ANNEX 14

MONITORING STUDY OF POTATO-FEEDING ORGANISMS IN COMMERCIALLY CULTIVATED AMLFORA FIELDS AND THEIR CLOSE VICINITY IN THE CZECH REPUBLIC, GERMANY AND SWEDEN

Final Report

Monitoring study of potato-feeding organism in commercially cultivated Amflora potato fields and their close vicinity in the Czech Republic, Germany and Sweden

Non-GLP Trial

Authors

RIFCON GmbH Report No.

R10143

BASF Report No.

M-01-2010

Study Completion Date

28.January.2011

Sponsor

BASF Plant Science Company GmbH
Speyerer Str. 2
67117 Limburgerhof

Germany

Test Facility

RIFCON GmbH
Im Neuenheimer Feld 517
69120 Heidelberg

Germany

SIGNATURE PAGE DELETED

DATA CONFIDENTIALITY STATEMENT

This document is confidential. No part of the document or any information contained herein may be disclosed to any third party without the prior written authorisation of the sponsor.

SUMMARY

Author(s) (year)	
Title	Monitoring study of potato-feeding organism in commercially cultivated Amflora potato fields and their close vicinity in the Czech Republic, Germany and Sweden
Owner, Date	BASF Plant Science Company GmbH, unpublished RIFCON GmbH Report No. R10143, 28.10.2010
Test Facility	RIFCON GmbH, Im Neuenheimer Feld 517, 69120 Heidelberg, Germany
Dates of field work	14 July 2010 to 28 July 2010
Test item	Amflora potato (*Solanum tuberosum* L. of the line EH92-527-1; BASF)
Guidance	The quantitative determination of potato beetle larvae and adults was conducted in accordance with 'EPPO Standard PP 1/12 (3) '*Leptinotarsa decemlineata*'' (EPPO, 1999). Sampling of aphids were conducted in accordance with 'EPPO Standard PP 1/230 (1) 'Aphids on potatoes'' (EPPO, 2005).
GLP	No
RIFCON GmbH Study No.	P10143
BASF Project No.	M-01-2010

Aim

The objective of this study was to monitor selected potato-feeding organisms naturally occurring on Amflora potato (*Solanum tuberosum* L. line EH92-527-1) fields and their vicinity. The abundance of Colorado potato beetles, potato aphids and other common phytophagous arthropods were investigated in seven potato fields in the Czech Republic (starch potato production), in one potato field in Germany (seed potato multiplication) and in two fields in Sweden (seed potato multiplication), considering adults and larvae. Furthermore, potato aphids were determined on species level and other common phytophagous arthropods were classified in main taxonomic groups (e.g. Chrysomelidae, Aphididae, Heteroptera, Auchenorrhyncha, Collembola).

Material and Methods

Study sites

The study was conducted in three different commercial potato cultivation areas:

1. Germany (one potato field)
2. Czech Republic (seven potato fields)
3. Sweden (two potato fields)

In the Czech Republic the monitoring was conducted on potato fields used for commercial starch potato production, whereas the potato fields in Germany and Sweden were established for commercial multiplication of seed potatoes.

Arthropod sampling

Ten transects per potato field were established, eight within each potato field (n=8) and two at the outer row of the potato field representing the vicinity of the potato field (n=2). Transects within the potato field consists of five neighboring potato rows: one row for sampling of phytophagous arthropods, one row for potato aphid sampling and one row for Colorado potato beetle sampling, each separated by a buffer row. Transects representing the vicinity of the potato field consisted of the outer row of the potato field. Along this row phytophagous arthropods, potato aphids and Colorado potato beetles were sampled consecutively.

Colorado potato beetles were sampled in accordance with EPPO Standard PP 1/ 12 (3) '*Leptinotarsa decemlineata*' from ten potato plants per transect (EPPO, 1999).

Potato aphids were sampled in accordance with EPPO Standard PP 1/ 230 (1) 'Aphids on potatoes' from 30 leaves deriving from 10 different potato plants per transect (EPPO, 2005).

Phytophagous arthropods were sucked off ten potato per transect plants by a D-Vac suction sampler (manufacturer: STIHL, Germany; Brook et al. 2008, Koss et al. 2005)

Calculation and statistics

Abundances of the Colorado potato beetles, potato aphids and other phytophagous arthropods (e.g. Collembola, Heteroptera, Auchenorrhyncha, Chrysomelidae) were given for each transect (mean value per ten plants with standard deviation). Furthermore lists of potato aphid species and main taxonomic groups of other phytophagous arthropods found were compiled for each transect. Additionally, the relative abundance of other phytophages arthropods was presented.

Results

Colorado potato beetles (*Leptinotarsa decemlineata*) were only found in very low abundances at three potato fields in the Czech Republic. No Colorado potato beetles were found in Germany and Sweden. Colorado potato beetles do not occur naturally in Sweden.

No potato aphids were found applying the EPPO Standard method at the potato field in Germany. In the Czech Republic aphid abundance varied from 0.60 ± 1.07 to 6.90 ± 3.90 individuals per transect (n=10). In Sweden the abundance of potato aphids was nearly similar in both potato fields with approx. 4.00 individuals per transect (n=10). Furthermore, aphid abundances within the potato field (n=8) and the vicinity of the potato field (outer rows of the field; n=2) did not differ strongly.

The abundance of the two main potato aphid species, *Aphis nasturii* and *Myzus persicae* varied strongly within the potato fields.

The highest abundance of arthropods was sampled by D-Vac suction at potato field CZ05 in the Czech Republic with 281.10 ± 81.67 arthropods per transect (n=10). In contrast the lowest abundances of arthropods (42.70 ± 40.53 and 5.40 ± 22.10 individuals per transect) were found at the potato fields in Sweden (SE01 and SE02, respectively). This trend could also be shown for phytophagous arthropods sampled by this method. However, approx. 70% of all arthropods sampled by suction sampling at the potato fields in Germany and the Czech Republic were phythophage. In contrast, only approx. 35% of arthropods sampled by this method at the two potato fields in Sweden were phytophage.

The abundance of aphids sampled by D-Vac suction spanned over a wide ranged from 4.90 ± 4.70 (DE01) to 91.20 ± 24.48 (CZ05) individuals per transect (n=10). In contrast to the results obtained by the EPPO Standard method, aphids were found also at the German potato field in reasonable.

Furthermore, the number of aphids sampled by D-Vac suction within the potato field (n=8) and in the vicinity of the potato field (outer row of the field, n=2) did not differ strongly.

The abundance of other phytophagous arthropod groups, like Miridae, varied strongly between the potato fields in the three geographic regions in the Czech Republic, Germany and Sweden. The highest abundances were found at potato fields in the Czech Republic. The lowest number of individuals was mostly counted at the potato fields in Sweden.

Conclusion

The current study provides field data on the abundances of phytophagous arthropods at ten commercially cultivated Amflora fields in three different countries (Germany, the Czech Republic and Sweden). The generated data demonstrate the suitability of the methods (D-Vac suction sampling and hand sorting) used to sample phytophagous arthropods (potato aphids, Colorado potato beetles, Collembola, Heteroptera, Auchenorrhyncha, Chrysomelidae).

No strong differences were found between abundances of phytophagous arthropods sampled within the Amflora fields and in the vicinity of the Amflora fields. The abundance of phytophagpous arthropods in Amflora potato fields varied strongly between the fields in the different commercial potato cultivation areas in the Czech Republic, Germany and Sweden. The highest abundances were found at potato fields in the Czech Republic. The lowest number of individuals was mostly counted at the potato fields in Sweden.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

1 GENERAL

1.1 Sponsor

BASF Plant Science Company GmbH
Speyerer Str. 2
67117 Limburgerhof
Germany

1.2 Test Facility

RIFCON GmbH
Im Neuenheimer Feld 517
69120 Heidelberg
Germany

1.3 Amflora Potato Field (Germany)

1.4 Amflora Potato Fields (Czech Republic)

1.5 Amflora Potato Fields (Sweden)

1.6 Responsibilities

Sponsor (BASF Plant Science Company GmbH)

Representative of the Sponsor:

Test Facility (RIFCON GmbH)

Management:

Study Director:

Principal Investigator:

Field staff:

1.7 Dates

Study initiation date:	14 June 2010
Experimental starting date of Sampling Phase:	14 July 2010
Experimental completion date of Sampling Phase:	28 July 2010
Experimental starting date of Sorting and Determination Phase:	16 July 2010
Experimental completion date of Sorting and Determination Phase:	18 August 2010
Study completion date:	28 January 2011

1.8 Archiving

The original of the Study Plan, the raw data and the Final Report will be archived at the Test Facility (RIFCON GmbH, Im Neuenheimer Feld 517, 69120 Heidelberg, Germany).

2 INTRODUCTION

The objective of this study was to monitor selected potato-feeding organisms naturally occurring on Amflora potato (*Solanum tuberosum* L. EH92-527-1) fields and their vicinity. The abundance of Colorado potato beetles, potato aphids and other common phytophagous arthropods were investigated in seven potato fields in the Czech Republic (starch potato production), in one potato field in Germany (seed potato multiplication) and in two fields in Sweden (seed potato multiplication), considering adults and larvae. Furthermore, potato aphids were determined on species level and other common phytophagous arthropods were classified in main taxonomic groups (e.g. Chrysomelidae, Aphididae, Heteroptera, Auchenorrhyncha, Collembola).

3 OBJECTIVES

- To monitor the abundance of potato-feeding arthropods (Aphids, Collembola, Heteroptera, Auchenorrhyncha, Chrysomelidae, especially the Colorado potatoe beetle) in Amflora potato fields and their vicinity.
- To monitor the abundance and diversity of aphids (including larvae) in Amflora potato fields and their vicinity.

4 MATERIAL AND METHODS

4.1 Test item

The potato line EH92-527-1 has been genetically modified for an increased amylopectin content in the tuber starch. The mother starch potato variety Prevalent was transformed with a construct containing a gene fragment encoding granule bound starch synthase from potato in reverse orientation under the control of the potato granule bound starch synthase promoter. A kanamycin resistance gene from *E. coli* under the control of the nopaline synthase promoter from *Agrobacterium tumefaciens* allowed selection of the transformant in tissue culture. The potato line with the variety name Amflora was approved for commercial cultivation in the European Union in March 2010 and is being cultivated for starch production in the Czech Republic, and for seed potato production in Germany and Sweden in 2010.

4.2 Test organisms

The study focuses on natural populations of Colorado potato beetles (*Leptinotarsa decemlineata*, Chrysomelidae), potato aphids (*Myzus persicae*, *Aphis nasturtii, Aphis frangulae, Aphis fabae, Aulacorthum solani, Macrosiphum euphorbiae*), and other phytophagous arthropods. With regard to Colorado potato beetles, both larval stages and adults were counted. Considering potato aphids, larvae, winged and wingless individuals were taken into account, and adult potato aphids were determined on species level. Other phytophagous arthropods (e.g. Collembola, Heteroptera, Auchenorrhyncha, Chrysomelidae), besides aphids and potato beetles, were recorded at the highest taxonomic level where appropriate and dependent on their overall abundance.

4.3 Study sites and study design

The study was conducted in three different commercial potato cultivation areas:

1. Germany (one potato field)
2. Czech Republic (seven potato fields)
3. Sweden (two potato fields)

In the Czech Republic the monitoring was conducted on potato fields used for starch potato production, whereas the fields in Germany and Sweden were established for multiplication of seed potatoes.

The German potato field was located in Zepkow approx. 104 km south-east of Schwerin (Mecklenburg-West Pomerania; Table 1, Figure 1, Appendix 1, Appendix 2).

All seven Czech potato fields were situated in the region Žďár nad Sázavou south-east of Prague. Potato fields 1 to 3 were situated approx. 178 km south-east of Prague near Olešná. Potato field 4 and 5 were located near Bohdalec approx. 167 km south-east of Prague. Potato field 6 and 7 were situated near Nové Dvory approx. 149 km south-east of Prague (Table 1, Figure 2 to Figure 8, Appendix 3, Appendix 4).

The potato fields in Sweden were located approx. 11 km south of Lidköping in Bärnagården (Table 1, Figure 9, Figure 10, Appendix 5, Appendix 6).

Details on the location of the potato fields at all study sites (e.g. field name, field size, planting date) were provided by the sponsor (Table 1).

Table 1: Informations on the ten potato fields in Germany (DE), the Czech Republic (CZ) and Sweden (SE)

Study field code	Sampling date [dd.mm.yyyy]	BBCH macro stage*	Field**	Location	Size **[ha]	Potato planting date [dd.mm.yyyy]**
DE01	14.07.2010	55	10AMFLORA-KHN1	Zepkow	14	19.04.2010
CZ01	20.07.2010	55	630-1120-5502	Olešná	19	12.05. - 17.06.2010
CZ02	20.07.2010	55	630-1120-4601/1	Olešná	30	18.05. - 22.06.2010
CZ03	21.07.2010	55	620-1110-7703/1	Olešná	30	19.05. - 07.06.2010
CZ04	21.07.2010	55	620-1110-7705/6	Bohdalec	14	06.06. - 07.06.2010
CZ05	21.07.2010	55	620-1110-7705/2	Bohdalec	6	07.06.2010
CZ06	22.07.2010	55	650-1110-0402/11	Nové Dvory	46	18.05. - 09.06.2010
CZ07	22.07.2010	55	650-1110-0402/1	Nové Dvory	2	09.06.2010
SE01	28.07.2010	55	10AMFLORA-JB1	Bärnagården	4	16.05. - 17.05.2010
SE02	28.07.2010	55	10AMFLORA-JB2	Bärnagården	2	17.05.2010

*at time of sampling (Meier, 2001) ** information was provided by the sponsor

Figure 1: Impression of the study field DE01 in Germany with ten transects (GPS-points of the middle of each transect)

Transect 1-8 within the study field, transect 9-10 in the vicinity of the study field (outer two rows of the study field).

Figure 2: Impression of the study field CZ01 in Czech Republic with ten transects (GPS-points of the middle of each transect)
Transect 1-8 within the study field, transect 9-10 in the vicinity of the study field (outer two rows of the study field).

Figure 3: Impression of the study field CZ02 in the Czech Republic with ten transects (GPS-points of the middle of each transect)
Transect 1-8 within the study field, transect 9-10 in the vicinity of the study field (outer two rows of the study field).

Figure 4: Impression of the study field CZ03 in the Czech Republic with ten transects (GPS-points of the middle of each transecs)

Transect 1-8 within the study field, transect 9-10 in the vicinity of the study field (outer two rows of the study field).

Figure 5: Impression of the study field CZ04 in the Czech Republic with ten transects (GPS-points of the middle of each transect)

Transect 1-8 within the study field, transect 9-10 in the vicinity of the study field (outer two rows of the study field).

Figure 6: Impression of the study field CZ05 in the Czech Republic with ten transects (GPS-points of the middle of each transect)
Transect 1-8 within the study field, transect 9-10 in the vicinity of the study field (outer two rows of the study field).

Figure 7: Impression of the study field CZ06 in the Czech Republic with ten transects (GPS-points of the middle of each transect)
Transect 1-8 within the study field, transect 9-10 in the vicinity of the study field (outer two rows of the study field). Due to the large size of this field, only a representative part of the field was sampled.

Figure 8: Impression of the study field CZ07 in the Czech Republic with ten transects (GPS-point of the middle of each transect)

Transect 1-8 within the study field, transect 9-10 in the vicinity of the study field (outer two rows of the study field).

Figure 9: Impression of the study field SE01 in Sweden with ten transects (GPS-points of the middle of each transect)

Transect 1-8 within the study field, transect 9-10 in the vicinity of the study field (outer two rows of the study field).

Figure 10: Impression of the study field SE02 in Sweden with ten transects (GPS-points of the middle of each transect)
Transect 1-8 within the study field, transect 9-10 in the vicinity of the study field (outer two rows of the study field).

4.4 Agricultural practice

During the course of the study herbicides, fungicides and insecticides were applied in accordance with Good Agricultural Practice (GAP). For details of agricultural activities and pesticide treatments, see Appendix 29 to Appendix 31. Information was provided by the sponsor.

4.5 Study design

Ten transects per potato field were established, eight within each potato field (n=8) and two at the outer row of the potato field representing the vicinity of the study field (n=2; Figure 1 to Figure 10). Transects within the potato field consisted of five neighboring potato rows: one row for sampling of phytophagous arthropods, one row for potato aphid sampling and one row for Colorado potato beetle sampling, separated by a buffer row (Figure 11), respectively. Transects in the vicinity of the potato field consisted of the two outer rows of the potato field. Along these rows phytophagous arthropods, potato aphids and Colorado potato beetles were sampled consecutively. The distance between transects was at least ten meters. Furthermore, the distance from the edges of the field to the transects within the potato field were at least ten meters, too. Transects were distributed over the entire field, therefore the size and shape of transects depended on the geometry of the field. The length of transects was at least the length of 20 neighboring plants. For details of the GPS position see Appendix 8. Within these rows the aphid and potato beetle monitoring was conducted on ten neighboring plants, respectively. For suction sampling of phytophagous arthropods ten neighboring plants were sampled, too.

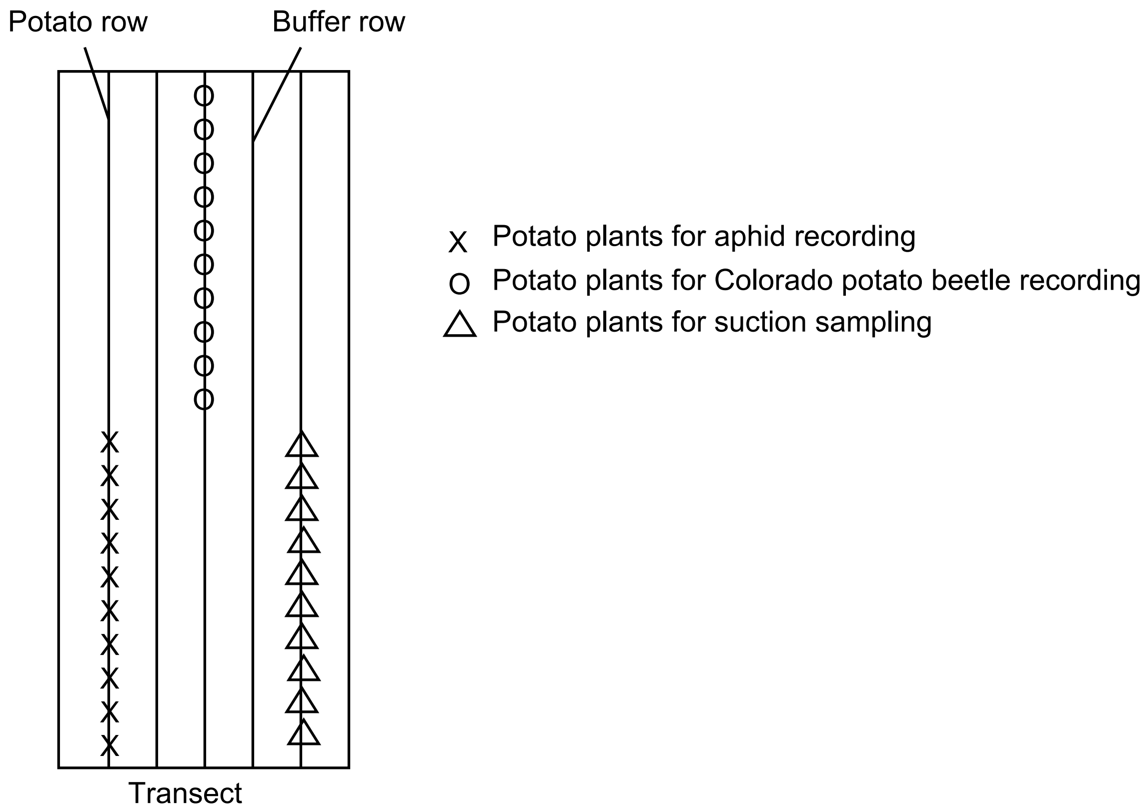


Figure 11: Exemplary scheme of transect design within the potato field

4.6 Arthropod sampling, counting and identification

4.6.1 Counting of Colorado potato beetles

The quantitative determination of Colorado potato beetle larvae and adults was conducted in accordance with EPPO Standard PP 1/ 12 (3) '*Leptinotarsa decemlineata*' (EPPO, 1999). The upper and lower leaf surfaces as well as stalks of ten potato plants per transect were examined for Colorado potato beetle larvae and adults. Colordado potato beetle larvae and adults were recorded separately. Furthermore, a distinction was made between young larvae (larval stages I to III, ≤ 7 mm) and old larvae (larval stage IV, > 7 mm).

4.6.2 Sampling, counting and identification of aphids

Recording of potato aphids was conducted in accordance with EPPO Standard PP 1/ 230 (1) 'Aphids on potatoes' (EPPO, 2005). The potato aphid population was assessed for 30 leaves deriving from ten different potato plants per transect. The leaves were equally collected from the upper, the central and the lower parts of the potato plants. All aphids (larvae and adults) per transect (30 leaves) were counted in the potato field. Adult individuals which could not be determined within the study field were transferred in 70% ethanol for later species identification in the laboratory. The sampling bottles were uniquely labeled with study number, sampling date, the field and transect number.

Adult potato aphids were determined to species level (*Myzus persicae*, *Aphis nasturtii, Aphis frangulae, Aphis fabae, Aulacorthum solani, Macrosiphum euphorbiae*). All of these species are common on potato and other crop plants throughout Europe (Blackmann, 2000). For identification of aphids the following keys were used:

Völk, J. (1965): Die häufigsten an der Kartoffel vorkommenden Blattlausarten in farbiger Darstellung. Biologische Bundesanstalt für Land- und Forstwirtschaft, Merkblatt Nr. 14, Institut für landwirtschaftliche Virusforschung, Braunschweig, Germany.

Dubnik, H. (1991): Blattläuse – Artenbestimmung- Biologie- Bekämpfung. Mann, Gelsenkirchen-Buer, Germany.

4.6.3 Suction sampling of phytophagous arthropods

Phytophagous arthropods were sucked off ten potato plants by a D-Vac suction sampler (manufacturer: STIHL, Germany; Appendix 7; Brook et al. 2008, Koss et al. 2005). The collector was equipped with a combustion engine. The throughput could be continuously regulated by a gas handle. The suction tube was equipped with a sampling bag that could easily be changed. Each of the 10 transects per field was suctioned for approx. 2 min by placing the D-vac collecting tube over that plant and shaking vigorously. Each plant was suctioned twice. An ether soaked tampon was hung inside the polyethylene sampling bottle to kill the arthropods. Each sample was transferred in 70% ethanol for later identification in the laboratory. The sampling bottles were uniquely labeled with study number, sampling date, the field and transect number.

