# THE ABILITY OF NATIVE INSECTS IN HUNGARY TO CONTROL SPREAD OF COMMON RAGWEED (*AMBROSIA ARTEMISIFOLIA* L.)

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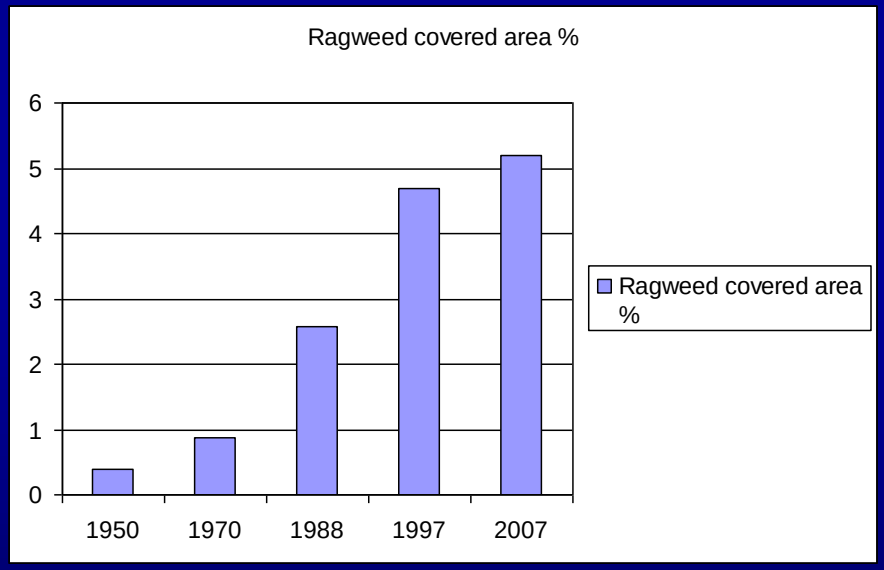
# Damage caused by ragweed in Hungary

- **Introduced into Hungary in the early 1920s**




- **Arable crop area: 6.5 million hectares**
- **350.000 ha covered by ragweed**
- **Value of yield losses 500 million Eur**
- **25% ragweed allergy**
- **Cost of allergy treatments 500 million Eur**

# Methods

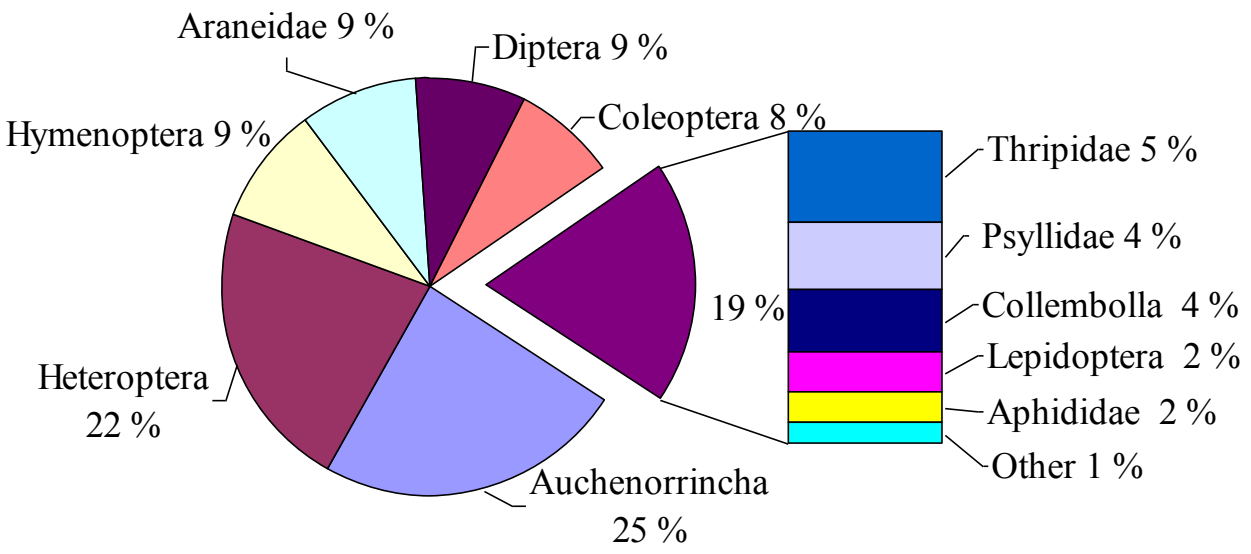
Insect collection

By sweep net

May - September

# Proportion of insect groups collected from ragweed by sweep net

**n=6936**




**Phytophagous insects were univoltine with high dispersal ability**

# Three aphid species on the common ragweed

*Brachycaudus helichrysi* Kalt.

