-	-	-	96,9	96,0
4	0,5	7,0	0,0	0,5	-	-	95,1	-	-	-	95,1	94,6
5	0,5	7,3	0,0	0,5	-	-	97,4	-	-	-	97,1	96,6
6	0,3	7,8	0,0	0,5	-	-	96,1	-	-	-	96,1	95,6
7	1,5	8,3	0,1	0,5	-	-	97,1	-	-	-	94,5	93,9
8	0,5	12,3	0,0	0,8	-	-	95,3	-	-	-	93,8	92,9
9	0,3	13,8	0,0	0,9	-	-	95,3	-	-	-	91,7	90,8

**Borgeby Gård, fortsättning/continued.**

Led	Number of plants (1000nds/ha) Antal pl/ha (1000-tal/ha)						Percentage of plants within each group (%) Andel plantor i resp. grupp (%)			
	Drilled Sådd	At harvest vid skörd	Strong Starkt	Weak Svagt	Healthy Friska pl	Missing Saknas	Strong Starkt	Weak Svagt	Healthy Friska pl	Missing Saknas
1	114,6	84,9	0,1	0,8	83,9	29,7	0,1	0,7	73,2	25,9
2	114,6	79,2	0,1	0,8	78,2	35,4	0,1	0,7	68,3	30,9
3	114,6	96,9	0,1	0,8	96,0	17,7	0,0	0,7	83,8	15,5
4	114,6	95,1	0,0	0,5	94,6	19,6	0,0	0,4	82,5	17,1
5	114,6	97,1	0,0	0,5	96,6	17,5	0,0	0,4	84,3	15,2
6	114,6	96,1	0,0	0,5	95,6	18,5	0,0	0,4	83,4	16,1
7	114,6	94,5	0,1	0,5	93,9	20,1	0,1	0,5	81,9	17,5
8	114,6	93,8	0,0	0,8	92,9	20,9	0,0	0,7	81,1	18,2
9	114,6	91,7	0,0	0,9	90,8	22,9	0,0	0,8	79,2	20,0