4.7 Additional arthropod data

Where available and applicable, the sponsor provided regional data on aphid abundances that complement the data of this study.

4.8 Weather data

The weather data for Germany for 2010 were measured in Wittstock (daily mean temperature) and Wulfersdorf (daily precipitation) approx. 15 km and 17 km from Zepkow, respectively. Both weather stations were operated by the “Deutscher Wetterdienst” (http://orias.dwd.de/weste2/xl_1.jsp).

For the Czech Republic the sponsor provided mean temperature and total precipitation for July 2010 measured in Pribyslav, approx. 6 km from Nové Dvory.

The weather data of July for Sweden for 2010 were provided by BASF Plant Science Company GmbH. Detailed informations about the weather on the sampling day were provided by the Swedish Meteorological and Hydrological Institute (Source: http://www.smhi.se/klimatdata/meteorologi/temperatur).

5 DATA EVALUATION

Abundances of Colorado potato beetles, potato aphids and other phytophagous arthropods (e.g. Collembola, Heteroptera, Auchenorrhyncha, Chrysomelidae) were given for each transect (mean value per ten plants with standard deviation). Lists of potato aphid species and main taxonomic groups of other phytophagous arthropods were compiled for each transect. Additionally, the relative abundance of other phytophages arthropods was presented.

6 RESULTS

6.1 Abundance of Colorado potato beetles

Colorado potato beetles (*Leptinotarsa decemlineata*) were only found at three potato fields in the Czech Republic (Figure 12). The abundance at study field CZ01, CZ02 and CZ06 was very low. Only some individuals (only larvae, no adult beetles) were counted in the ten transects per study field. No Colorado potato beetles were found in Germany and Sweden. Colorado potato beetle does not occur naturally in Sweden. For details on the abundance of Colorado potato beetles, see Appendix 9.

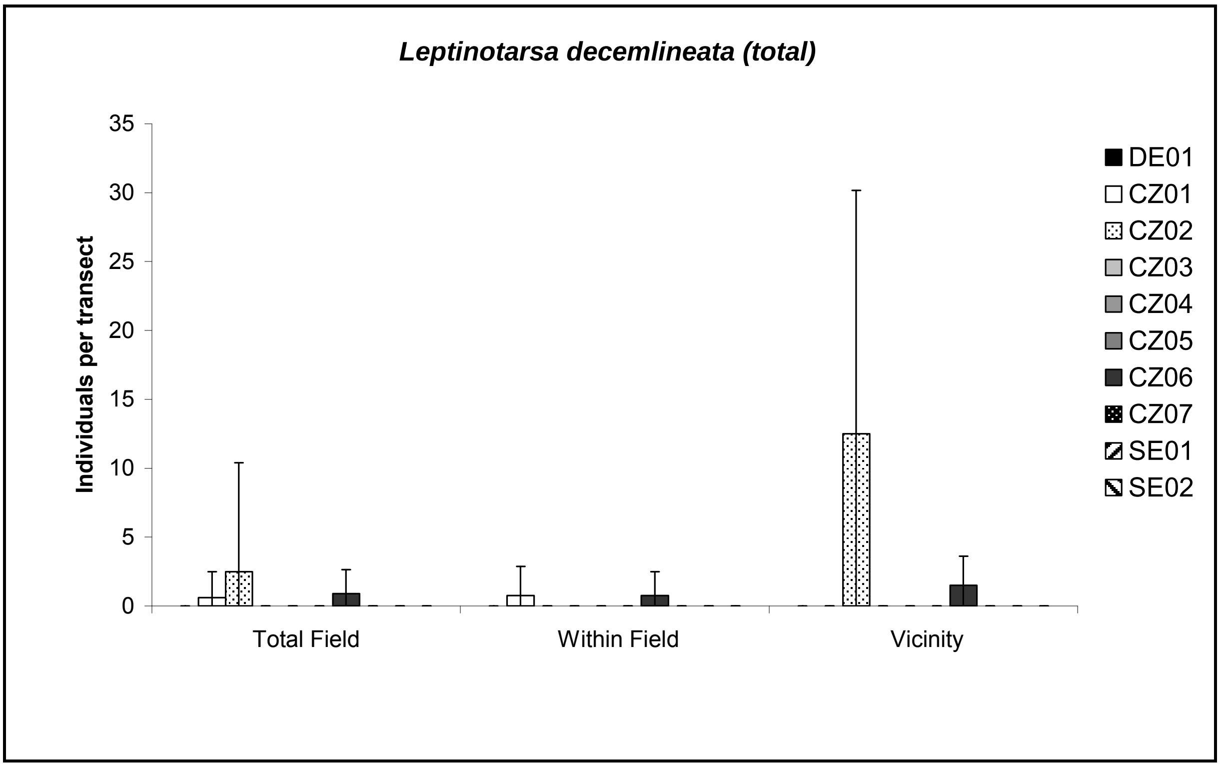


Figure 12: Mean abundance (±SD) of Colorado potato beetles within the study fields and in the vicinity in Germany (DE), the Czech Republic (CZ) and Sweden (SE)

Means over ten transects for 'Total Field' (n=10), eight transects for 'Within Field' (n=8) and two transects for 'Vicinity' (n=2). In all cases ten plants were sampled per transect.

6.2 Abundance and diversity of aphids

No potato aphids were found at the potato field in Germany (Figure 13). In the Czech Republic (CZ01 to CZ07) aphid abundance varied from 0.60 ± 1.07 to 6.90 ± 3.90 individuals per transect (n=10). In Sweden the abundance of potato aphids was nearly similar in both potato fields (SE01 and SE02) with approx. 4.00 individuals per transect (n=10).

Furthermore, aphid abundances within the field and the vicinity of the field (outer row of the field) did not differ strongly, with respect of two potato fields in the Czech Republic (Figure 13). At potato field CZ01 and CZ02 no aphids were found in the vicinity of the field, whereas up to 3.13 ± 1.46 inidviduals per transect (n=8) were counted within the field.

For details on the abundance of potato aphids, see Appendix 10 to Appendix 18.

No aphid species were found at the potato field in Germany (Figure 14). The number of aphid species was highest at potato field CZ04 and CZ05 with five aphid species. The number of aphid species at the two study fields in Sweden (SE01 and SE02) was comparable smaller than in the Czech Republic.

The two main potato aphid species sampled on 30 leaves derived from ten plants per transect were *Aphis nasturii* and *Myzus persicae*. The abundance of *A. nasturii* at the potato fields in the Czech Republic ranged from 0.40 ± 0.97 to 4.10 ± 3.75 individuals per transect Figure 15). In Sweden the variation of *A. nasturii* between transects was very high, with 3.90 ± 8.09 individuals per 30 leaves. The abundance of *M. persicae* in the Czech Republic was highest at potato field CZ 05 with 1.50 ± 1.51 individuals per transect (Figure 16). No individuals of *M. persicae* were found at the potato fields in Germany and Sweden.

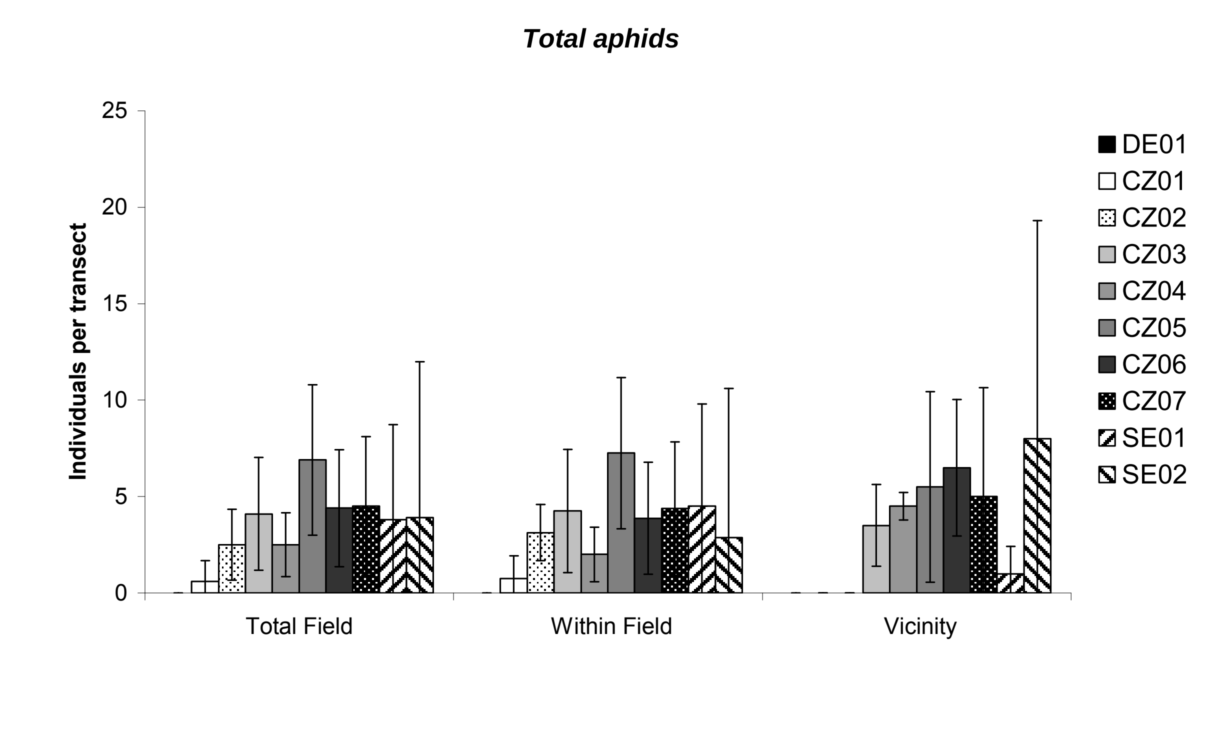


Figure 13: Mean abundance (±SD) of potato aphids within the study fields and in the vicinity in Germany (DE), the Czech Republic (CZ) and Sweden (SE)

Means over ten transects for 'Total Field' (n=10), eight transects for 'Within Field' (n=8) and two transects for 'Vicinity' (n=2). Thirty leaves were sampled per transect.

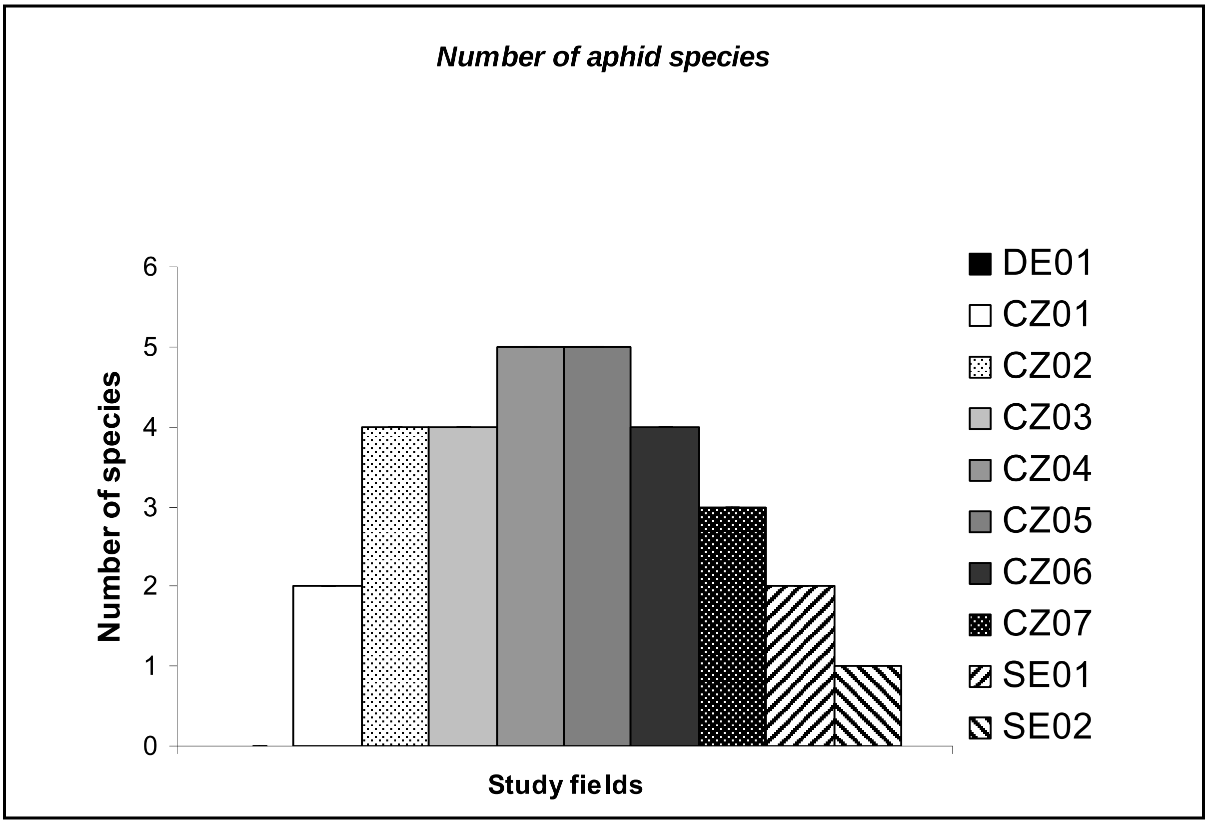


Figure 14: Number of aphid species at the study fields in Germany (DE), the Czech Republic (CZ) and Sweden (SE)

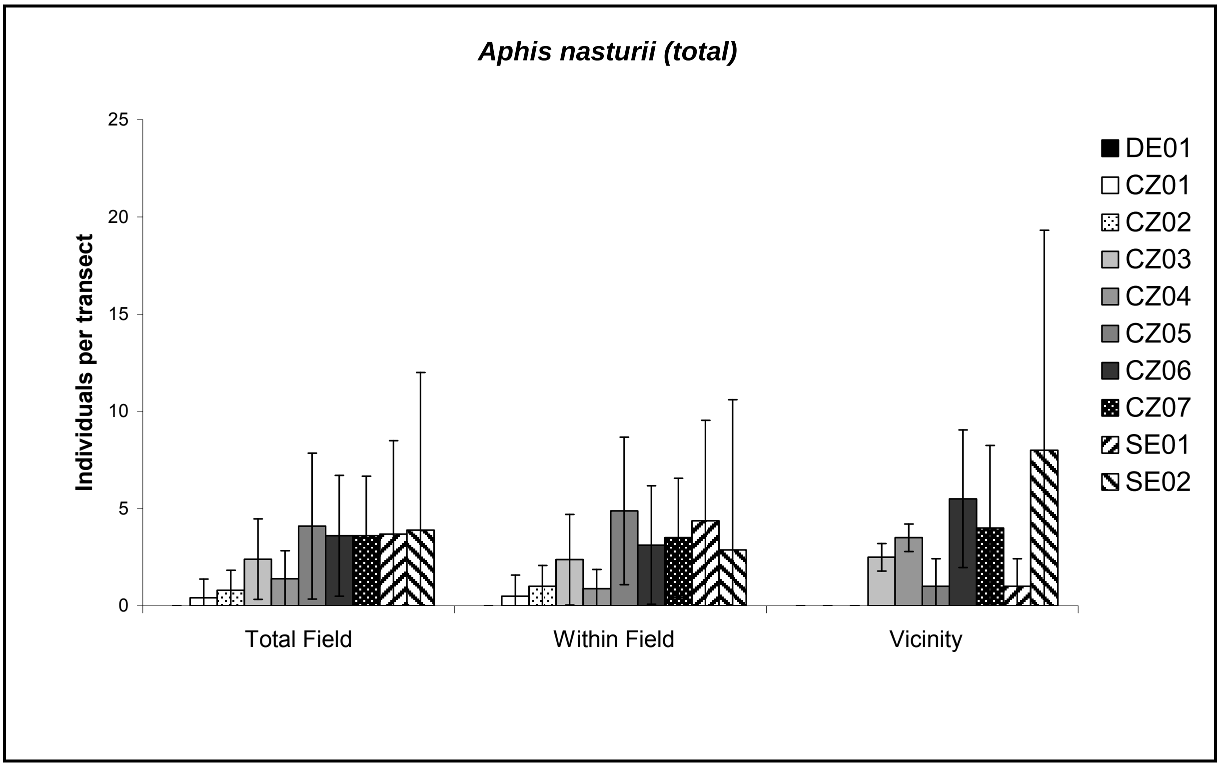


Figure 15: Mean abundance (±SD) of *Aphis nasturii* within the study fields and in the vicinity in Germany (DE), the Czech Republic (CZ) and Sweden (SE)

Means over ten transects for 'Total Field' (n=10), eight transects for 'Within Field' (n=8) and two transects for 'Vicinity' (n=2). Thirty leaves were sampled per transect.

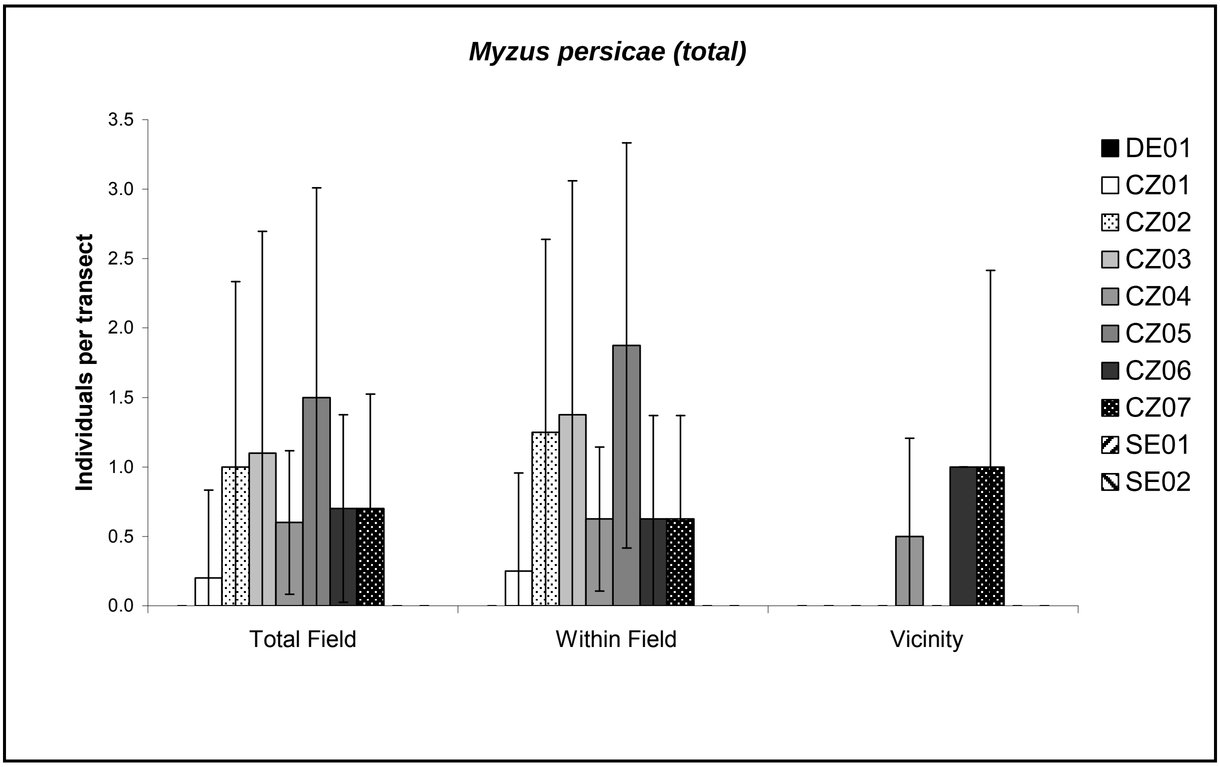


Figure 16: Mean abundance (±SD) of *Myzus persicae* within the study fields and in the vicinity in Germany (DE), the Czech Republic (CZ) and Sweden (SE)

Means over ten transects for 'Total Field' (n=10), eight transects for 'Within Field' (n=8) and two transects for 'Vicinity' (n=2). Thirty leaves were sampled per transect.

6.3 Abundance of phytophagous arthropods (suction sampling)

The abundance of arthropods sampled by a D-Vac suction sampler varied between the potato fields in the three different Amflora potato cultivation regions (Figure 17; Appendix 19 to Appendix 28). The highest abundance of arthropods was found at potato field CZ05 in the Czech Republic with 281.10 ± 81.67 arthropods per transect (n=10). In contrast the potato fields in Sweden (SE01 and SE02) had the lowest abundances of arthropods (42.70 ± 40.53 and 50.40 ± 22.10 individuals per transect, respectively). This trend could also be found for phytophagous arthropods sampled by this method (Figure 18). However, approx. 70% of all arthropods sampled by suction sampling at the potato fields in Germany and the Czech Republic were phythophagous (Figure 19). In contrast, only approx. 35% of arthropods sampled by this method at the two potato fields in Sweden were phytophagous.