*Aphis fabae* Scop.

*Myzus persicae* Sulzer

# Material and methods

Aphid colonies were established from individuals collected from ragweed.

Potted plants hosting aphids were covered with a fine organdy mesh

# Material and methods

Susceptible growth stage


Efficient aphid number


Four leaf stage


Five aptera aphid individuals

# Material and methods

Thirty five days after infestation airborne pollen counts by Hirst-type pollen trap

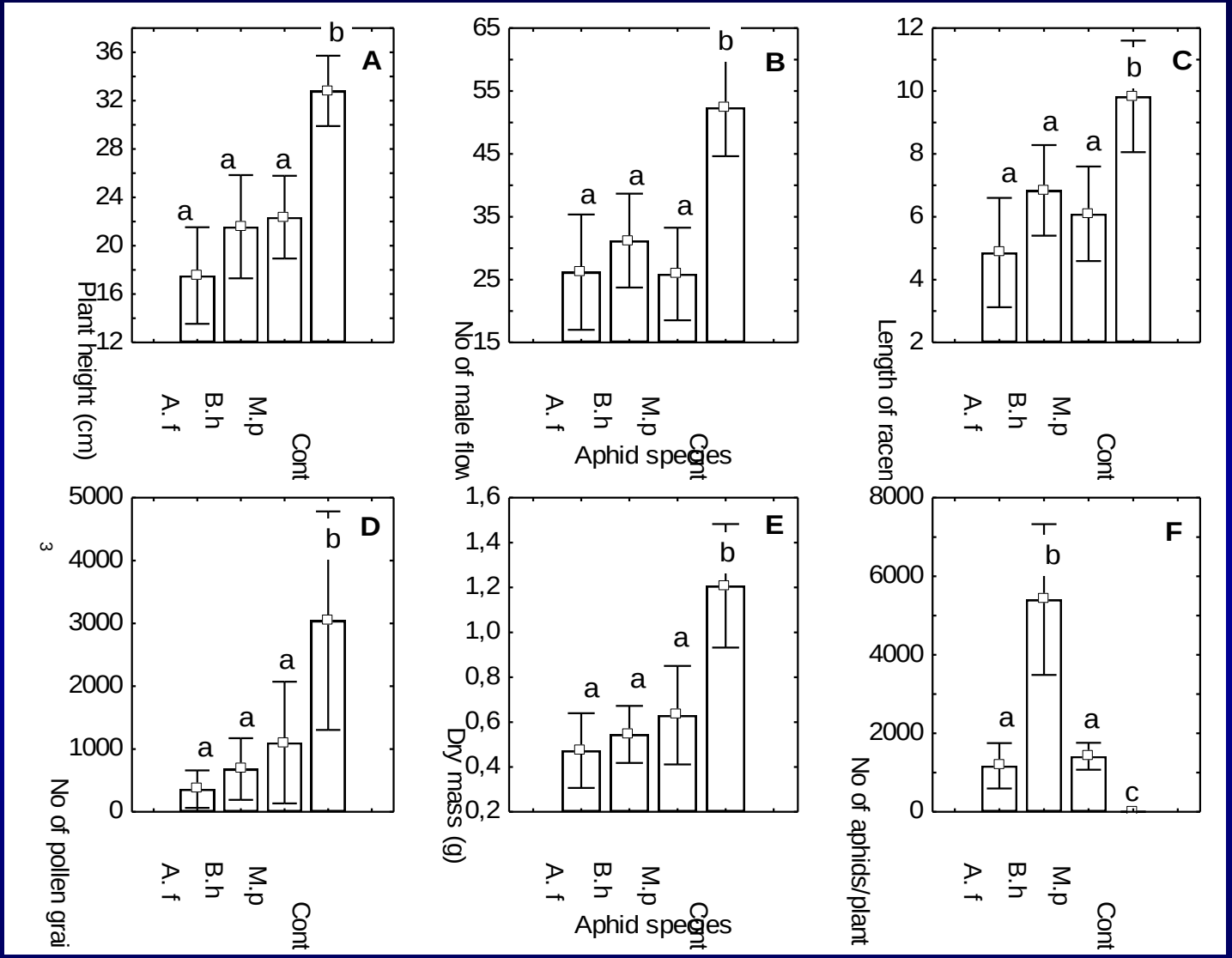
height of the plants
the length of flower spikes
Number of male inflorescences

Berlese funnels to extract aphids and dry the plants.

The recovered aphids were counted under a stereo microscope.

Each plant was weighed to 0.1 g precision.

# Results




*P* ≤ 0.05 significant correlations of plant height, dry mass, length of flower spikes, number of male inflorescences, and final number of aphids with pollen emission of aphid infested and control plants (r = 0.53, **0.60,** 0.42, 0.42, and 0.23, respectively.