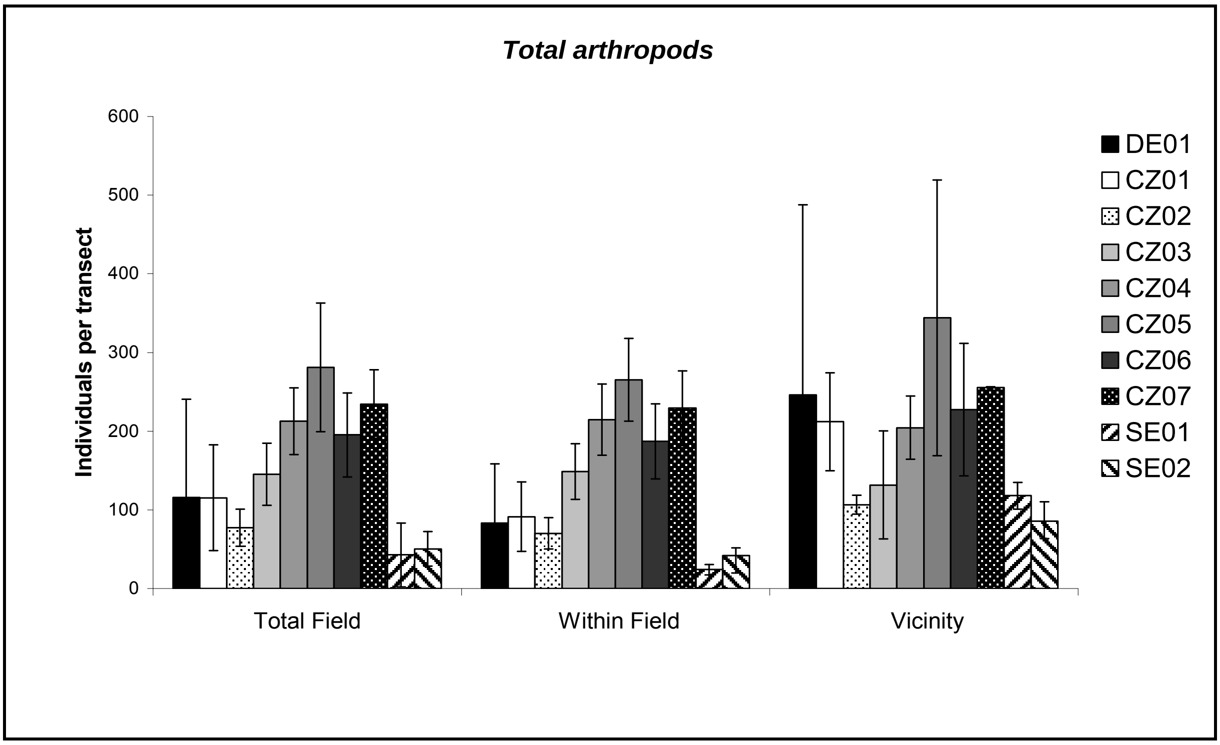


Figure 17: Mean abundance (±SD) of all arthropods from suction sampling within the study fields and in the vicinity in Germany (DE), the Czech Republic (CZ) and Sweden (SE)

Means over ten transects for 'Total Field' (n=10), eight transects for 'Within Field' (n=8) and two transects for 'Vicinity' (n=2). Ten plants were sampled per transect.

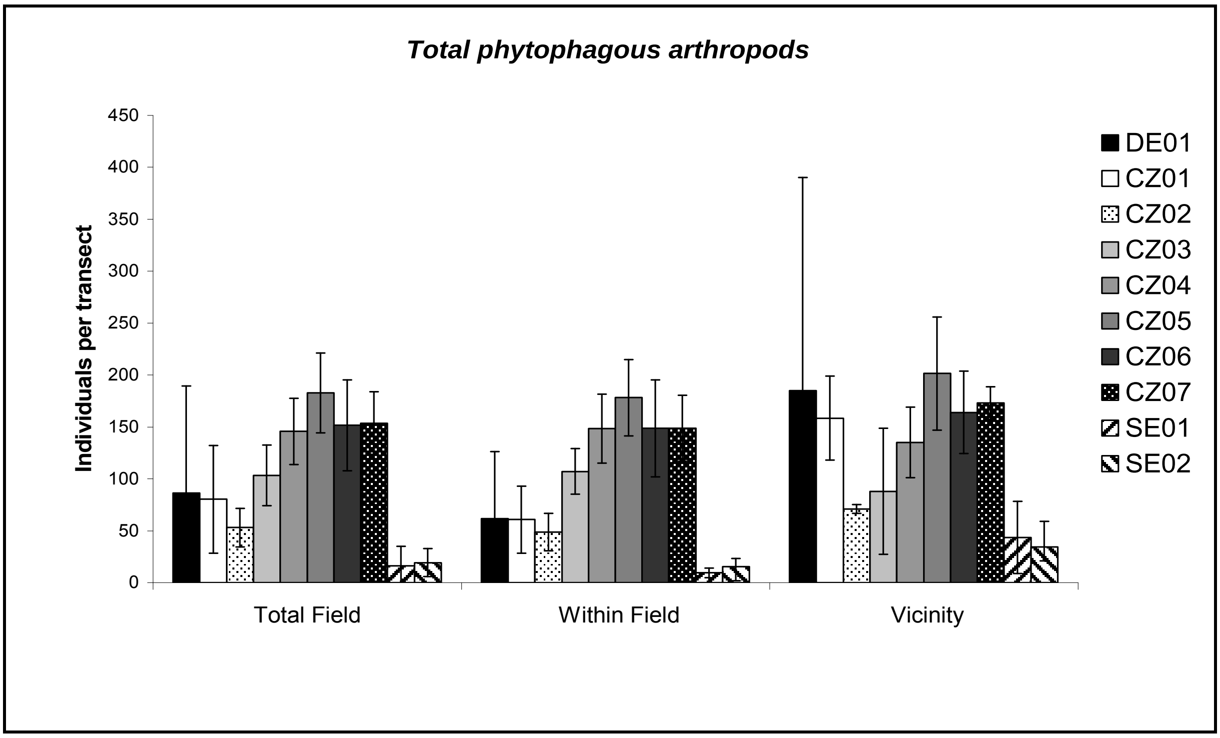


Figure 18: Mean abundance (±SD) of all phytophagous arthropods from suction sampling within the study fields and in the vicinity in Germany (DE), the Czech Republic (CZ) and Sweden (SE)

Means over ten transects for 'Total Field' (n=10), eight transects for 'Within Field' (n=8) and two transects for 'Vicinity' (n=2). Ten plants were sampled per transect.

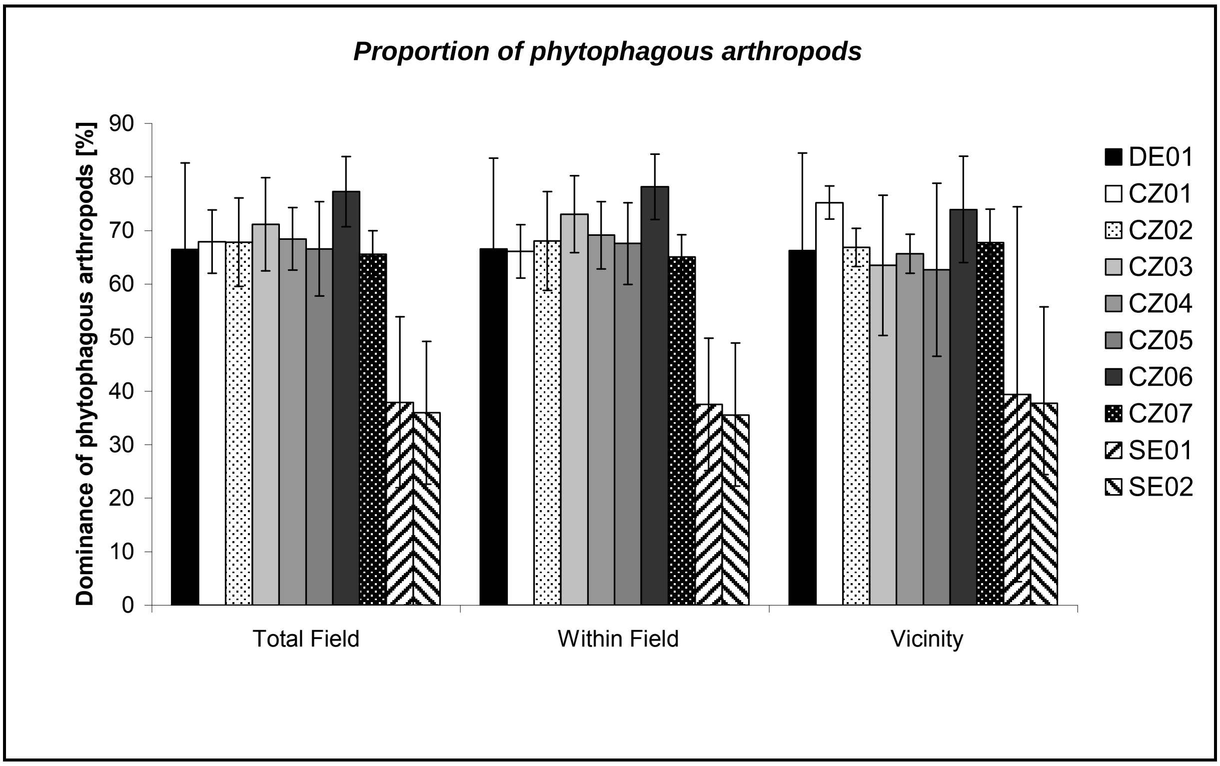


Figure 19: Mean dominance (±SD) of phytophagous arthropods from suction sampling within the study fields and in the vicinity in Germany (DE), the Czech Republic (CZ) and Sweden (SE)

Means over ten transects for 'Total Field' (n=10), eight transects for 'Within Field' (n=8) and two transects for 'Vicinity' (n=2). Ten plants were sampled per transect.

The abundance of aphids sampled by suction sampling ranged from 4.90 ± 4.70 (DE01) to 91.20 ± 24.48 (CZ05) individuals per transect (n=10; Figure 20). In contrast to the hand sorting method (see above) aphids were found also at the German potato field in reasonable amounts (Appendix 19 to Appendix 28).

Furthermore, aphid abundances within the field and the vicinity of the field (outer row of the field) did not differ strongly (Figure 20).

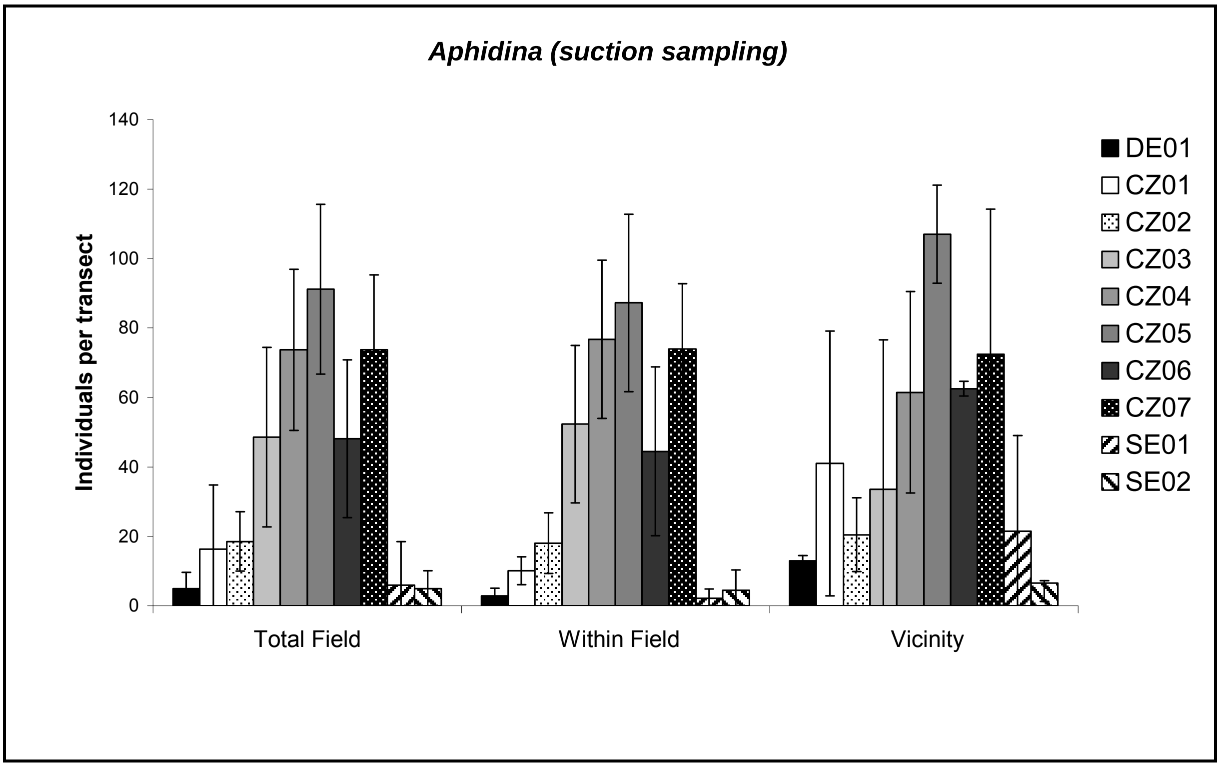


Figure 20: Mean abundance (±SD) of Aphididae from suction sampling within the study fields and in the vicinity in Germany (DE), the Czech Republic (CZ) and Sweden (SE)

Means over ten transects for 'Total Field' (n=10), eight transects for 'Within Field' (n=8) and two transects for 'Vicinity' (n=2). Ten plants were sampled per transect.

The abundance of Thysanoptera sampled by suction sampling was highest at the German potato field (DE01) and at one potato field in the Czech Republic (CZ06) with 65.60 ± 82.39 and 73.00 ± 23.41 individuals per transect (n=10), respectively (Figure 21). The lowest abundances of Thysanoptera were found at the potato fields in Sweden (SE01 and SE02) with 5.70 ± 3.47 and 9.40 ± 6.85 individuals per transect (n=10; Appendix 19 to Appendix 28).

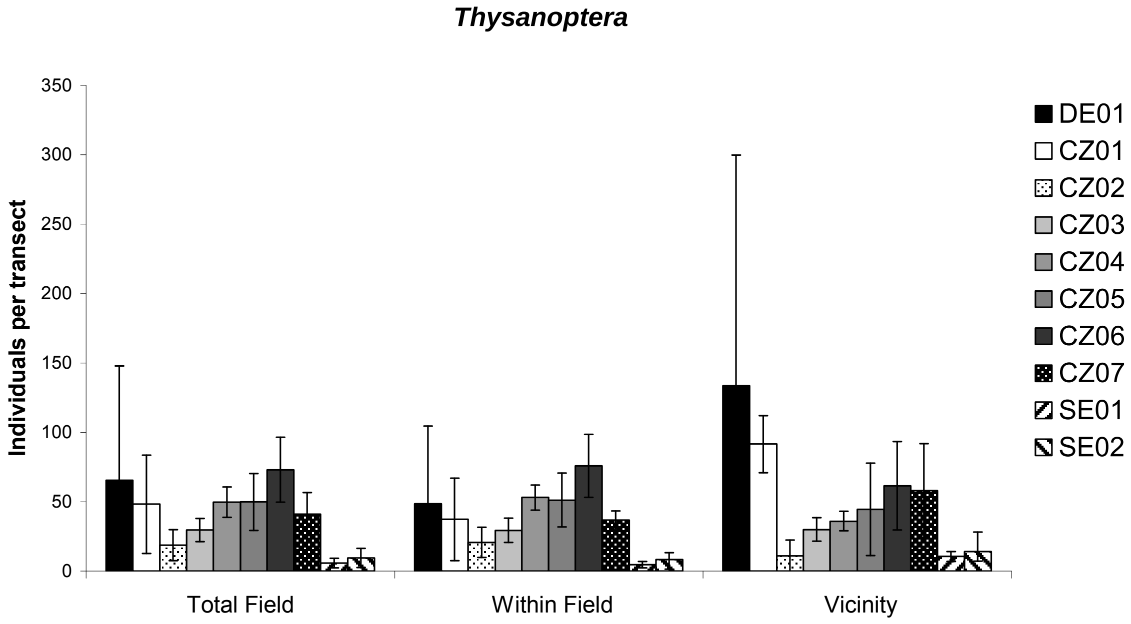


Figure 21: Mean abundance (±SD) of Thysanoptera from suction sampling within the study fields and in the vicinity in Germany (DE), the Czech Republic (CZ) and Sweden (SE)

Means over ten transects for 'Total Field' (n=10), eight transects for 'Within Field' (n=8) and two transects for 'Vicinity' (n=2). Ten plants were sampled per transect.

The abundance of Miridae varied strongly between the potato fields in the three Amflora cultivation regions. The highest abundances of Miridae were found at two potato fields in the Czech Republic (CZ05 and CZ07) with 24.10 ± 7.13 and 25.70 ± 14.41 individuals per transect (n=10), respectively (Figure 22). The lowest number of individuals was counted at the potato fields in Sweden (SE01 and SE02) with 0.50 ± 0.71 and 0.70 ± 1.06 individuals per transect (n=10; Appendix 19 to Appendix 28).

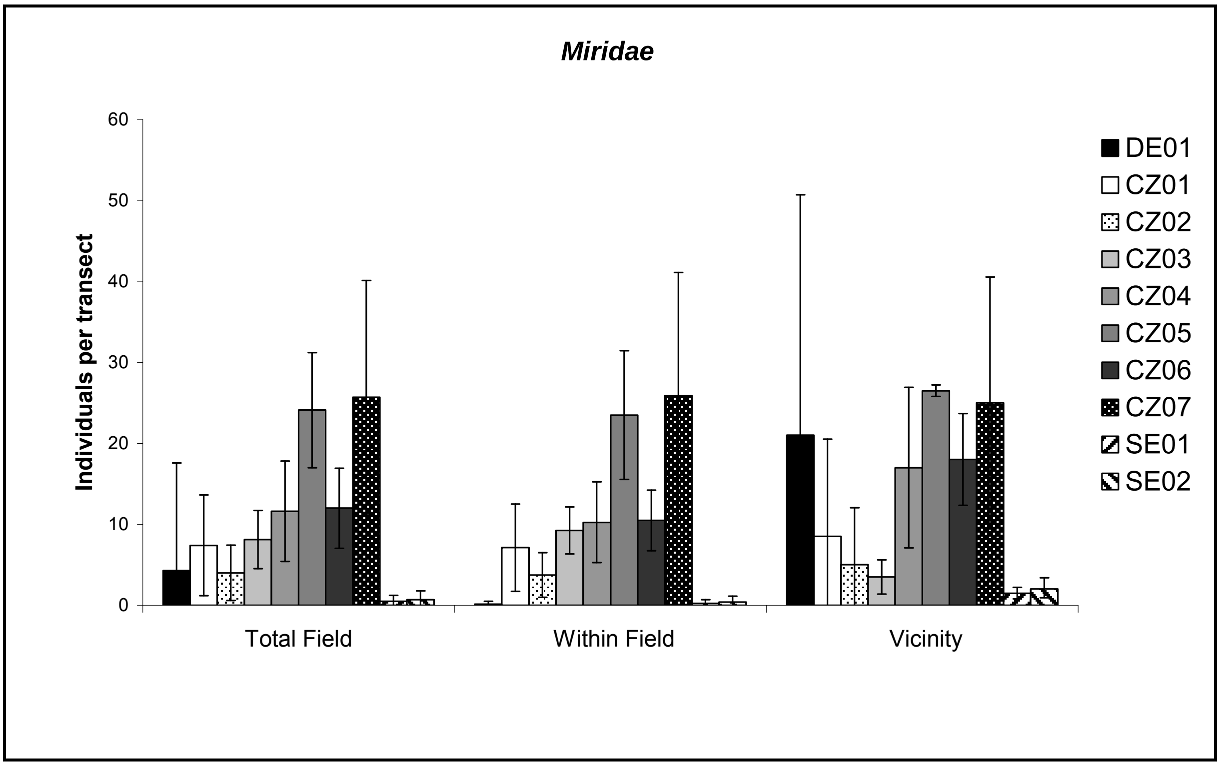


Figure 22: Mean abundance (±SD) of Miridae from suction sampling within the study fields and in the vicinity in Germany (DE), the Czech Republic (CZ) and Sweden (SE)

Means over ten transects for 'Total Field' (n=10), eight transects for 'Within Field' (n=8) and two transects for 'Vicinity' (n=2). Ten plants were sampled per transect.

The abundance of other Heteroptera (without Miridae) was lower than the abundance of Miridae. However, the highest abundance was also found at one potato field in the Czech Republic (CZ06) with 10.00 ± 7.53 individuals per transect (Figure 23; Appendix 19 to Appendix 28).

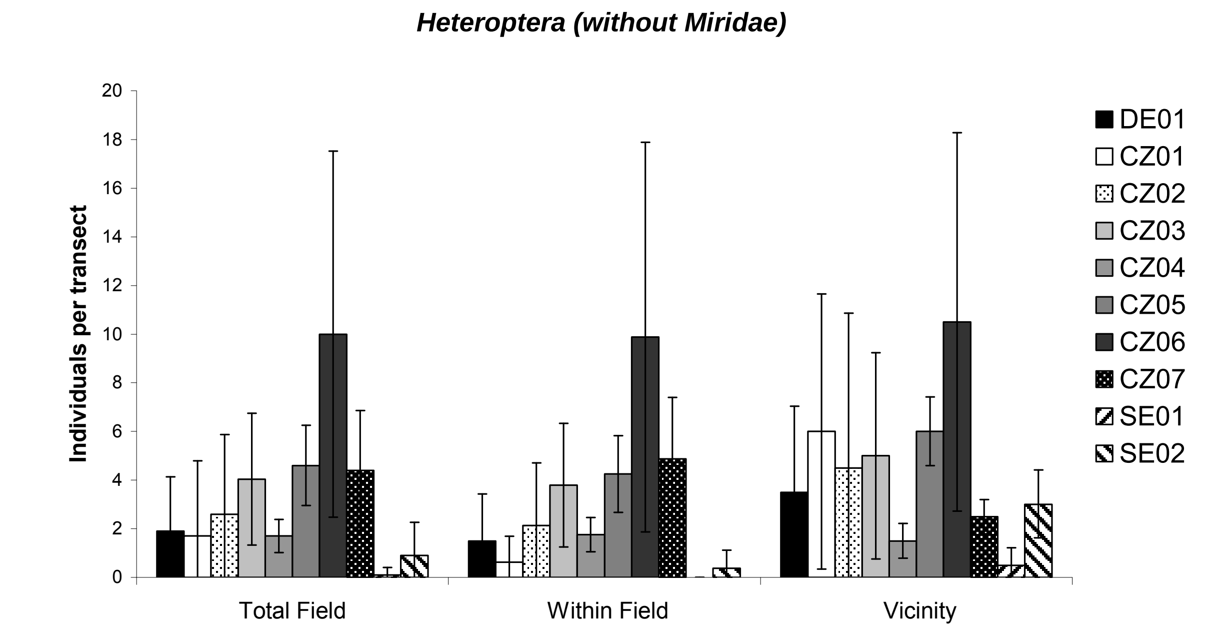


Figure 23: Mean abundance (±SD) of Heteroptera (without Miridae) from within the study fields and in the vicinity in Germany (DE), the Czech Republic (CZ) and Sweden (SE)

Means over ten transects for 'Total Field' (n=10), eight transects for 'Within Field' (n=8) and two transects for 'Vicinity' (n=2). Ten plants were sampled per transect.

High variations in the abundance of Auchenorrhyncha were found within the potato fields (Figure 24). The abundance of Auchenorrhyncha at the potato fields in Germany and Sweden was very low (approx. one individual per transect) compared to the abundance at the seven potato fields in the Czech Republic (between five and 11 individuals per transect; Appendix 19 to Appendix 28).

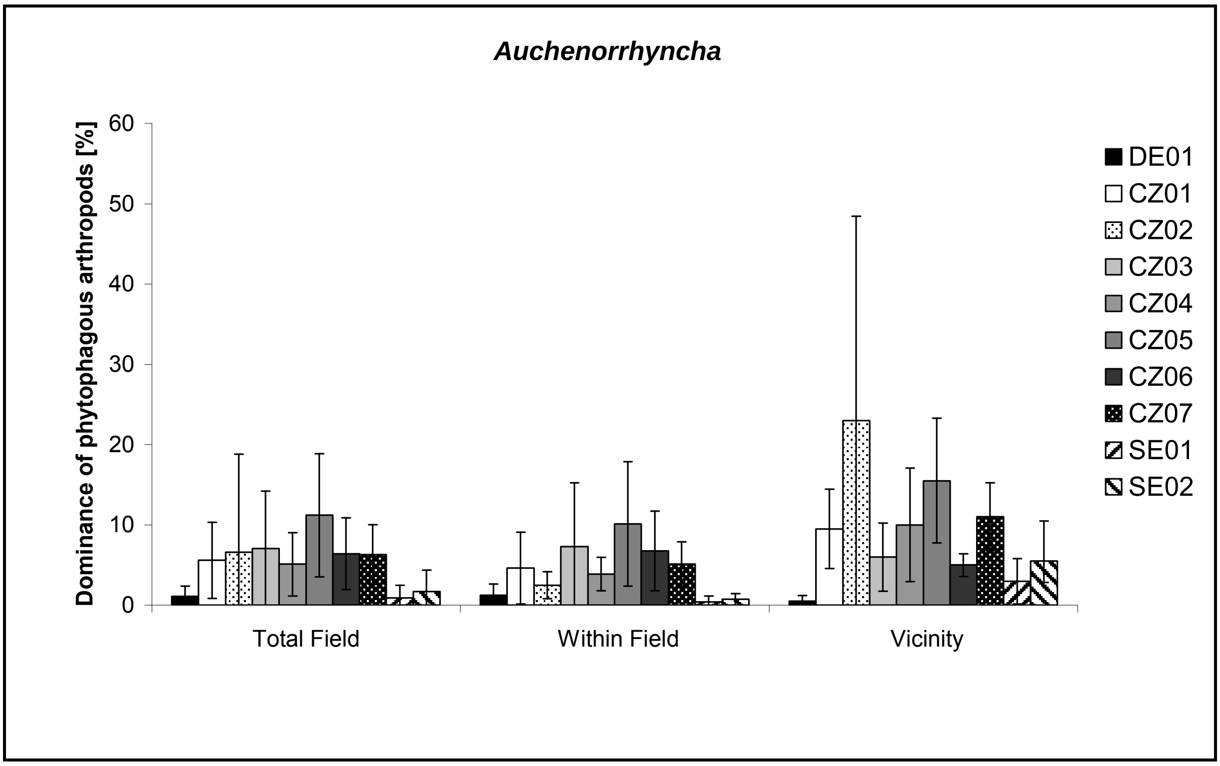


Figure 24: Mean abundance (±SD) of Auchenorrhyncha from suction sampling within the study fields and in the vicinity in Germany (DE), the Czech Republic (CZ) and Sweden (SE)

Means over ten transects for 'Total Field' (n=10), eight transects for 'Within Field' (n=8) and two transects for 'Vicinity' (n=2). Ten plants were sampled per transect.

In contrast to most arthropod groups the abundances of phytophagous beetles (Elateridae, Nitidulidae, Anthicidae, Chrysomelidae and Curculionidae) was highest at the potato field in Germany (DE01) with 4.60 ± 3.63 individuals per transect (Figure 25). The abundance of phytophagous beetles at most other potato fields was around two individuals per transect (Appendix 19 to Appendix 28).

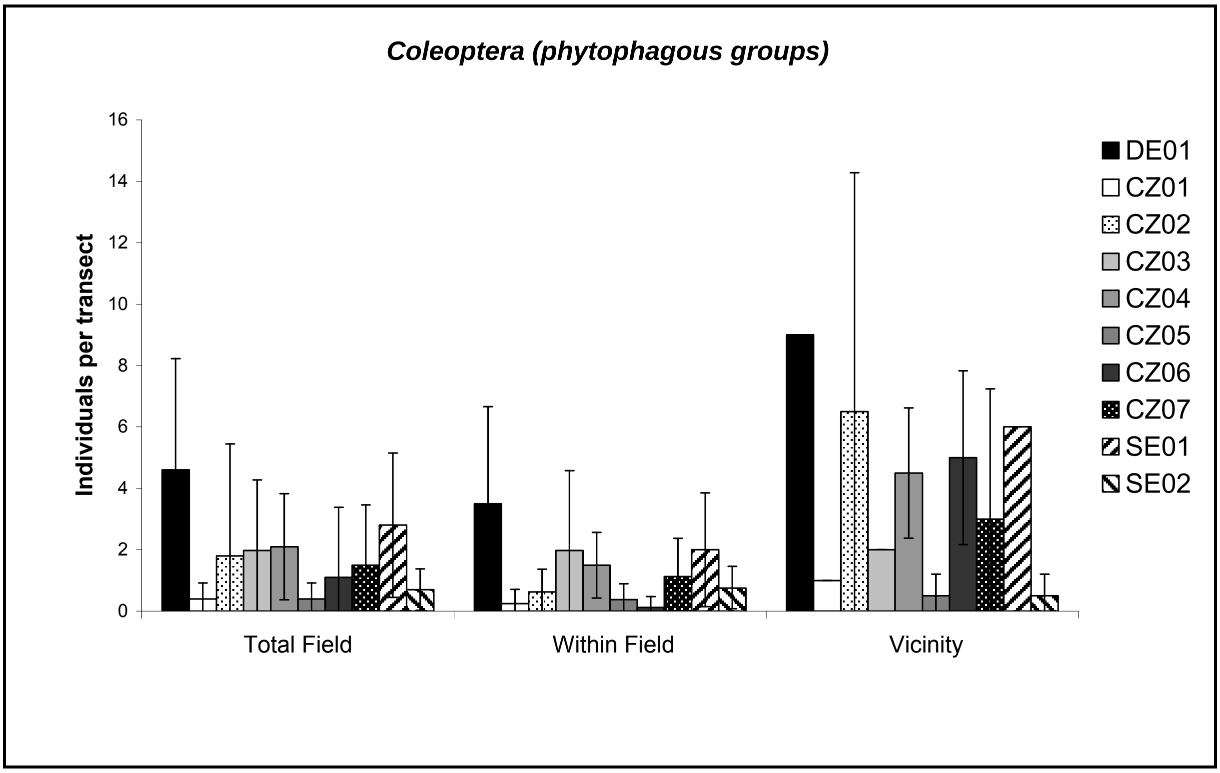


Figure 25: Mean abundance (±SD) of phytophagous beetles from suction sampling within the study fields and in the vicinity in Germany (DE), the Czech Republic (CZ) and Sweden (SE)

Means over ten transects for 'Total Field' (n=10), eight transects for 'Within Field' (n=8) and two transects for 'Vicinity' (n=2). Ten plants were sampled per transect.

The abundance of Collembola was very low at all potato fields (Figure 26). The highest number of individuals (but with high SD) was counted at one potato field in the Czech Republic (CZ03) with 2.20 ± 3.91 individuals per transect (Appendix 19 to Appendix 28).

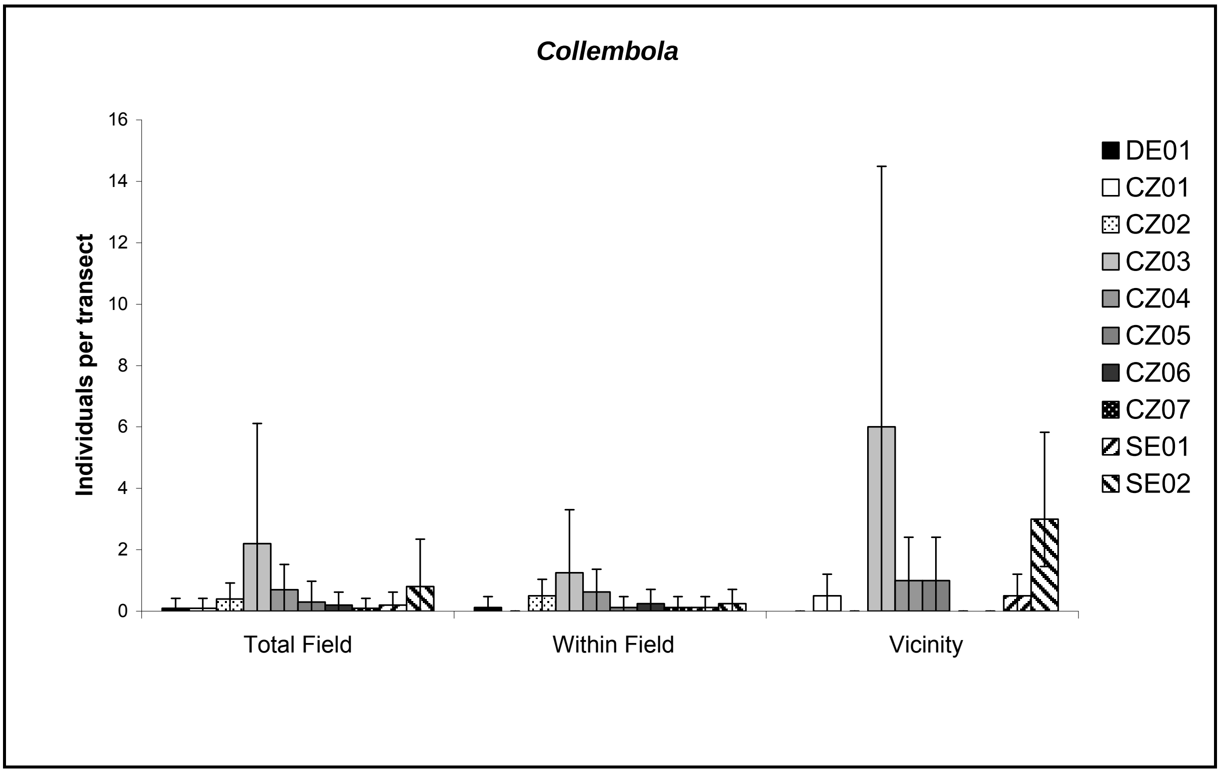


Figure 26: Mean abundance (±SD) of Collembola from suction within the study fields and in the vicinity in Germany (DE), the Czech Republic (CZ) and Sweden (SE)

Means over ten transects for ‘Total Field’ (n=10), eight transects for ‘Within Field’ (n=8) and two transects for ‘Vicinity’ (n=2). Ten plants were sampled per transect.

6.4 Abundance predatory arthropods (suction sampling)

The number of Coccinellidae at the potato field in Germany and the Czech Republic ranged between 0.60 and 1.81 individuals per transect, but with a very high variation (Figure 27). No Coccinellidae were found at the two potato fields in Sweden (SE01 and SE02; Appendix 19 to Appendix 28).

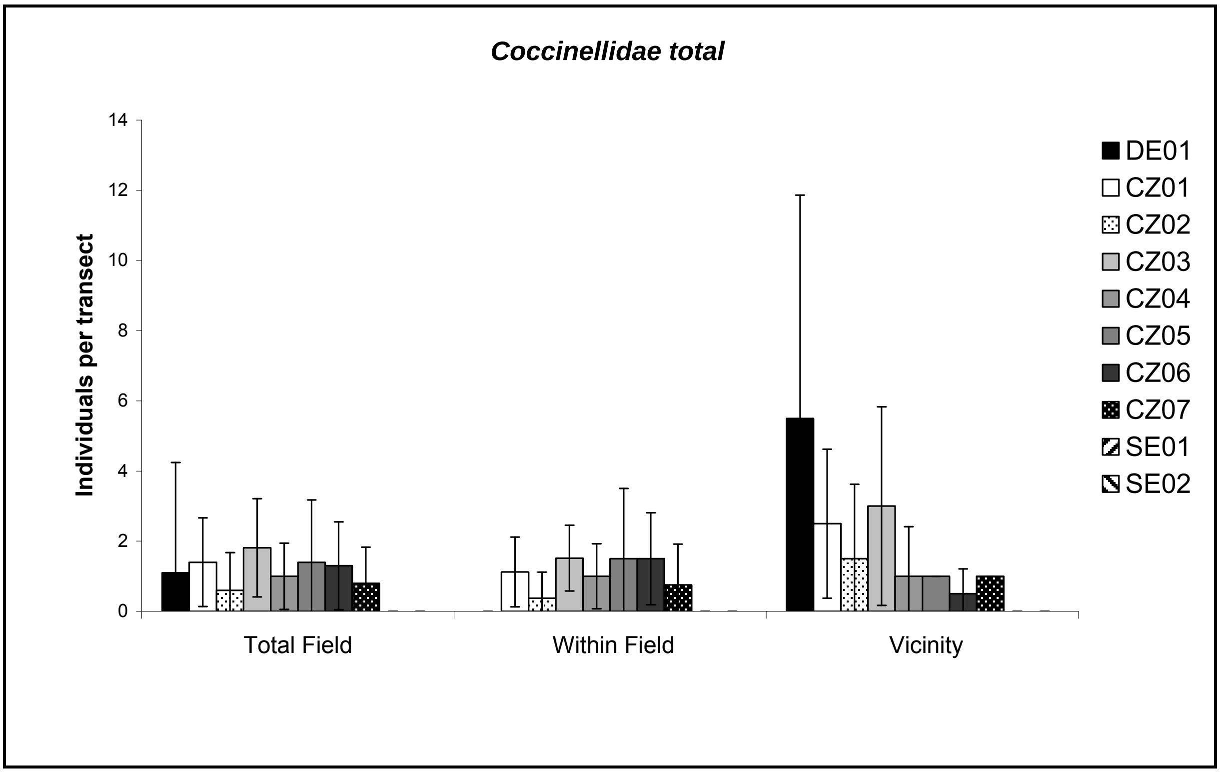


Figure 27: Mean abundance (±SD) of Coccinellidae from suction within the study fields and in the vicinity in (DE), the Czech Republic (CZ) and Sweden (SE)

Means over ten transects for 'Total Field' (n=10), eight transects for 'Within Field' (n=8) and two transects for 'Vicinity' (n=2). Ten plants were sampled per transect.

The number of Neuroptera at the potato fields in Germany, the Czech Republic and Sweden ranged between 0.10 and 1.00 individuals per transect, but with a very high variation (Figure 28). At the second potato field in Sweden (SE02) no Neuroptera were counted (Appendix 19 to Appendix 28).

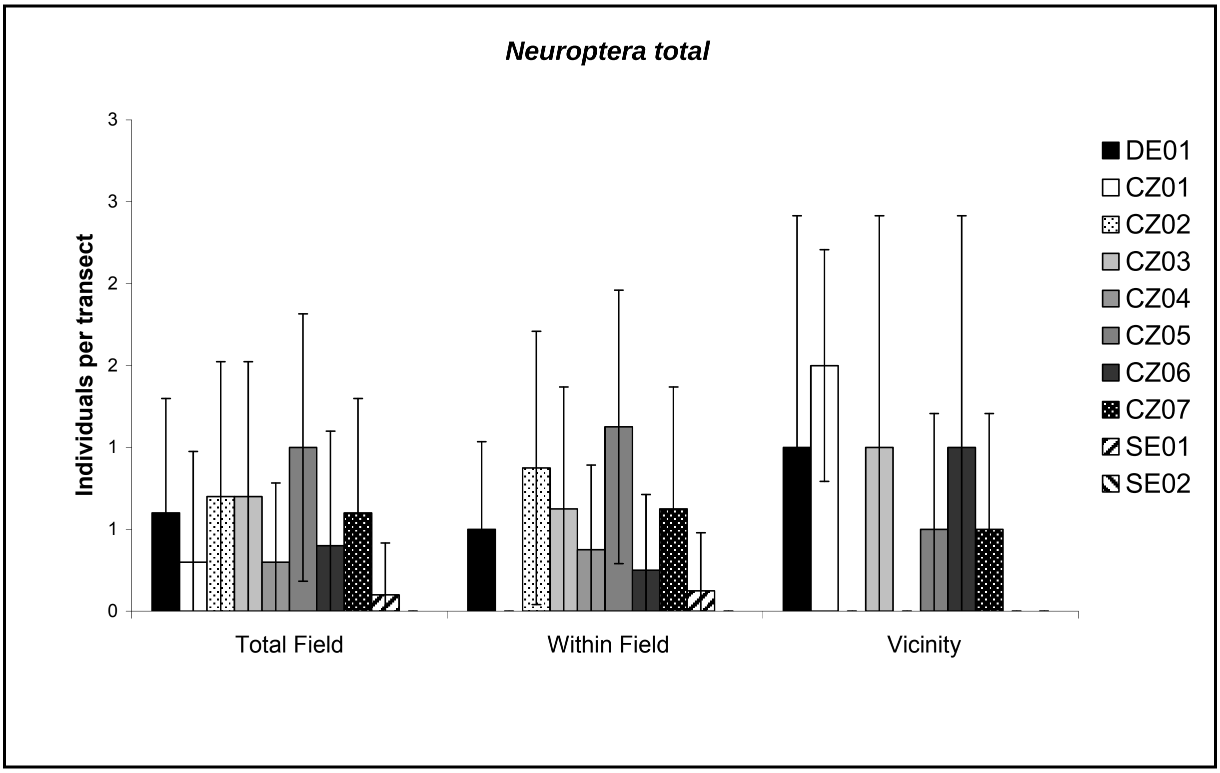


Figure 28: Mean abundance (±SD) of Neuroptera from suction within the study fields and in the vicinity in Germany (DE), the Czech Republic (CZ) and Sweden (SE)
Means over ten transects for 'Total Field' (n=10), eight transects for 'Within Field' (n=8) and two transects for 'Vicinity' (n=2). Ten plants were sampled per transect.

6.5 Additional arthropod data

6.5.1 Aphid abundances for Germany (Buetow)

The German 'Landesamt fuer Landwirtschaft, Lebensmittelsicherheit und Fischerei Mecklenburg-Vorpommern (Pflanzenschutzdienst)' composes an aphid bulletin for each calendar week (CW) of the year. In the bulletin for CW 28 (12-18 July 2010) data on the abundance of flying aphids were available for the day after the sampling in Zepkow (Bullentin no. 11-2010). Flying aphids were sampled on 15 July 2010 with yellow dishes in Bütow (region Mueritz), which is located approx. 6 km from Zepkow. With this method two aphid species were sampled: 0.5 individuals of the species *Aphis frangulae* per yellow dish and 21 individuals of the species *Brevicoryne brassicae* per yellow dish. Furthermore, 21 individuals of other aphid species were sampled per yellow dish. However, the species *Brevicoryne brassicae* is recorded as a pest in plants of the genus *Brassica* and did not feed on potatoes (Blackman and Eastop, 2000). The flying activity of aphids in Mecklenburg-West Pomerania during CW 28 was comparable lower in 2010 than in 2009 and comparable to the mean abundance of 1991-2009 (Figure 29).

Additional aphid data were provided by the 50-leave method (comparable to EPPO, 2005). With this method only one winged individual of *Aphis frangulae* and three other aphid individuals were counted in CW 28 of 2010 in a potato field in Buetow, which was not treated with insecticides. In total the number of potato aphids in Mecklenburg-West Pomerania in the season 2010 (up to CW 28) was five times lower (14.2 individuals per 50 leaves) compared with the mean number of aphids counted on 50 leaves in the last 19 years (approx. 75 individuals per 50 leaves; Figure 30).

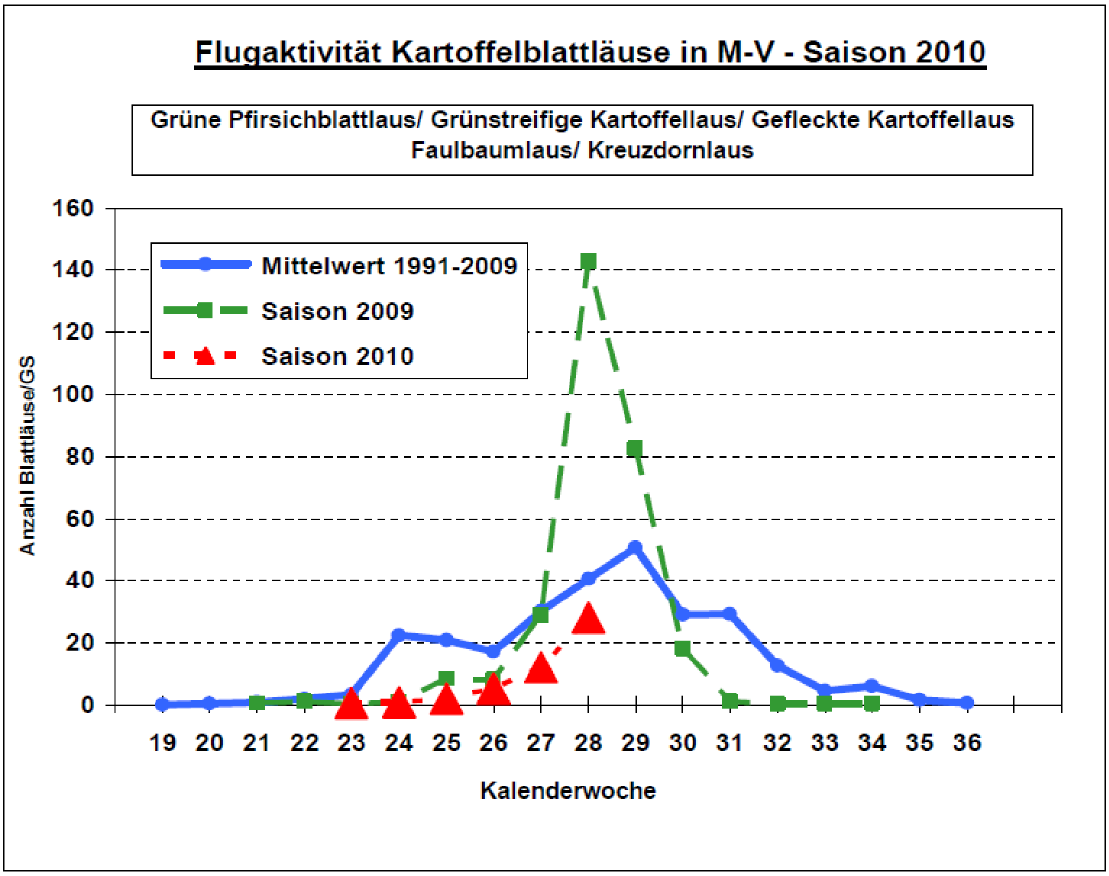


Figure 29: Abundance of flying aphids per yellow dish from 1991 to 2010 (CW 19-36)
Source: Aphid bullentin no. 11/2010 of the "Landesamt fuer Landwirtschaft, Lebensmittelsicherheit und Fischerei Mecklenburg-Vorpommern (Pflanzenschutzdienst)" in Germany

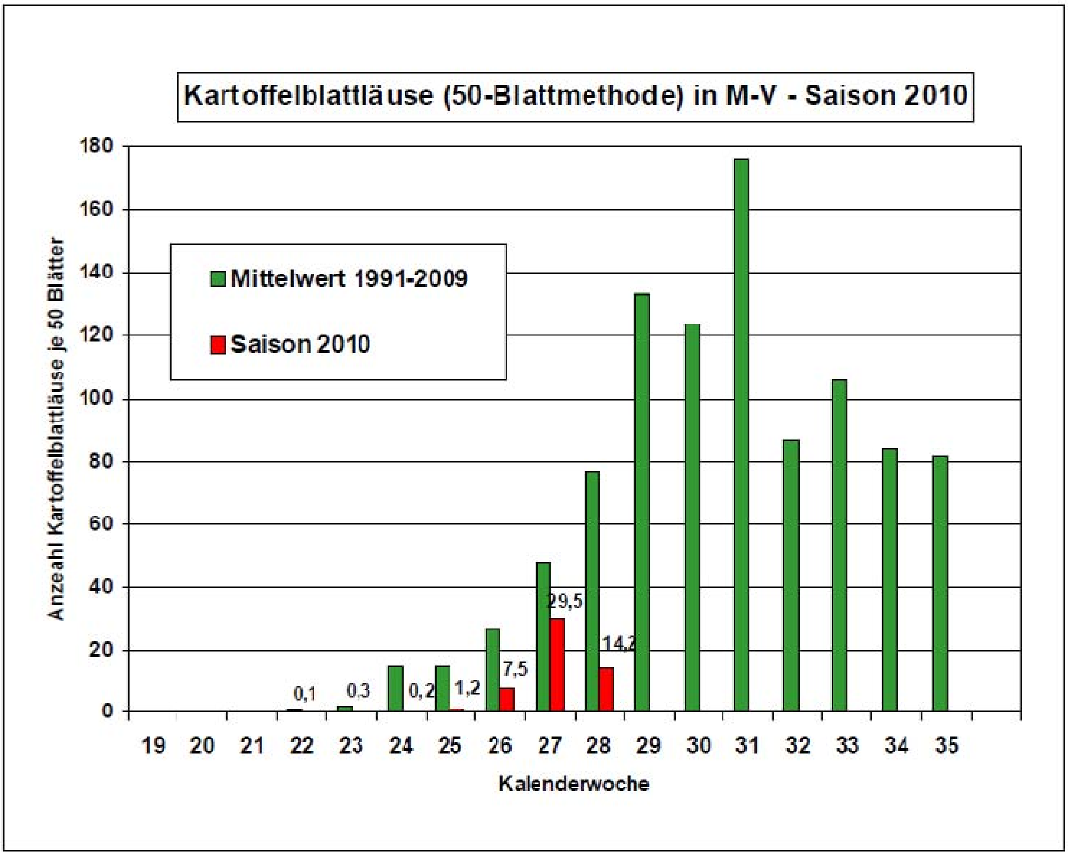


Figure 30: Abundance of aphids per 50 potato leaves from 1991 to 2010 (CW 19-35)
Source: Aphid bullentin no. 11/2010 of the “Landesamt fuer Landwirtschaft, Lebensmittelsicherheit und Fischerei Mecklenburg-Vorpommern (Pflanzenschutzdienst)“ in Germany

6.5.2 Aphid abundances for the Czech Republic (Lipa)

For the Czech Republic data on aphids were sampled in Lipa, which is located approx. 20 km from Nové Dvory and 60 km from Bohdalec. Compared with the last ten years (1999-2009) the mean number of aphids sampled in water traps was three times higher in CW 29 of 2010 (Figure 31). Additional samples were taken with Johnson-Taylor suction traps over 24 hours for the time period between 19 July and 25 July 2010 (Aphid Bulletin no. 17/2010 from the Czech Republic). In total 12 aphid species were sampled with this method (Table 2). However only three of the 12 species and the genus *Aphis* spp. belong to potato feeding aphid species (Blackman and Eastop, 2000).

Table 2: Abundance of aphid species sample with Johnson-Taylor suction traps in Lipa (Czech Republic)
Species names in bold letters are potato feeding aphids. Source: Aphid bullentin no. 17/2010 of the Czech Republic

Species	*Acyrthosiphon pisum*	***Aphis nasturii***	***Aphis spp.***	*Brachycaudus helichrysi*	*Brevicoryne brassicae*	*Hyalopterus pruni*	***Macrosiphum euphorbiae***	*Metopolophium dirhodum*	***Myzus persicae***	*Phorodon humuli*	*Rhopalosiphum padi*	*Sitobion avenae*
Number of individuals per trap	2	**4**	**6**	3	25	164	**1**	5	**12**	13	32	28

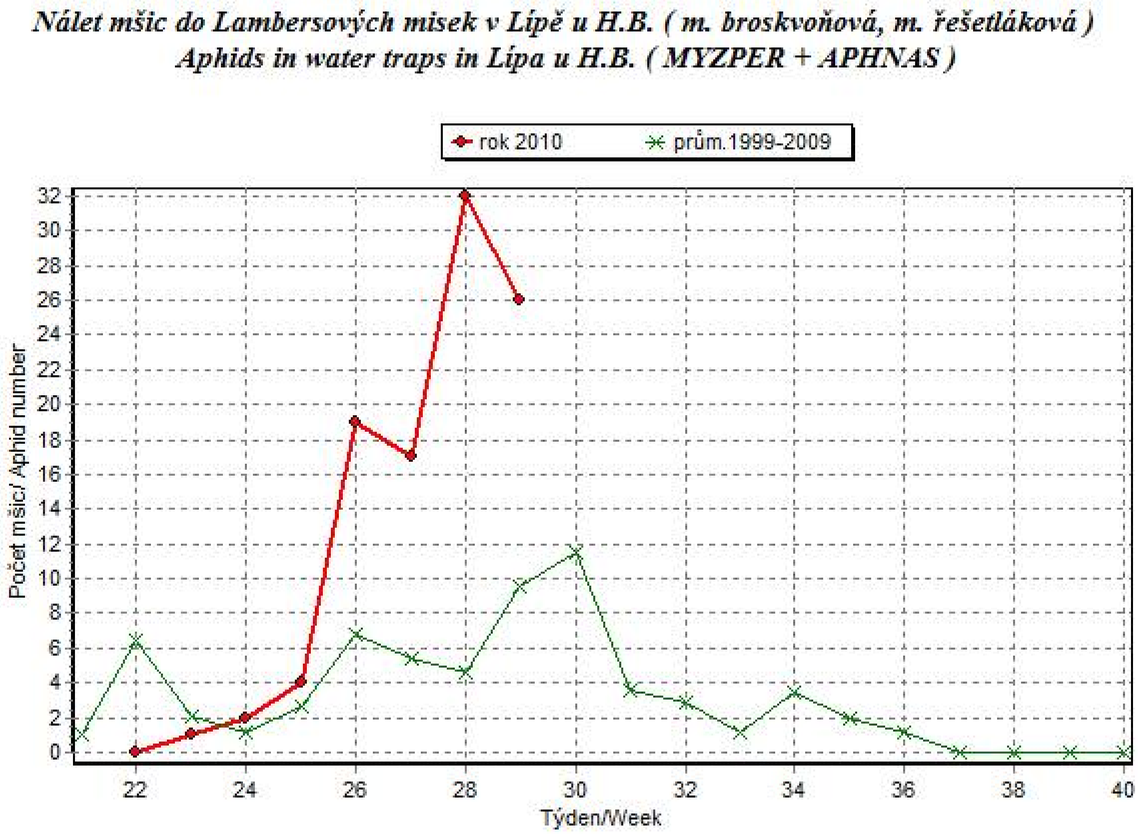


Figure 31: Abundance of aphids from water traps sampled in Lipa from 1999 to 2010 (CW 21-40)
Source: Aphid bullentin no. 17/2010 of the Czech Republic

6.6 Weather data

In Germany (Wittstock) the mean temperature during the first two weeks in July (01-14 July 2010) ranged between 16.4°C and 27.3°C. On the sampling day (14 July 2010) the mean temperature was 25.1°C. During the first two weeks of July total precipitation was 36.2 mm. Precipitation during that time ranged between 0.0 mm and 23.0 mm, with 0.3 mm on the sampling day.

Before sampling in the Czech Republic the weather in Pribyslav was very sunny in July, with unusual high temperatures (>30°C). In CW 29 (19-25 July 2010) the daily maximum temperature ranged between 20°C and 25°C, with only 5°C to 10°C in the morning. In the second part of the week it started to rain (15-30 mm). Mean temperature and total precipitation for July 2010 was 19.5 °C and 129.5 mm, respectively.

In Sweden the mean temperature in July was 18.3 °C, which was some degrees more than in the last years. Precipitation was also higher in July. During July it rained on 14 days in the region around Lidköping with total precipitation of 155 mm. The maximum, minimum and mean temperature on the sampling day (28 July 2010) was 20.1°C, 10.0°C and 15.8°C, respectively. On this day precipitation was recorded with 0.8 mm.

7 GENERAL DISCUSSION

Phytophagous arthropods were sampled by two different methods (hand sorting, suction sampling) at ten commercially cultivated Amflora fields fields in three different countries (one field in Germany, seven fields in the Czech Republic and two fields in Sweden). With the hand sorting method described by EPPO Standard PP 1/ 12 (3) '*Leptinotarsa decemlineata*' Colorado potato beetles could be sampled in very low abundances at only three study fields in the Czech Republic. In Germany and Sweden no Colorado potato beetles were found. In contrast, phytophagous beetles (Elateridae, Nitidulidae, Anthicidae, Chrysomelidae and Curculionidae) were successfully sampled by D-Vac suction at all study fields.

The sampling of potato aphids by D-Vac suction was also more successful than the sampling by hand sorting according to EPPO Standard PP 1/ 230 (1) 'Aphids on potatoes'. With the suction sampling method aphids were found at all study fields, whereas no aphids were found in Germany by hand sorting. Furthermore, the abundance of aphids sampled with the D-Vac suction sampler was ten times higher than by hand.

Other phytophagous arthropod groups (e.g. Thysanoptera, Miridae, Auchenorrhyncha, Collembola) were also sampled by D-Vac suction. The proportion of these phytophagous arthropods of total arthropods sampled by suction sampling was very high with approx. 70% (with exception of Sweden, where only 35% of sampled arthropods were phytophagous).

These results are an evidence for the adequacy of the D-Vac suction method for monitoring phytophagous arthropods in potato fields. In contrast to other sampling methods like yellow dishes D-Vac suction sampling catches not only the flying stages of insects, like winged aphids, but also the larval stages, which are also feeding on potato plants.

The low aphid abundances sampled during this study at the German study field support the data of the aphid bulletin of the German “Landesamt fuer Landwirtschaft, Lebensmittelsicherheit und Fischerei Mecklenburg-Vorpommern (Pflanzenschutzdienst)“ (No. 11-2010), which described a very low potato aphid activity in July 2010 compared to the last 19 years. In contrast, the number of aphids sampled at the study fields in the Czech Republic was very high. Furthermore, high amount of aphids were reported for Lipa (Czech Republic) sampled by Johnson-Taylor suction traps and water traps (Bulletin no. 17/2010 of the Czech Republic). However, most aphid species sampled by these methods did not feed on potatoes.

In this study phytophagous arthropods were sampled along transects within each field (n=8) and in the vicinity of each field (outer line of the field; n=2). As shown for the abundance of potato aphids no strong differences between transects within the field and in the vicinity of the field could be detected. This is may be caused by the very high variation in the abundances between the single transects of a field.

8 CONCLUSION

The current study provides field data on the abundances of phytophagous arthropods at ten Amflora fields in three different countries (Germany, Czech Republic and Sweden). The data provided the suitability of the methods (D-Vac suction sampling and hand sorting) used to sample phytophagous arthropods (e.g. potato aphids, Colorado potato beetles, Collembola, Heteroptera, Auchenorrhyncha, Chrysomelidae).

No strong differences were found between abundances of phytophagous arthropods sampled within the Amflora fields and in the vicinity of the Amflora fields. The abundance of phytophagpous arthropods in Amflora potato fields varied strongly between the fields in the different commercial potato cultivation areas in the Czech Republic, Germany and Sweden. The highest abundances were found at potato fields in the Czech Republic. The lowest number of individuals was mostly counted at the potato fields in Sweden.

9 REFERENCES

Blackman R. L. and Eastop, V. F. (2000): Aphids on the World's Crop – An Identification and Information Guide- 2nd Edition. John Wiley & Sons, LTD, England; pp 1-466.

Brook A. J., Woodcock B. A., Sinka M. and Vanbergen A.J. (2008): Experimental verification of suction sampler capture efficiency in grasslands of differing vegetation height and structure. Journal of Applied Ecology, 45; pp. 1357–1363.

Dubnik, H. (1991): Blattläuse – Artenbestimmung- Biologie- Bekämpfung. Mann, Gelsenkirchen-Buer, Germany.

EPPO (1999): EPPO Standard PP 1/12 (3) *Leptinotarsa decemlineata*. Biologische Bundesanstalt für Land- und Forstwirtschaft, Braunschweig, Germany.

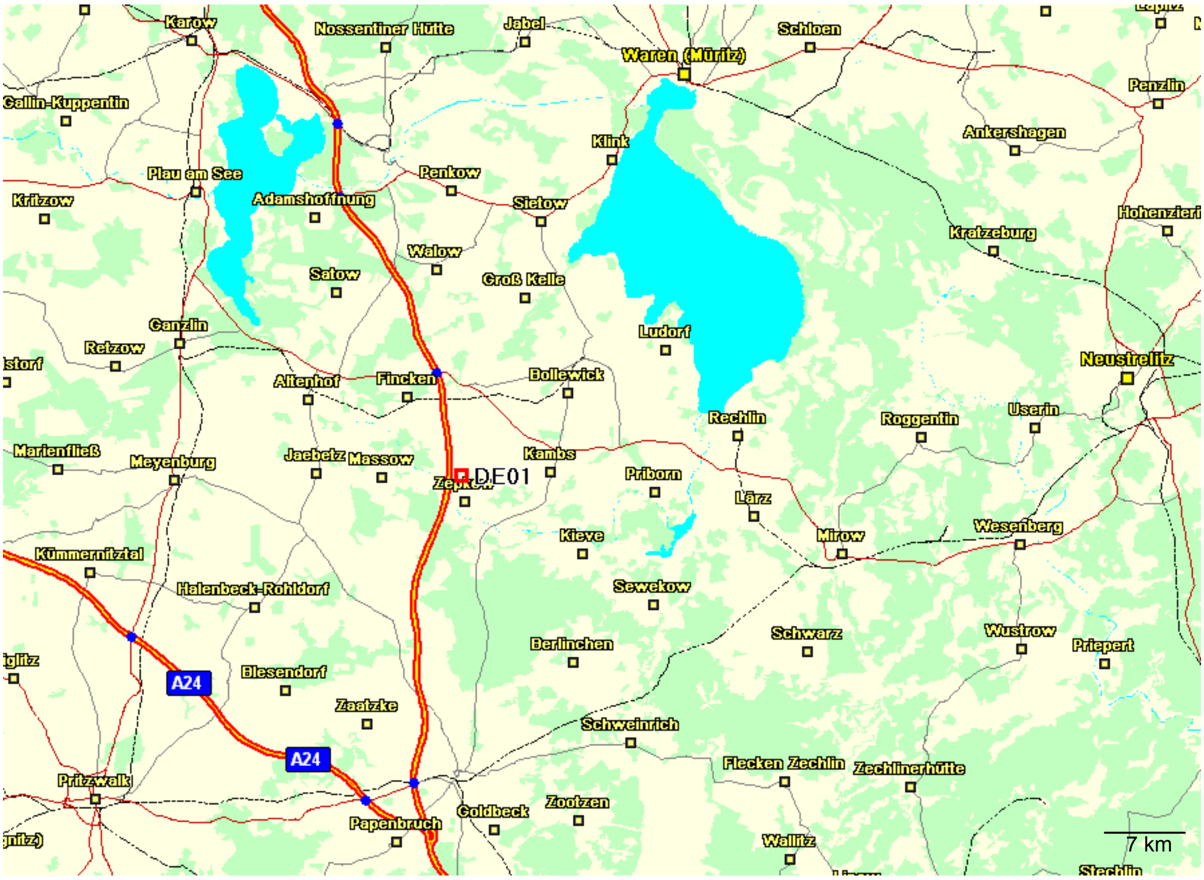
EPPO (2005): EPPO Standard PP 1/230 (1) Aphids on potatoes. Biologische Bundesanstalt für Land- und Forstwirtschaft, Braunschweig, Germany.

Koss A. M., Jensen A. S, Schreiber A., Pike K. S. and Snyder W. E. (2005): Comparison of Predator and Pest Communities in Washington Potato Fields Treated with Broad-Spectrum, Selective, or Organic Insecticides. Environmental Entomology, 34 (1); pp. 87-95.

Meier U. (2001): Entwicklungsstadien mono- und dikotyler Pflanzen. BBCH Monografie, 2. Auflage. Biologische Bundesanstalt für Land- und Forstwirtschaft.

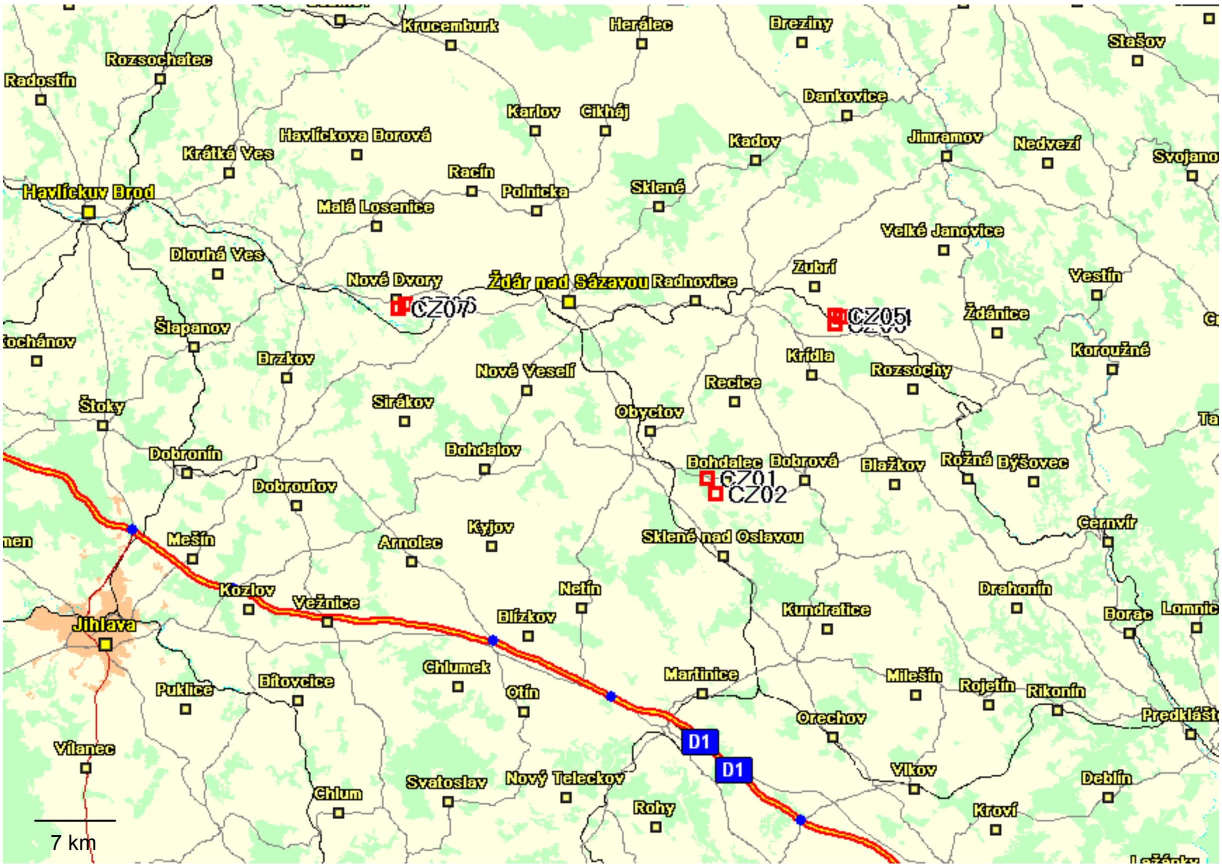
Völk, J. (1965):Die häufigsten an der Kartoffel vorkommenden Blattlausarten in farbiger Darstellung. Biologische Bundesanstalt für Land- und Forstwirtschaft, Merkblatt Nr. 14, Institut für landwirtschaftliche Virusforschung, Braunschweig, Germany.

10 APPENDICES



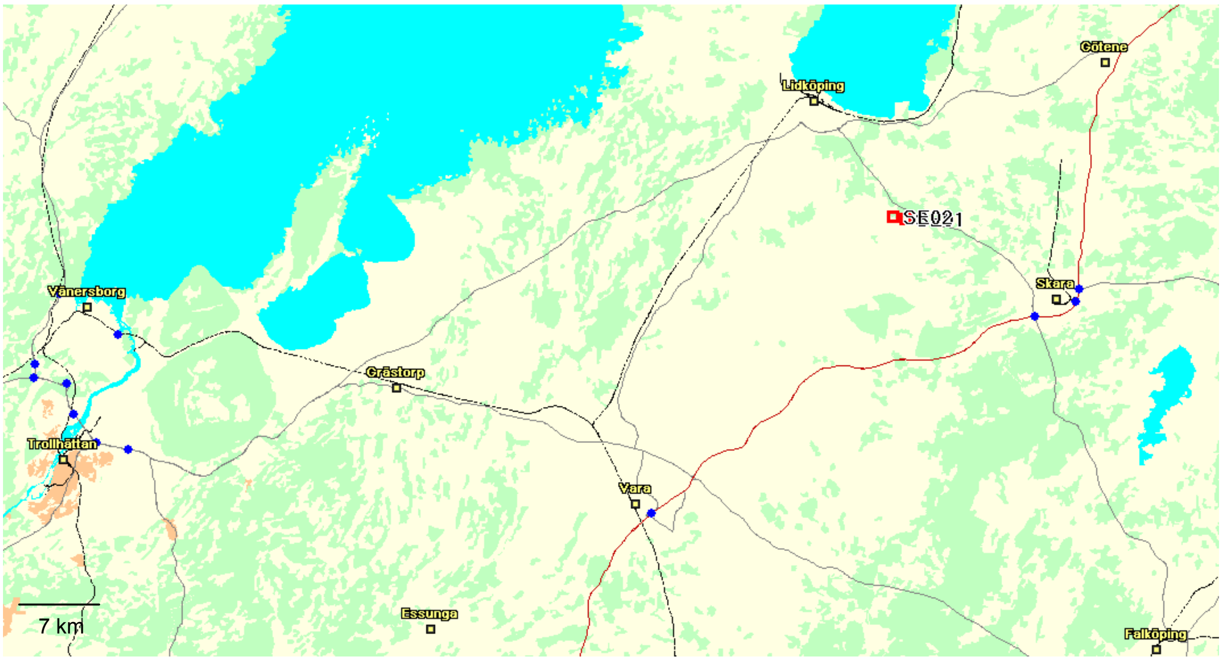
Appendix 1: Map of the region around Zepkow with the study field in Germany (DE01)
Source: Fugawi 3 (2004)

Appendix 2: Impression of the study field in Zepkow (Germany, DE01)



Appendix 3: Map of the region Žďár nad Sázavou with the seven study fields in the Cezch Republic (CZ01-07)
Source: Fugawi 3 (2004)

Appendix 4: Impression of one study field in the Cezch Republic



Appendix 5: Map of the region around Lidköping with the two study fields in Sweden (SE01-02)

Source: Fugawi 3 (2004)

Appendix 6: Impression of one study field in Sweden

Appendix 7: Suction sampling of phytophagous arthropods with a D-Vac suction sampler

Appendix 8: GPS coordinates (UTM 84; centre of each transect) of the transects of the study fields

Study field-transect code	GPS coordinates of the centre of the transect	Study field-transect code	GPS coordinates of the centre of the transect
DE01-01	N53 18 51.0 E12 29 16.9	CZ05-01	N49 33 21.7 E16 08 22.5
DE01-02	N53 18 49.6 E12 29 17.8	CZ05-02	N49 33 20.6 E16 08 21.2
DE01-03	N53 18 47.9 E12 29 18.8	CZ05-03	N49 33 19.5 E16 08 20.1
DE01-04	N53 18 46.3 E12 29 20.1	CZ05-04	N49 33 18.5 E16 08 18.9
DE01-05	N53 18 44.6 E12 29 21.0	CZ05-05	N49 33 17.3 E16 08 17.6
DE01-06	N53 18 43.2 E12 29 24.0	CZ05-06	N49 33 16.4 E16 08 16.5
DE01-07	N53 18 42.3 E12 29 25.7	CZ05-07	N49 33 15.4 E16 08 15.4
DE01-08	N53 18 41.6 E12 29 27.2	CZ05-08	N49 33 14.6 E16 08 14.6
DE01-09	N53 18 40.6 E12 29 28.9	CZ05-09	N49 33 13.7 E16 08 13.9
DE01-10	N53 18 52.5 E12 29 16.1	CZ05-10	N49 33 22.7 E16 08 23.3
CZ01-01	N49 28 34.5 E16 02 38.8	CZ06-01	N49 33 42.3 E15 48 59.8
CZ01-02	N49 28 34.0 E16 02 36.6	CZ06-02	N49 33 41.3 E15 48 58.9
CZ01-03	N49 28 33.4 E16 02 34.6	CZ06-03	N49 33 40.5 E15 48 58.0
CZ01-04	N49 28 33.1 E16 02 33.3	CZ06-04	N49 33 39.6 E15 48 57.0
CZ01-05	N49 28 32.8 E16 02 32.0	CZ06-05	N49 33 38.7 E15 48 56.0
CZ01-06	N49 28 32.5 E16 02 30.6	CZ06-06	N49 33 37.9 E15 48 55.0
CZ01-07	N49 28 32.2 E16 02 29.3	CZ06-07	N49 33 37.0 E15 48 54.0
CZ01-08	N49 28 31.2 E16 02 25.9	CZ06-08	N49 33 36.0 E15 48 53.0
CZ01-09	N49 28 29.5 E16 02 22.5	CZ06-09	N49 33 35.0 E15 48 52.8
CZ01-10	N49 28 35.2 E16 02 40.6	CZ06-10	N49 33 43.3 E15 49 00.6
CZ02-01	N49 28 08.4 E16 02 58.3	CZ07-01	N49 33 35.0 E15 48 42.2
CZ02-02	N49 28 06.7 E16 03 00.0	CZ07-02	N49 33 34.8 E15 48 43.0
CZ02-03	N49 28 05.2 E16 03 02.1	CZ07-03	N49 33 34.8 E15 48 44.2
CZ02-04	N49 28 03.4 E16 03 04.0	CZ07-04	N49 33 34.7 E15 48 45.3
CZ02-05	N49 28 01.7 E16 03 06.3	CZ07-05	N49 33 35.0 E15 48 46.3
CZ02-06	N49 28 00.0 E16 03 08.3	CZ07-06	N49 33 35.3 E15 48 47.2
CZ02-07	N49 27 58.3 E16 03 10.4	CZ07-07	N49 33 35.5 E15 48 48.1
CZ02-08	N49 27 56.3 E16 03 12.9	CZ07-08	N49 33 35.6 E15 48 49.1
CZ02-09	N49 27 54.2 E16 03 15.6	CZ07-09	N49 33 35.7 E15 48 50.0
CZ02-10	N49 28 09.9 E16 02 56.7	CZ07-10	N49 33 35.2 E15 48 41.2
CZ03-01	N49 33 06.1 E16 08 24.2	SE01-01	N58 26 01.5 E13 15 48.9
CZ03-02	N49 33 04.2 E16 08 23.8	SE01-02	N58 26 01.6 E13 15 46.9
CZ03-03	N49 33 02.3 E16 08 23.5	SE01-03	N58 26 01.3 E13 15 44.1
CZ03-04	N49 33 00.4 E16 08 23.4	SE01-04	N58 26 01.1 E13 15 42.1
CZ03-05	N49 32 58.4 E16 08 23.4	SE01-05	N58 26 00.8 E13 15 39.8
CZ03-06	N49 32 55.7 E16 08 23.4	SE01-06	N58 26 00.5 E13 15 36.8
CZ03-07	N49 32 53.7 E16 08 23.8	SE01-07	N58 26 00.4 E13 15 34.4
CZ03-08	N49 32 50.9 E16 08 25.2	SE01-08	N58 26 00.7 E13 15 32.4
CZ03-09	N49 32 48.1 E16 08 25.7	SE01-09	N58 26 00.9 E13 15 30.3
CZ03-10	N49 33 08.0 E16 08 24.5	SE01-10	N58 26 01.8 E13 15 51.7
CZ04-01	N49 33 19.2 E16 08 37.9	SE02-01	N58 26 06.1 E13 14 56.7
CZ04-02	N49 33 20.1 E16 08 38.9	SE02-02	N58 26 05.2 E13 14 57.4
CZ04-03	N49 33 21.0 E16 08 40.0	SE02-03	N58 26 04.3 E13 14 58.2
CZ04-04	N49 33 21.9 E16 08 41.0	SE02-04	N58 26 03.4 E13 14 59.0
CZ04-05	N49 33 22.8 E16 08 42.1	SE02-05	N58 26 02.6 E13 14 59.8
CZ04-06	N49 33 23.7 E16 08 43.0	SE02-06	N58 26 01.7 E13 15 00.6
CZ04-07	N49 33 24.7 E16 08 44.1	SE02-07	N58 26 00.8 E13 15 01.3
CZ04-08	N49 33 25.6 E16 08 45.0	SE02-08	N58 25 59.9 E13 15 02.0
CZ04-09	N49 33 27.7 E16 08 46.4	SE02-09	N58 25 58.9 E13 15 02.0
CZ04-10	N49 33 18.3 E16 08 36.5	SE02-10	N58 26 07.1 E13 14 55.9

Appendix 9: Abundance of Colorado potato beetles per transect at three of seven Amflora fields in the Czech Repuplic (Study field CZ01, CZ02 and CZ06)

Mean number of individuals of 10 potato plants per transect. Mean: n=10 transects, SD= Standard deviation.

Study Field	Develomental Stage	Sampling Transect										Mean	SD
		1	2	3	4	5	6	7	8	9*	10*		
CZ01	clutches	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	small larvae (≤7mm)	0	0	6	0	0	0	0	0	0	0	0.60	1.90
	big larvae (>7mm)	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total larvae	0	0	6	0	0	0	0	0	0	0	0.60	1.90
	adults	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	6	0	0	0	0	0	0	0	0.60	1.90
CZ02	clutches	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	small larvae (≤7mm)	0	0	0	0	0	0	0	0	16	0	1.60	5.06
	big larvae (>7mm)	0	0	0	0	0	0	0	0	9	0	0.90	2.85
	total larvae	0	0	0	0	0	0	0	0	25	0	2.50	7.91
	adults	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	0	0	0	25	0	2.50	7.91
CZ06	clutches	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	small larvae (≤7mm)	0	0	3	0	0	0	0	0	0	0	0.30	0.95
	big larvae (>7mm)	1	0	2	0	0	0	0	0	0	3	0.60	1.07
	total larvae	1	0	5	0	0	0	0	0	0	3	0.90	1.73
	adults	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	1	0	5	0	0	0	0	0	0	3	0.90	1.73

* sample was taken at the study field margin (=vicinity)

Appendix 10: Abundance of aphid species per transect at the first Amflora field in the Czech Republic (Study field CZ01)

Number of individuals of 30 leaves taken from 30 plants per transect. Mean: n=10 transects, SD= Standard deviation.

Species	Stage	Sampling Transect 1	2	3	4	5	6	7	8	9*	10*	Mean	SD
Aulacorthoum solani	adult wingless	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aphis fabae	adult wingless	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aphis frangulae	adult wingless	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aphis nasturii	adult wingless	0	1	0	0	0	0	0	0	0	0	0.10	0.32
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	2	0	0	1	0	0	0	0	0	0.30	0.67
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	3	0	0	1	0	0	0	0	0	0.40	0.97
Macrosiphum euphorbiae	adult wingless	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Myzus persicae	adult wingless	0	0	0	1	0	0	0	0	0	0	0.10	0.32
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	1	0	0	0	0	0	0	0.10	0.32
	total	0	0	0	2	0	0	0	0	0	0	0.20	0.63
Total Aphids	adult wingless	0	1	0	1	0	0	0	0	0	0	0.20	0.42
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	2	0	0	1	0	0	0	0	0	0.30	0.67
	mummy	0	0	0	1	0	0	0	0	0	0	0.10	0.32
	total	0	3	0	2	1	0	0	0	0	0	0.60	1.07

* sample was taken at the study field margin (=vicinity)

Appendix 11: Abundance of aphid species per transect at the second Amflora field in the Czech Republic (Study field CZ02)

Number of individuals of 30 leaves taken from 30 plants per transect. Mean: n=10 transects, SD= Standard deviation.

Species	Stage	Sampling Transect										Mean	SD
		1	2	3	4	5	6	7	8	9*	10*		
Aulacorthoum solani	adult wingless	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aphis fabae	adult wingless	0	1	0	1	2	0	0	1	0	0	0.50	0.71
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	2	0	0	0	0	0	0.20	0.63
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	1	0	1	4	0	0	1	0	0	0.70	1.25
Aphis frangulae	adult wingless	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aphis nasturii	adult wingless	0	0	2	0	0	0	1	0	0	0	0.30	0.67
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	1	1	0	0	0	0	0	2	0	0	0.40	0.70
	mummy	0	0	0	0	0	0	0	1	0	0	0.10	0.32
	total	1	1	2	0	0	0	1	3	0	0	0.80	1.03
Macrosiphum euphorbiae	adult wingless	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Myzus persicae	adult wingless	1	0	0	1	1	0	0	0	0	0	0.30	0.48
	adult winged	2	1	0	1	0	0	0	0	0	0	0.40	0.70
	juvenil	0	0	0	0	0	2	0	0	0	0	0.20	0.63
	mummy	1	0	0	0	0	0	0	0	0	0	0.10	0.32
	total	4	1	0	2	1	2	0	0	0	0	1.00	1.33
Total Aphids	adult wingless	1	1	2	2	3	0	1	1	0	0	1.10	0.99
	adult winged	2	1	0	1	0	0	0	0	0	0	0.40	0.70
	juvenil	1	1	0	0	2	2	0	2	0	0	0.80	0.92
	mummy	1	0	0	0	0	0	0	1	0	0	0.20	0.42
	total	5	3	2	3	5	2	1	4	0	0	2.50	1.84

* sample was taken at the study field margin (=vicinity)

Appendix 12: Abundance of aphid species per transect at the third Amflora field in the Czech Republic (Study field CZ03)

Number of individuals of 30 leaves taken from 30 plants per transect. Mean: n=10 transects, SD= Standard deviation.

Species	Stage	Sampling Transect										Mean	SD
		1	2	3	4	5	6	7	8	9*	10*		
Aulacorthoum solani	adult wingless	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aphis fabae	adult wingless	1	0	0	0	0	1	0	0	0	0	0.20	0.42
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	1	0	0	0	0	1	0	0	0	0	0.20	0.42
Aphis frangulae	adult wingless	0	0	0	0	0	0	0	1	1	0	0.20	0.42
	adult winged	1	0	0	0	0	0	0	0	1	0	0.20	0.42
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	1	0	0	0	0	0	0	1	2	0	0.40	0.70
Aphis nasturii	adult wingless	1	1	0	2	0	0	3	2	2	0	1.10	1.10
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	2	2	0	4	1	1	2	1.20	1.32
	mummy	0	1	0	0	0	0	0	0	0	0	0.10	0.32
	total	1	2	0	4	2	0	7	3	3	2	2.40	2.07
Macrosiphum euphorbiae	adult wingless	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Myzus persicae	adult wingless	0	0	1	0	0	0	1	3	0	0	0.50	0.97
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	1	0	0	0	0.10	0.32
	mummy	0	0	0	0	4	0	1	0	0	0	0.50	1.27
	total	0	0	1	0	4	0	3	3	0	0	1.10	1.60
Total Aphids	adult wingless	2	1	1	2	0	1	4	6	3	0	2.00	1.89
	adult winged	1	0	0	0	0	0	0	0	1	0	0.20	0.42
	juvenil	0	0	0	2	2	0	5	1	1	2	1.30	1.57
	mummy	0	1	0	0	4	0	1	0	0	0	0.60	1.26
	total	3	2	1	4	6	1	10	7	5	2	4.10	2.92

* sample was taken from the study field margin (=vicinity)

Appendix 13: Abundance of aphid species per transect at the fourth Amflora field in the Czech Republic (Study field CZ04)

Number of individuals of 30 leaves taken from 30 plants per transect. Mean: n=10 transects, SD= Standard deviation.

Species	Stage	Sampling Transect 1	2	3	4	5	6	7	8	9*	10*	Mean	SD
Aulacorthoum solani	adult wingless	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aphis fabae	adult wingless	0	0	0	0	0	2	0	0	0	0	0.20	0.63
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	2	0	0	0	0	0.20	0.63
Aphis frangulae	adult wingless	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	adult winged	0	0	0	0	0	1	0	0	0	0	0.10	0.32
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	1	0	0	0	0	0	0	0	0	0	0.10	0.32
	total	1	0	0	0	0	1	0	0	0	0	0.20	0.42
Aphis nasturii	adult wingless	0	0	0	1	2	0	0	1	2	2	0.80	0.92
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	2	0	0	0	0	0	1	0	2	0.50	0.85
	mummy	0	0	0	0	0	0	0	0	1	0	0.10	0.32
	total	0	2	0	1	2	0	0	2	3	4	1.40	1.43
Macrosiphum euphorbiae	adult wingless	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	1	0.10	0.32
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	0	0	0	0	1	0.10	0.32
Myzus persicae	adult wingless	0	0	0	0	0	0	0	0	1	0	0.10	0.32
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	1	0	0	0	0.10	0.32
	mummy	0	1	0	0	1	1	0	1	0	0	0.40	0.52
	total	0	1	0	0	1	1	1	1	1	0	0.60	0.52
Total Aphids	adult wingless	0	0	0	1	2	2	0	1	3	2	1.10	1.10
	adult winged	0	0	0	0	0	1	0	0	0	0	0.10	0.32
	juvenil	0	2	0	0	0	0	1	1	0	3	0.70	1.06
	mummy	1	1	0	0	1	1	0	1	1	0	0.60	0.52
	total	1	3	0	1	3	4	1	3	4	5	2.50	1.65

* sample was taken from the study field margin (=vicinity)

Appendix 14: Abundance of aphid species per transect at the fifth Amflora field in the Czech Republic (Study field CZ05)

Number of individuals of 30 leaves taken from 30 plants per transect. Mean: n=10 transects, SD= Standard deviation.

Species	Stage	Sampling Transect										Mean	SD
		1	2	3	4	5	6	7	8	9*	10*		
Aulacorthoum solani	adult wingless	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aphis fabae	adult wingless	0	0	0	1	0	0	0	0	0	1	0.20	0.42
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	1	0	0	0	0	0	1	0.20	0.42
Aphis frangulae	adult wingless	1	0	0	0	0	0	0	0	0	3	0.40	0.97
	adult winged	1	0	0	0	0	0	0	0	0	0	0.10	0.32
	juvenil	0	0	0	0	0	0	0	0	0	4	0.40	1.26
	mummy	0	0	0	0	0	0	0	0	0	1	0.10	0.32
	total	2	0	0	0	0	0	0	0	0	8	1.00	2.54
Aphis nasturii	adult wingless	1	4	2	2	5	2	2	0	1	0	1.90	1.60
	adult winged	0	0	0	0	0	0	2	0	0	0	0.20	0.63
	juvenil	1	1	2	5	7	0	0	0	1	0	1.70	2.41
	mummy	0	0	0	0	0	0	3	0	0	0	0.30	0.95
	total	2	5	4	7	12	2	7	0	2	0	4.10	3.75
Macrosiphum euphorbiae	adult wingless	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	adult winged	0	0	0	0	0	1	0	0	0	0	0.10	0.32
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	1	0	0	0	0	0.10	0.32
Myzus persicae	adult wingless	2	3	0	0	2	2	0	2	0	0	1.10	1.20
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	1	0	0	0	0	0	0	0	0	0.10	0.32
	mummy	1	0	0	0	1	0	1	0	0	0	0.30	0.48
	total	3	4	0	0	3	2	1	2	0	0	1.50	1.51
Total Aphids	adult wingless	4	7	2	3	7	4	2	2	1	4	3.60	2.07
	adult winged	1	0	0	0	0	1	2	0	0	0	0.40	0.70
	juvenil	1	2	2	5	7	0	0	0	1	4	2.20	2.39
	mummy	1	0	0	0	1	0	4	0	0	1	0.70	1.25
	total	7	9	4	8	15	5	8	2	2	9	6.90	3.90

* sample was taken from the study field margin (=vicinity)

Appendix 15: Abundance of aphid species per transect at the sixth Amflora field in the Czech Republic (Study field CZ06)

Number of individuals of 30 leaves taken from 30 plants per transect. Mean: n=10 transects, SD= Standard deviation.

Species	Stage	Sampling Transect 1	2	3	4	5	6	7	8	9*	10*	Mean	SD
Aulacorthoum solani	adult wingless	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aphis fabae	adult wingless	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aphis frangulae	adult wingless	0	0	0	0	0	0	1	0	0	0	0.10	0.32
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	0	1	0	0	0	0.10	0.32
Aphis nasturii	adult wingless	0	0	8	1	2	3	0	3	4	1	2.20	2.49
	adult winged	0	0	0	0	0	0	1	0	0	0	0.10	0.32
	juvenil	2	0	1	2	0	1	0	0	3	2	1.10	1.10
	mummy	0	0	1	0	0	0	0	0	1	0	0.20	0.42
	total	2	0	10	3	2	4	1	3	8	3	3.60	3.10
Macrosiphum euphorbiae	adult wingless	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Myzus persicae	adult wingless	0	0	0	0	0	1	1	1	0	1	0.40	0.52
	adult winged	1	0	0	0	0	0	0	0	0	0	0.10	0.32
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	1	0	0	0	0	0	0	0	1	0	0.20	0.42
	total	2	0	0	0	0	1	1	1	1	1	0.70	0.67
Total Aphids	adult wingless	0	0	8	1	2	4	2	4	4	2	2.70	2.41
	adult winged	1	0	0	0	0	0	1	0	0	0	0.20	0.42
	juvenil	2	0	1	2	0	1	0	0	3	2	1.10	1.10
	mummy	1	0	1	0	0	0	0	0	2	0	0.40	0.70
	total	4	0	10	3	2	5	3	4	9	4	4.40	3.03

* sample was taken from the study field margin (=vicinity)

Appendix 16: Abundance of aphid species per transect at the seventh Amflora field in the Czech Republic (Study field CZ07)

Number of individuals of 30 leaves taken from 30 plants per transect. Mean: n=10 transects, SD= Standard deviation.

Species	Stage	Sampling Transect										Mean	SD
		1	2	3	4	5	6	7	8	9*	10*		
Aulacorthoum solani	adult wingless	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aphis fabae	adult wingless	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aphis frangulae	adult wingless	0	0	0	0	0	1	0	0	0	0	0.10	0.32
	adult winged	0	0	0	0	0	0	0	1	0	0	0.10	0.32
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	1	0	1	0	0	0.20	0.42
Aphis nasturii	adult wingless	0	1	2	7	6	3	3	2	3	1	2.80	2.20
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	3	1	0	0	4	0	0.80	1.48
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	1	2	7	9	4	3	2	7	1	3.60	3.06
Macrosiphum euphorbiae	adult wingless	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Myzus persicae	adult wingless	0	0	1	0	0	0	0	1	2	0	0.40	0.70
	adult winged	0	0	0	0	1	0	0	0	0	0	0.10	0.32
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	1	0	1	0	0	0	0.20	0.42
	total	0	0	1	0	2	0	1	1	2	0	0.70	0.82
Total Aphids	adult wingless	0	1	3	7	6	4	3	3	5	1	3.30	2.26
	adult winged	0	0	0	0	1	0	0	1	0	0	0.20	0.42
	juvenil	0	0	0	0	3	1	0	0	4	0	0.80	1.48
	mummy	0	0	0	0	1	0	1	0	0	0	0.20	0.42
	total	0	1	3	7	11	5	4	4	9	1	4.50	3.60

* sample was taken from the study field margin (=vicinity)

Appendix 17: Abundance of aphid species per transect at the first Amflora field in Sweden (Study field SE01)

Number of individuals of 30 leaves taken from 30 plants per transect. Mean: n=10 transects, SD= Standard deviation.

Species	Stage	Sampling Transect										Mean	SD
		1	2	3	4	5	6	7	8	9*	10*		
Aulacorthoum solani	adult wingless	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aphis fabae	adult wingless	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aphis frangulae	adult wingless	0	0	0	0	0	0	0	1	0	0	0.10	0.32
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	0	0	1	0	0	0.10	0.32
Aphis nasturii	adult wingless	0	0	4	1	3	0	3	4	1	0	1.60	1.71
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	2	0	2	0	11	5	1	0	2.10	3.51
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	6	1	5	0	14	9	2	0	3.70	4.79
Macrosiphum euphorbiae	adult wingless	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Myzus persicae	adult wingless	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total Aphids	adult wingless	0	0	4	1	3	0	3	5	1	0	1.70	1.89
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	2	0	2	0	11	5	1	0	2.10	3.51
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	6	1	5	0	14	10	2	0	3.80	4.92

* sample was taken from the field margin (=vicinity)

Appendix 18: Abundance of aphid species per transect at the second Amflora field in Sweden (Study field SE02)

Number of individuals of 30 leaves taken from 30 plants per transect. Mean: n=10 transects, SD= Standard deviation.

Species	Stage	Sampling Transect										Mean	SD
		1	2	3	4	5	6	7	8	9*	10*		
Aulacorthoum solani	adult wingless	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aphis fabae	adult wingless	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aphis frangulae	adult wingless	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aphis nasturii	adult wingless	0	0	1	3	0	0	0	0	0	3	0.70	1.25
	adult winged	0	0	0	0	0	0	0	0	0	1	0.10	0.32
	juvenil	0	0	0	19	0	0	0	0	0	12	3.10	6.74
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	1	22	0	0	0	0	0	16	3.90	8.09
Macrosiphum euphorbiae	adult wingless	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Myzus persicae	adult wingless	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	adult winged	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total Aphids	adult wingless	0	0	1	3	0	0	0	0	0	3	0.70	1.25
	adult winged	0	0	0	0	0	0	0	0	0	1	0.10	0.32
	juvenil	0	0	0	19	0	0	0	0	0	12	3.10	6.74
	mummy	0	0	0	0	0	0	0	0	0	0	0.00	0.00
	total	0	0	1	22	0	0	0	0	0	16	3.90	8.09

* sample was taken from the study field margin (=vicinity)

Appendix 19: Abundance of arthropods (suction sampling) per transect at the Amflora field in Germany (Study field DE01)

Number of individuals sampled by sucking from 10 plants per transect. Mean: n=10 transects, SD= Standard deviation. In grey phytophagous taxa.

Taxa	Sampling Transect										Mean	SD
	1	2	3	4	5	6	7	8	9*	10*		
Araneae	1	5	3	2	0	4	10	1	10	12	**4.80**	**4.34**
Opiliones	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Acari	1	0	1	0	0	0	0	1	0	0	**0.30**	**0.48**
Collembola	0	0	0	0	0	1	0	0	0	0	**0.10**	**0.32**
Thysanoptera	22	64	40	14	12	1	175	61	251	16	**65.60**	**82.39**
Heteroptera (other)	1	3	0	0	0	0	5	3	6	1	**1.90**	**2.23**
Reduviidae (Heteroptera)	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Miridae (Heteroptera)	0	0	0	0	1	0	0	0	42	0	**4.30**	**13.25**
Auchenorrhyncha	0	0	1	4	0	2	1	2	1	0	**1.10**	**1.29**
Psyllina	0	0	0	0	0	0	1	0	0	1	**0.20**	**0.42**
Saltatoria	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Aphididae	6	2	3	6	2	1	3	0	14	12	**4.90**	**4.70**
Hymenoptera (without Formicidae)	4	8	15	8	4	2	8	4	28	8	**8.90**	**7.64**
Hymenoptera juvenil	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Formicidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Neuroptera adult	0	0	1	0	0	0	1	0	0	0	**0.20**	**0.42**
Neuroptera juvenil	0	1	0	1	0	0	0	0	2	0	**0.40**	**0.70**
Neuroptera total	0	1	1	1	0	0	1	0	2	0	**0.60**	**0.70**
Lepidoptera adult	1	1	6	2	1	0	12	2	2	1	**2.80**	**3.61**
Lepidoptera juv.	0	0	0	0	0	0	4	0	5	0	**0.90**	**1.91**
Diptera adult	11	10	20	2	3	6	23	10	37	14	**13.60**	**10.62**
Diptera juvenil	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Coleoptera (other)	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Carabidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Staphylinidae	1	0	0	0	0	0	0	1	0	0	**0.20**	**0.42**
Cantharidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Elateridae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Nitidulidae	4	0	0	0	0	0	0	2	7	4	**1.70**	**2.50**
Coccinellidae ad.	0	0	0	0	0	0	0	0	9	1	**1.00**	**2.83**
Coccinellidae juv.	0	0	0	0	0	0	0	0	1	0	**0.10**	**0.32**
Coccinellidae total	0	0	0	0	0	0	0	0	10	1	**1.10**	**3.14**
Anthicidae	0	0	0	1	1	0	0	0	0	0	**0.20**	**0.42**
Chrysomelidae	1	1	6	1	0	0	8	1	0	1	**1.90**	**2.77**
Curculinonidae	1	0	0	0	0	0	1	0	2	4	**0.80**	**1.32**
Total	**54**	**95**	**96**	**41**	**24**	**17**	**252**	**88**	**417**	**75**	**115.90**	**124.78**
Total Phytophagous	**36**	**71**	**56**	**28**	**17**	**5**	**210**	**71**	**330**	**40**	**86.40**	**103.04**
Other Arthropods	**18**	**24**	**40**	**13**	**7**	**12**	**42**	**17**	**87**	**35**	**29.50**	**23.59**
[%] Phytophagous	**66.7**	**74.7**	**58.3**	**68.3**	**70.8**	**29.4**	**83.3**	**80.7**	**79.1**	**53.3**	**74.5**	**-**

* sample was taken from the study field margin (=vicinity)

Appendix 20: Abundance of arthropods (suction sampling) per transect at the first Amflora field in the Czech Republic (Study field CZ01)

Number of individuals sampled by sucking from 10 plants per transect. Mean: n=10 transects, SD= Standard deviation. In grey phytophagous taxa.

Taxa	Sampling Transect										Mean	SD
	1	2	3	4	5	6	7	8	9*	10*		
Araneae	5	2	5	3	6	4	5	4	10	9	**5.30**	**2.50**
Opiliones	0	0	0	0	0	0	0	0	1	0	**0.10**	**0.32**
Acari	5	0	0	1	0	1	0	0	0	1	**0.80**	**1.55**
Collembola	0	0	0	0	0	0	0	0	1	0	**0.10**	**0.32**
Thysanoptera	31	106	34	45	18	18	33	13	106	77	**48.10**	**35.45**
Heteroptera (other)	0	1	0	0	0	1	3	0	2	10	**1.70**	**3.09**
Reduviidae (Heteroptera)	0	0	0	0	0	0	0	0	0	1	**0.10**	**0.32**
Miridae (Heteroptera)	4	6	18	10	6	9	0	4	0	17	**7.40**	**6.24**
Auchenorrhyncha	10	0	5	6	1	2	12	1	6	13	**5.60**	**4.74**
Psyllina	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Saltatoria	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Aphididae	11	11	15	16	7	4	9	8	14	68	**16.30**	**18.55**
Hymenoptera (without Formicidae)	16	21	11	18	6	7	7	6	10	28	**13.00**	**7.50**
Hymenoptera juvenil	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Formicidae	0	0	0	0	0	0	0	0	0	4	**0.40**	**1.26**
Neuroptera adult	0	0	0	0	0	0	0	0	1	0	**0.10**	**0.32**
Neuroptera juvenil	0	0	0	0	0	0	0	0	1	1	**0.20**	**0.42**
Neuroptera total	0	0	0	0	0	0	0	0	2	1	**0.30**	**0.67**
Lepidoptera adult	0	0	3	1	0	0	1	0	0	1	**0.60**	**0.97**
Lepidoptera juv.	1	0	1	0	0	0	0	0	0	0	**0.20**	**0.42**
Diptera adult	15	24	20	11	8	5	14	1	14	19	**13.10**	**7.06**
Diptera juvenil	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Coleoptera (other)	1	0	0	0	0	0	0	0	0	1	**0.20**	**0.42**
Carabidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Staphylinidae	0	1	0	1	0	0	0	0	0	1	**0.30**	**0.48**
Cantharidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Elateridae	1	0	0	0	0	0	0	0	0	0	**0.10**	**0.32**
Nitidulidae	0	0	0	0	0	0	1	0	0	0	**0.10**	**0.32**
Coccinellidae ad.	0	0	1	1	0	0	1	0	0	4	**0.70**	**1.25**
Coccinellidae juv.	1	0	2	1	1	1	0	0	1	0	**0.70**	**0.67**
Coccinellidae total	1	0	3	2	1	1	1	0	1	4	**1.40**	**1.26**
Anthicidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Chrysomelidae	0	0	0	0	0	0	0	0	1	0	**0.10**	**0.32**
Curculinonidae	0	0	0	0	0	0	0	0	0	1	**0.10**	**0.32**
Total	**101**	**172**	**115**	**114**	**53**	**52**	**86**	**37**	**168**	**256**	**115.40**	**67.39**
Total Phytophagous	**58**	**124**	**76**	**78**	**32**	**34**	**59**	**26**	**130**	**187**	**80.40**	**51.82**
Other Arthropods	**43**	**48**	**39**	**36**	**21**	**18**	**27**	**11**	**38**	**69**	**35.00**	**16.80**
[%] Phytophagous	57.4	72.1	66.1	68.4	60.4	65.4	68.6	70.3	77.4	73.0	**69.7**	**-**

* sample was taken from the study field margin (=vicinity)

Appendix 21: Abundance of arthropods (suction sampling) per transect at the second Amflora field in the Czech Republic (Study field CZ02)

Number of individuals sampled by sucking from 10 plants per transect. Mean: n=10 transects, SD= Standard deviation. In grey phytophagous taxa.

Taxa	Sampling Transect										Mean	SD
	1	2	3	4	5	6	7	8	9*	10*		
Araneae	5	3	3	10	13	1	11	7	8	8	6.90	3.87
Opiliones	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Acari	0	1	0	0	0	0	0	0	0	1	0.20	0.42
Collembola	0	0	1	1	1	0	0	1	0	0	0.40	0.52
Thysanoptera	10	10	14	11	39	27	24	30	19	3	18.70	11.14
Heteroptera (other)	0	2	0	3	2	1	1	8	0	9	2.60	3.27
Reduviidae (Heteroptera)	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Miridae (Heteroptera)	2	3	6	1	4	8	0	6	10	0	4.00	3.43
Auchenorrhyncha	4	3	0	5	1	3	1	3	5	41	6.60	12.20
Psyllina	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Saltatoria	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aphididae	19	8	23	10	29	28	20	7	28	13	18.50	8.55
Hymenoptera (without Formicidae)	9	13	6	6	7	7	9	3	10	5	7.50	2.84
Hymenoptera juvenil	0	0	0	0	1	0	0	0	0	0	0.10	0.32
Formicidae	0	0	0	0	0	1	0	0	0	0	0.10	0.32
Neuroptera adult	0	0	0	0	0	1	0	0	0	0	0.10	0.32
Neuroptera juvenil	1	2	0	1	0	1	0	1	0	0	0.60	0.70
Neuroptera total	1	2	0	1	0	2	0	1	0	0	0.70	0.82
Lepidoptera adult	0	0	0	1	1	0	1	0	0	1	0.40	0.52
Lepidoptera juv.	0	0	0	0	0	0	0	1	0	0	0.10	0.32
Diptera adult	4	4	4	4	7	5	2	10	22	13	7.50	6.08
Diptera juvenil	0	1	0	0	0	0	1	0	0	0	0.20	0.42
Coleoptera (other)	0	0	0	0	0	0	1	0	1	0	0.20	0.42
Carabidae	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Staphylinidae	0	0	0	0	1	1	0	0	0	0	0.20	0.42
Cantharidae	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Elateridae	1	0	0	0	0	0	0	2	1	0	0.40	0.70
Nitidulidae	0	0	0	0	0	0	0	0	1	0	0.10	0.32
Coccinellidae ad.	0	0	0	0	0	0	0	2	0	0	0.20	0.63
Coccinellidae juv.	1	0	0	0	0	0	0	0	0	3	0.40	0.97
Coccinellidae total	1	0	0	0	0	0	0	2	0	3	0.60	1.07
Anthicidae	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Chrysomelidae	0	0	0	0	0	0	0	0	1	1	0.20	0.42
Curculinonidae	0	0	0	0	1	1	0	0	9	0	1.10	2.81
Total	**56**	**50**	**57**	**53**	**107**	**85**	**71**	**81**	**115**	**98**	**77.30**	**23.68**
Total Phytophagous	**36**	**26**	**44**	**32**	**78**	**68**	**47**	**58**	**74**	**68**	**53.10**	**18.61**
Other Arthropods	**20**	**24**	**13**	**21**	**29**	**17**	**24**	**23**	**41**	**30**	**24.20**	**7.79**
[%] Phytophagous	64.3	52.0	77.2	60.4	72.9	80.0	66.2	71.6	64.3	69.4	**68.7**	**-**

* sample was taken from the study field margin (=vicinity)

Appendix 22: Abundance of arthropods (suction sampling) per transect at the third Amflora field in the Czech Republic (Study field CZ03)

Number of individuals sampled by sucking from 10 plants per transect. Mean: n=10 transects, SD= Standard deviation. In grey phytophagous taxa.

Taxa	Sampling Transect										Mean	SD
	1	2	3	4	5	6	7	8	9*	10*		
Araneae	0	5	8	5	4	7	6	1	7	0	**4.30**	**2.98**
Opiliones	0	0	1	0	0	1	1	0	1	0	**0.40**	**0.52**
Acari	1	0	1	0	1	0	0	0	0	0	**0.27**	**0.44**
Collembola	0	0	0	1	2	6	1	0	12	0	**2.20**	**3.91**
Thysanoptera	11	24	32	39	27	35	30	37	36	24	**29.53**	**8.32**
Heteroptera (other)	6	3	1	4	0	7	3	6	8	2	**4.04**	**2.70**
Reduviidae (Heteroptera)	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Miridae (Heteroptera)	7	13	8	12	4	11	10	9	2	5	**8.11**	**3.60**
Auchenorrhyncha	25	1	7	5	3	1	10	6	3	9	**7.05**	**7.17**
Psyllina	0	0	0	0	0	0	0	0	2	0	**0.20**	**0.63**
Saltatoria	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Aphididae	11	42	58	54	89	45	50	70	64	3	**48.56**	**25.88**
Hymenoptera (without Formicidae)	4	16	15	12	12	20	12	29	14	16	**14.95**	**6.52**
Hymenoptera juvenil	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Formicidae	0	0	0	0	0	0	0	0	1	0	**0.10**	**0.32**
Neuroptera adult	0	0	1	1	0	1	1	0	0	1	**0.50**	**0.53**
Neuroptera juvenil	0	0	0	0	0	1	0	0	0	1	**0.20**	**0.42**
Neuroptera total	0	0	1	1	0	2	1	0	0	2	**0.70**	**0.82**
Lepidoptera adult	1	0	2	0	0	2	0	3	2	0	**0.97**	**1.16**
Lepidoptera juv.	0	0	2	0	1	0	1	3	0	0	**0.70**	**1.06**
Diptera adult	6	12	20	27	6	32	17	29	19	18	**18.64**	**8.92**
Diptera juvenil	0	0	1	0	0	0	0	0	0	0	**0.10**	**0.32**
Coleoptera (other)	1	0	0	0	0	0	1	0	2	0	**0.37**	**0.68**
Carabidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Staphylinidae	0	0	0	0	0	0	0	0	0	1	**0.10**	**0.32**
Cantharidae	0	0	0	0	0	1	0	0	0	0	**0.10**	**0.32**
Elateridae	1	0	0	0	0	0	0	0	0	0	**0.07**	**0.22**
Nitidulidae	1	0	0	0	0	0	1	1	1	2	**0.57**	**0.69**
Coccinellidae ad.	0	1	2	0	2	0	1	3	2	0	**1.10**	**1.10**
Coccinellidae juv.	2	0	0	0	0	1	0	0	3	1	**0.71**	**1.08**
Coccinellidae total	2	1	2	0	2	1	1	3	5	1	**1.81**	**1.40**
Anthicidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Chrysomelidae	0	0	0	1	0	1	1	2	0	0	**0.50**	**0.71**
Curculinonidae	6	0	0	0	0	1	0	0	1	0	**0.84**	**1.99**
Total	**83**	**117**	**159**	**161**	**151**	**173**	**146**	**199**	**180**	**83**	**145.17**	**39.33**
Total Phytophagous	**69**	**83**	**110**	**116**	**126**	**109**	**107**	**137**	**131**	**45**	**103.33**	**29.13**
Other Arthropods	**13**	**34**	**49**	**45**	**25**	**64**	**39**	**62**	**49**	**38**	**41.84**	**15.58**
[%] Phytophagous	83.8	70.9	69.2	72.0	83.4	63.0	73.3	68.8	72.8	54.2	71.2	-

* sample was taken from the study field margin (=vicinity)

Appendix 23: Abundance of arthropods (suction sampling) per transect at the fourth Amflora field in the Czech Republic (Study field CZ04)

Number of individuals sampled by sucking from 10 plants per transect. Mean: n=10 transects, SD= Standard deviation. In grey phytophagous taxa.

Taxa	Sampling Transect										Mean	SD
	1	2	3	4	5	6	7	8	9*	10*		
Araneae	0	6	2	3	5	4	2	2	4	5	**3.30**	**1.83**
Opiliones	0	0	0	0	0	0	1	2	1	0	**0.40**	**0.70**
Acari	1	0	0	1	0	0	0	0	1	0	**0.30**	**0.48**
Collembola	2	0	0	1	1	0	0	1	2	0	**0.70**	**0.82**
Thysanoptera	52	60	62	55	53	62	42	38	41	31	**49.60**	**10.93**
Heteroptera (other)	2	2	1	3	2	1	1	2	2	1	**1.70**	**0.67**
Reduviidae (Heteroptera)	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Miridae (Heteroptera)	20	6	11	6	13	6	13	7	10	24	**11.60**	**6.20**
Auchenorrhyncha	6	3	2	2	6	7	2	3	5	15	**5.10**	**3.96**
Psyllina	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Saltatoria	0	0	0	0	0	0	0	0	1	0	**0.10**	**0.32**
Aphididae	98	81	102	67	67	103	49	47	41	82	**73.70**	**23.22**
Hymenoptera (without Formicidae)	42	28	19	18	22	11	0	21	17	22	**20.00**	**10.81**
Hymenoptera juvenil	0	0	0	1	0	0	0	0	0	0	**0.10**	**0.32**
Formicidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Neuroptera adult	0	0	0	0	0	0	0	1	0	0	**0.10**	**0.32**
Neuroptera juvenil	1	0	0	0	1	0	0	0	0	0	**0.20**	**0.42**
Neuroptera total	1	0	0	0	1	0	0	1	0	0	**0.30**	**0.48**
Lepidoptera adult	0	1	0	0	0	2	0	0	3	2	**0.80**	**1.14**
Lepidoptera juv.	0	0	1	0	0	2	0	0	0	1	**0.40**	**0.70**
Diptera adult	59	25	60	28	20	40	48	46	40	47	**41.30**	**13.59**
Diptera juvenil	1	0	0	0	0	0	0	0	0	0	**0.10**	**0.32**
Coleoptera (other)	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Carabidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Staphylinidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Cantharidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Elateridae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Nitidulidae	1	1	0	0	1	1	0	0	5	0	**0.90**	**1.52**
Coccinellidae ad.	1	0	1	0	1	1	0	1	1	0	**0.60**	**0.52**
Coccinellidae juv.	0	0	2	0	0	0	1	0	1	0	**0.40**	**0.70**
Coccinellidae total	1	0	3	0	1	1	1	1	2	0	**1.00**	**0.94**
Anthicidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Chrysomelidae	1	0	0	0	0	1	1	1	0	2	**0.60**	**0.70**
Curculinonidae	0	1	0	0	1	1	0	1	1	1	**0.60**	**0.52**
Total	**287**	**214**	**263**	**185**	**193**	**242**	**160**	**173**	**176**	**233**	**212.60**	**42.40**
Total Phytophagous	**182**	**155**	**179**	**134**	**144**	**186**	**108**	**100**	**111**	**159**	**145.80**	**31.92**
Other Arthropods	**105**	**59**	**84**	**51**	**49**	**56**	**52**	**73**	**65**	**74**	**66.80**	**17.67**
[%] Phytophagous	63.4	72.4	68.1	72.4	74.6	76.9	67.5	57.8	63.1	68.2	68.6	-

* sample was taken from the study field margin (=vicinity)

Appendix 24: Abundance of arthropods (suction sampling) per transect at the fith Amflora fields in Czech Republic (Study field CZ05)

Number of individuals sampled by sucking from 10 plants per transect. Mean: n=10 transects, SD= Standard deviation. In grey phytophagous taxa.

Taxa	Sampling Transect										Mean	SD
	1	2	3	4	5	6	7	8	9*	10*		
Araneae	18	6	4	9	9	2	5	9	5	7	**7.40**	**4.40**
Opiliones	0	1	0	0	1	2	1	0	1	0	**0.60**	**0.70**
Acari	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Collembola	1	0	0	0	0	0	0	0	0	2	**0.30**	**0.67**
Thysanoptera	13	56	47	61	78	54	38	63	68	21	**49.90**	**20.58**
Heteroptera (other)	5	3	4	7	3	5	2	5	7	5	**4.60**	**1.65**
Reduviidae (Heteroptera)	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Miridae (Heteroptera)	14	31	15	28	32	31	22	15	26	27	**24.10**	**7.13**
Auchenorrhyncha	27	13	4	8	10	1	9	9	21	10	**11.20**	**7.66**
Psyllina	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Saltatoria	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Aphididae	72	51	62	91	98	99	92	133	117	97	**91.20**	**24.48**
Hymenoptera (without Formicidae)	28	35	12	25	20	23	15	20	32	18	**22.80**	**7.32**
Hymenoptera juvenil	2	2	0	4	3	1	3	3	3	0	**2.10**	**1.37**
Formicidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Neuroptera adult	1	1	0	0	0	1	0	0	1	0	**0.40**	**0.52**
Neuroptera juvenil	1	0	0	1	2	0	0	2	0	0	**0.60**	**0.84**
Neuroptera total	2	1	0	1	2	1	0	2	1	0	**1.00**	**0.82**
Lepidoptera adult	1	2	1	0	1	1	0	1	0	1	**0.80**	**0.63**
Lepidoptera juv.	1	0	0	0	1	0	1	1	0	0	**0.40**	**0.52**
Diptera adult	39	85	26	78	63	35	41	44	185	31	**62.70**	**47.36**
Diptera juvenil	0	0	0	0	0	0	0	1	0	0	**0.10**	**0.32**
Coleoptera (other)	0	0	0	0	0	0	1	0	0	0	**0.10**	**0.32**
Carabidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Staphylinidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Cantharidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Elateridae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Nitidulidae	0	1	0	1	0	0	0	0	1	0	**0.30**	**0.48**
Coccinellidae ad.	0	0	0	1	1	0	1	3	1	0	**0.70**	**0.95**
Coccinellidae juv.	0	0	0	1	0	1	1	3	0	1	**0.70**	**0.95**
Coccinellidae total	0	0	0	2	1	1	2	6	1	1	**1.40**	**1.78**
Anthicidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Chrysomelidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Curculinonidae	1	0	0	0	0	0	0	0	0	0	**0.10**	**0.32**
Total	**224**	**287**	**175**	**315**	**322**	**256**	**232**	**312**	**468**	**220**	**281.10**	**81.67**
Total Phytophagous	**135**	**157**	**133**	**196**	**223**	**191**	**164**	**227**	**240**	**163**	**182.90**	**38.38**
Other Arthropods	**89**	**130**	**42**	**119**	**99**	**65**	**68**	**85**	**228**	**57**	**98.20**	**53.15**
[%] Phytophagous	60.3	54.7	76.0	62.2	69.3	74.6	70.7	72.8	51.3	74.1	65.1	-

* sample was taken from the study field margin (=vicinity)

Appendix 25: Abundance of arthropods (suction sampling) per transect at the sixth Amflora field in the Czech Republic (Study field CZ06)

Number of individuals sampled by sucking from 10 plants per transect. Mean: n=10 transects, SD= Standard deviation. In grey phytophagous taxa.

Taxa	Sampling Transect										Mean	SD
	1	2	3	4	5	6	7	8	9*	10*		
Araneae	11	14	14	7	5	11	3	8	43	6	**12.20**	**11.44**
Opiliones	0	0	0	0	1	0	0	0	0	0	**0.10**	**0.32**
Acari	1	0	0	0	0	0	0	0	0	0	**0.10**	**0.32**
Collembola	0	0	0	0	0	0	1	1	0	0	**0.20**	**0.42**
Thysanoptera	77	67	58	94	41	73	116	81	84	39	**73.00**	**23.41**
Heteroptera (other)	27	5	6	7	1	14	7	12	16	5	**10.00**	**7.53**
Reduviidae (Heteroptera)	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Miridae (Heteroptera)	15	8	10	9	6	11	8	17	22	14	**12.00**	**4.94**
Auchenorrhyncha	17	3	2	5	3	8	6	10	6	4	**6.40**	**4.45**
Psyllina	0	0	0	0	1	0	0	0	0	2	**0.30**	**0.67**
Saltatoria	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Aphididae	60	8	62	44	21	48	30	83	61	64	**48.10**	**22.75**
Hymenoptera (without Formicidae)	11	9	17	14	10	14	21	11	17	15	**13.90**	**3.75**
Hymenoptera juvenil	0	6	0	2	3	0	0	0	1	1	**1.30**	**1.95**
Formicidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Neuroptera adult	1	0	0	0	0	0	1	0	0	0	**0.20**	**0.42**
Neuroptera juvenil	0	0	0	0	0	0	0	0	2	0	**0.20**	**0.63**
Neuroptera total	1	0	0	0	0	0	1	0	2	0	**0.40**	**0.70**
Lepidoptera adult	1	0	0	0	0	1	0	0	0	0	**0.20**	**0.42**
Lepidoptera juv.	1	0	0	1	0	0	1	0	0	1	**0.40**	**0.52**
Diptera adult	10	6	15	16	10	21	16	7	31	9	**14.10**	**7.58**
Diptera juvenil	1	0	0	0	0	0	0	0	0	0	**0.10**	**0.32**
Coleoptera (other)	0	0	0	0	0	0	0	0	0	1	**0.10**	**0.32**
Carabidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Staphylinidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Cantharidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Elateridae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Nitidulidae	0	0	0	0	0	0	0	0	1	0	**0.10**	**0.32**
Coccinellidae ad.	1	1	2	0	2	0	0	1	1	0	**0.80**	**0.79**
Coccinellidae juv.	3	0	0	0	0	1	0	1	0	0	**0.50**	**0.97**
Coccinellidae total	4	1	2	0	2	1	0	2	1	0	**1.30**	**1.25**
Anthicidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Chrysomelidae	0	0	0	0	0	0	1	0	0	7	**0.80**	**2.20**
Curculinonidae	0	0	0	0	0	0	0	0	2	0	**0.20**	**0.63**
Total	**237**	**127**	**186**	**199**	**104**	**202**	**211**	**232**	**287**	**168**	**195.30**	**53.37**
Total Phytophagous	**198**	**91**	**138**	**160**	**73**	**155**	**170**	**204**	**192**	**136**	**151.70**	**43.75**
Other Arthropods	**39**	**36**	**48**	**39**	**31**	**47**	**41**	**28**	**95**	**32**	**43.60**	**19.20**
[%] Phytophagous	83.5	71.7	74.2	80.4	70.2	76.7	80.6	87.9	66.9	81.0	77.7	-

* sample was taken from the study field margin (=vicinity)

Appendix 26: Abundance of arthropods (suction sampling) per transect at the seventh Amflora field in the Czech Republic (Study field CZ07)

Number of individuals sampled by sucking from 10 plants per transect. Mean: n=10 transects, SD= Standard deviation. In grey phytophagous taxa.

Taxa	Sampling Transect										Mean	SD
	1	2	3	4	5	6	7	8	9*	10*		
Araneae	5	15	11	7	4	6	3	7	7	5	**7.00**	**3.56**
Opiliones	0	0	0	0	0	0	0	0	0	1	**0.10**	**0.32**
Acari	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Collembola	0	0	0	0	0	0	1	0	0	0	**0.10**	**0.32**
Thysanoptera	39	43	32	27	30	39	46	38	34	82	**41.00**	**15.54**
Heteroptera (other)	7	4	8	6	6	5	0	3	3	2	**4.40**	**2.46**
Reduviidae (Heteroptera)	1	0	0	0	0	1	0	0	0	0	**0.20**	**0.42**
Miridae (Heteroptera)	16	59	33	28	18	22	9	22	36	14	**25.70**	**14.41**
Auchenorrhyncha	6	9	5	8	4	5	4	0	8	14	**6.30**	**3.74**
Psyllina	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Saltatoria	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Aphididae	55	91	92	103	57	62	73	59	102	43	**73.70**	**21.65**
Hymenoptera (without Formicidae)	27	31	22	31	19	12	21	20	32	28	**24.30**	**6.53**
Hymenoptera juvenil	1	2	4	0	3	2	0	0	2	1	**1.50**	**1.35**
Formicidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Neuroptera adult	0	0	0	0	0	1	0	2	1	0	**0.40**	**0.70**
Neuroptera juvenil	0	0	1	1	0	0	0	0	0	0	**0.20**	**0.42**
Neuroptera total	0	0	1	1	0	1	0	2	1	0	**0.60**	**0.70**
Lepidoptera adult	0	1	1	0	0	1	0	0	0	1	**0.40**	**0.52**
Lepidoptera juv.	0	0	0	0	0	4	1	0	1	0	**0.60**	**1.26**
Diptera adult	48	62	32	62	43	37	59	29	27	58	**45.70**	**14.00**
Diptera juvenil	0	0	1	0	1	0	0	0	0	0	**0.20**	**0.42**
Coleoptera (other)	0	0	0	1	0	0	0	0	1	0	**0.20**	**0.42**
Carabidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Staphylinidae	0	0	0	1	0	0	0	0	0	0	**0.10**	**0.32**
Cantharidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Elateridae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Nitidulidae	0	0	0	0	0	0	1	1	0	2	**0.40**	**0.70**
Coccinellidae ad.	0	0	0	1	0	0	0	0	1	1	**0.30**	**0.48**
Coccinellidae juv.	2	0	0	2	0	0	1	0	0	0	**0.50**	**0.85**
Coccinellidae total	2	0	0	3	0	0	1	0	1	1	**0.80**	**1.03**
Anthicidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Chrysomelidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Curculinonidae	1	0	0	1	0	1	2	2	0	4	**1.10**	**1.29**
Total	**208**	**317**	**242**	**279**	**185**	**198**	**221**	**183**	**255**	**256**	**234.40**	**43.52**
Total Phytophagous	**124**	**207**	**171**	**173**	**115**	**139**	**137**	**125**	**184**	**162**	**153.70**	**30.18**
Other Arthropods	**84**	**110**	**71**	**106**	**70**	**59**	**84**	**58**	**71**	**94**	**80.70**	**18.22**
[%] Phytophagous	59.6	65.3	70.7	62.0	62.2	70.2	62.0	68.3	72.2	63.3	65.6	-

* sample was taken from the study field margin (=vicinity)

Appendix 27: Abundance of arthropods (suction sampling) per transect at the first Amflora field in Sweden (Study field SE01)

Number of individuals sampled by sucking from 10 plants per transect. Mean: n=10 transects, SD= Standard deviation. In grey phytophagous taxa.

Taxa	Sampling Transect										Mean	SD
	1	2	3	4	5	6	7	8	9*	10*		
Araneae	2	1	0	2	1	4	2	1	6	6	2.78	2.05
Opiliones	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Acari	0	0	0	1	0	0	0	0	0	0	0.10	0.32
Collembola	0	0	0	1	0	0	0	0	1	0	0.20	0.42
Thysanoptera	5	8	2	5	7	2	2	5	8	13	5.70	3.47
Heteroptera (other)	0	0	0	0	0	0	0	0	0	1	0.10	0.32
Reduviidae (Heteroptera)	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Miridae (Heteroptera)	1	0	0	0	0	0	0	1	1	2	0.50	0.71
Auchenorrhyncha	0	0	0	2	0	1	0	0	1	5	0.90	1.60
Psyllina	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Saltatoria	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aphididae	2	1	0	0	4	0	2	8	2	41	6.00	12.53
Hymenoptera (without Formicidae)	7	4	2	3	4	4	3	6	19	13	6.50	5.40
Hymenoptera juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Formicidae	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Neuroptera adult	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Neuroptera juvenil	0	0	0	0	1	0	0	0	0	0	0.10	0.32
Neuroptera total	0	0	0	0	1	0	0	0	0	0	0.10	0.32
Lepidoptera adult	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Lepidoptera juv.	1	0	0	0	0	0	0	0	0	0	0.10	0.32
Diptera adult	5	9	9	13	12	3	5	8	86	16	16.60	24.71
Diptera juvenil	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Coleoptera (other)	0	0	0	0	0	1	0	0	0	0	0.10	0.32
Carabidae	0	0	0	0	0	0	1	0	0	0	0.10	0.32
Staphylinidae	0	0	0	1	0	0	0	0	0	3	0.40	0.97
Cantharidae	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Elateridae	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Nitidulidae	5	4	0	0	1	1	3	1	5	4	2.40	2.01
Coccinellidae ad.	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Coccinellidae juv.	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Coccinellidae total	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Anthicidae	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Chrysomelidae	0	0	0	0	0	1	0	0	0	2	0.30	0.67
Curculinonidae	0	0	0	0	0	0	0	0	1	0	0.10	0.32
Total	**28**	**27**	**13**	**28**	**30**	**17**	**18**	**30**	**130**	**106**	**42.70**	**40.53**
Total Phytophagous	**14**	**13**	**2**	**8**	**12**	**5**	**7**	**15**	**19**	**68**	**16.30**	**18.87**
Other Arthropods	**14**	**14**	**11**	**20**	**18**	**12**	**11**	**15**	**111**	**38**	**26.40**	**30.77**
[%] Phytophagous	50.0	48.1	15.4	28.6	40.0	29.4	38.9	50.0	14.6	64.2	37.9	-

* sample was taken from the study field margin (=vicinity)

Appendix 28: Abundance of arthropods (suction sampling) per transect at the second Amflora field in Sweden (Study field SE02)

Number of individuals sampled by sucking from 10 plants per transect. Mean: n=10 transects, SD= Standard deviation. In grey phytophagous taxa.

Taxa	Sampling Transect										Mean	SD
	1	2	3	4	5	6	7	8	9*	10*		
Araneae	1	3	0	0	0	1	5	2	5	5	**2.20**	**2.15**
Opiliones	0	0	0	0	0	0	0	0	0	1	**0.10**	**0.32**
Acari	0	1	0	0	0	0	0	0	0	1	**0.20**	**0.42**
Collembola	0	0	0	1	1	0	0	0	1	5	**0.80**	**1.55**
Thysanoptera	18	9	10	8	10	5	4	2	4	24	**9.40**	**6.85**
Heteroptera (other)	1	0	0	0	0	0	0	2	2	4	**0.90**	**1.37**
Reduviidae (Heteroptera)	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Miridae (Heteroptera)	0	0	2	1	0	0	0	0	1	3	**0.70**	**1.06**
Auchenorrhyncha	0	0	1	1	1	1	2	0	2	9	**1.70**	**2.67**
Psyllina	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Saltatoria	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Aphididae	5	2	0	2	13	0	14	0	7	6	**4.90**	**5.20**
Hymenoptera (without Formicidae)	10	11	5	5	5	13	9	5	16	29	**10.80**	**7.47**
Hymenoptera juvenil	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Formicidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Neuroptera adult	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Neuroptera juvenil	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Neuroptera total	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Lepidoptera adult	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Lepidoptera juv.	0	1	0	0	0	0	0	0	0	0	**0.10**	**0.32**
Diptera adult	15	8	18	23	15	23	20	11	30	15	**17.80**	**6.44**
Diptera juvenil	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Coleoptera (other)	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Carabidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Staphylinidae	1	0	0	0	0	0	0	0	0	0	**0.10**	**0.32**
Cantharidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Elateridae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Nitidulidae	1	0	1	2	1	0	0	1	0	1	**0.70**	**0.67**
Coccinellidae ad.	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Coccinellidae juv.	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Coccinellidae total	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Anthicidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Chrysomelidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Curculinonidae	0	0	0	0	0	0	0	0	0	0	**0.00**	**0.00**
Total	**52**	**35**	**37**	**43**	**46**	**43**	**54**	**23**	**68**	**103**	**50.40**	**22.08**
Total Phytophagous	**25**	**12**	**14**	**15**	**26**	**6**	**20**	**5**	**17**	**52**	**19.20**	**13.47**
Other Arthropods	**27**	**23**	**23**	**28**	**20**	**37**	**34**	**18**	**51**	**51**	**31.20**	**11.96**
[%] Phytophagous	48.1	34.3	37.8	34.9	56.5	14.0	37.0	21.7	25.0	50.5	38.1	-

* sample was taken from the study field margin (=vicinity)

Appendix 29: Agricultural practice at the study field in Germany (information was provided by the sponsor)

Field	Date of Treatment	Type of Treatment	Product Name	Active Ingredient	Amount [kg/ha]
DE01	19.04.2010	potato planting	n.a.	n.a.	n.a.
	27.05.2010	herbicide	Sencor	metribuzin	0.50
	13.06.2010	insecticide	Dantop	clothianidin	0.10
	23.06.2010	insecticide	Dantop	clothianidin	0.15
		fungicide	Curzate	cymoxanil, mancozeb	2.00
	02.07.2010	insecticide	Dantop	clothianidin	0.10
	07.07.2010	insecticide	Dantop	clothianidin	0.10
		fungicide	Vondac	maneb	10
	02.08.2010	potato haulm desiccation	Reglone	deiquat, deiquatbromid	1.5 L

n.a.= not applicable

Appendix 30: Agricultural practice at the study fields in the Cech Republic (Information was provided by the sponsor)

Field	Date of Treatment	Type of Treatment	Product Name	Active Ingredient	Amount [kg/ha]
CZ01	12.05 - 17.06.2010	potato planting	n.a.	n.a.	n.a.
	10.6.2010	herbicide	Sencor	metribuzin	0.5 kg
			Command	clomazone	0.25 l
			Roundup	glyphosate	1 l
	16.7.2010	fungicide	Altima	fluazinam	0.4 l
		insecticide	Mospilan	acetamiprid	60 g
CZ02	18.05 – 22.06.2010	potato planting	n.a.	n.a.	n.a.
	10.6.2010	herbicide	Sencor	metribuzin	0.5 kg
			Command	clomazone	0.25 l
			Roundup	glyphosate	1 l
	16.7.2010	fungicide	Altima	fluazinam	0.4 l
		insecticide	Mospilan	acetamiprid	60 g
CZ03	19.05 – 07.06.2010	potato planting	n.a.	n.a.	n.a.
	11.6.2010	herbicide	Sencor	metribuzin	0.7 kg
			Command	clomazone	0.2 l
	07.7.2010	fungicide	Criterium	benalaxyl, mancozeb	2.5 kg
	19.7.2010	fungicide	Criterium	benalaxyl, mancozeb	2.5 kg
CZ04	06.06 – 07.06.2010	potato planting	n.a.	n.a.	n.a.
	11.6.2010	herbicide	Sencor	metribuzin	0.7 kg
			Command	clomazone	0.2 l
	07.7.2010	fungicide	Criterium	benalaxyl, mancozeb	2.5 kg
	19.7.2010	fungicide	Criterium	benalaxyl, mancozeb	2.5 kg
CZ05	07.06.2010	potato planting	n.a.	n.a.	n.a.
	11.6.2010	herbicide	Sencor	metribuzin	0.7 kg
			Command	clomazone	0.2 l
	07.7.2010	fungicide	Criterium	benalaxyl, mancozeb	2.5 kg
	19.7.2010	fungicide	Criterium	benalaxyl, mancozeb	2.5 kg
CZ06	18.05 – 09.06.2010	potato planting	n.a.	n.a.	n.a.
	14.6.2010	herbicide	Boxer	prosulfocarb	4 l
			Afalon	linuron	1l
	20.7.2010	fungicide	Criterium	benalaxyl, mancozeb	2.5 kg
	20.7.2010	insecticide	Actara	thiamethoxan	80 g
CZ07	09.06.2010	potato planting	n.a.	n.a.	n.a.
	14.6.2010	herbicide	Boxer	prosulfocarb	4 l
			Afalon	linuron	1l
	20.7.2010	fungicide	Criterium	benalaxyl, mancozeb	2.5 kg
	20.7.2010	insecticide	Actara	thiamethoxan	80 g

n.a.= not applicable

Appendix 31: Agricultural practice at the study fields in Sweden (information was provided by the sponsor)

Field	Date of Treatment	Type of Treatment	Product Name	Active Ingredient	Amount [kg/ha]
SE01	15.05.2010	potato planting	n.a.	n.a.	n.a.
	16.05.2010	potato planting	n.a.	n.a.	n.a.
	07.06.2010	herbicide	Sencor	metribuzin	0.4 L
	19.06.2010	insecticide	Rustica	n.i.	4.6 L
			Dacis	deltamethrin	0.25 L
	23.06.2010	herbicide	Titus	rimsulfuron	50 g
	27.06.2010	insecticide	Rustica	n.i.	5 L
			Dacis	deltamethrin	0.3 L
	29.06.2010	insecticide	Rustica	n.i.	4.7 L
			Sumi Alpha	esfenvalerate	0.25 L
	29.06.2010	fungicide	Tatto	n.i.	2.3 L
	09.07.2010	insecticide	Rustica	n.i.	4.5 L
			Sumi Alpha	esfenvalerate	0.23 L
	09.07.2010	fungicide	Revus	n.i.	0.6L
	17.07.2010	fungicide	Revus	n.i.	0.6L
	09.07.2010	insecticide	Rustica	n.a.	4.7 L
			Sumi Alpha	esfenvalerate	0.25 L
SE02	15.05.2010	potato planting	n.a.	n.a.	n.a.
	16.05.2010	potato planting	n.a.	n.a.	n.a.
	07.06.2010	herbicide	Sencor	metribuzin	0.4 L
	19.06.2010	insecticide	Rustica	n.i.	4.6 L
			Dacis	deltamethrin	0.25 L
	23.06.2010	herbicide	Titus	rimsulfuron	50 g
	27.06.2010	insecticide	Rustica	n.i.	5 L
			Dacis	deltamethrin	0.3 L
	29.06.2010	insecticide	Rustica	n.i.	4.7 L
			Sumi Alpha	esfenvalerate	0.25 L
	29.06.2010	fungicide	Tatto	n.i.	2.3 L
	09.07.2010	insecticide	Rustica	n.i.	4.5 L
			Sumi Alpha	esfenvalerate	0.23 L
	09.07.2010	fungicide	Revus	n.i.	0.6L
	17.07.2010	fungicide	Revus	n.i.	0.6L
	09.07.2010	insecticide	Rustica	n.i.	4.7 L
			Sumi Alpha	esfenvalerate	0.25 L

n.a.= not applicable; n.i. = no information available