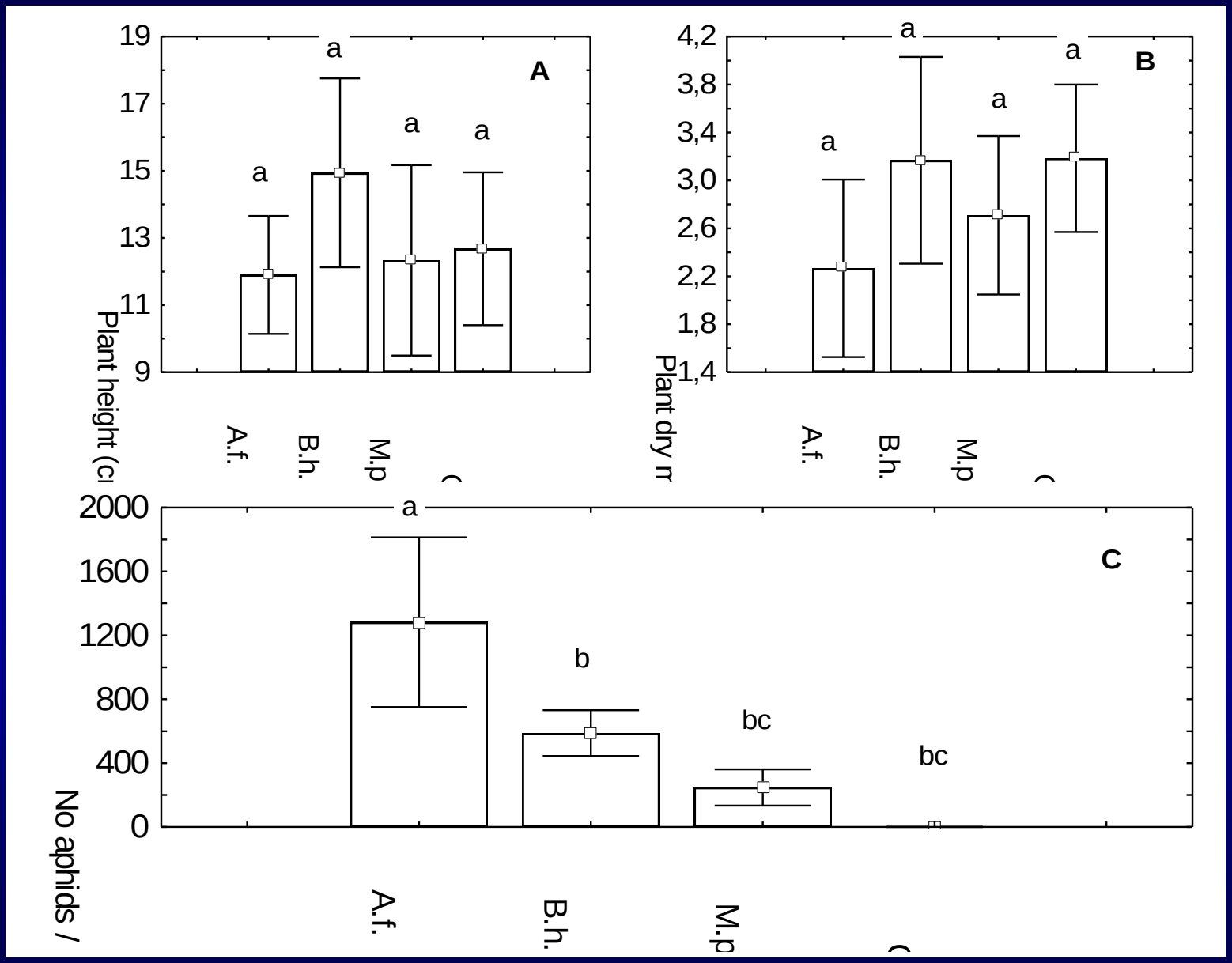
# Field experiments

# Aphid damage

*Brachycaudus helichrisi*

*Aphis fabae*

# Results


A
Plant height (cı
19
17
15
13
11
9
a
a
a
a
A.f.
B.h.
M.p
B
Plant dry r
4,2
3,8
3,4
3,0
2,6
2,2
1,8
1,4
a
a
a
a
C
No aphids /
2000
1600
1200
800
400
0
a
b
bc
bc

# Conclusion

Longer exposure (2-3 months) significant decrease

- Survey of 900 plants 16 May - 19 September
- *Brachycaudus helichrysi* 33 % of the plants with a mean number of 150 individuals/ragweed plant.
- *Aphis fabae* 9 % of the plants, its mean number was 3 individuals/ragweed plant.

- Naturally occurring aphids can enhance the ability of native vegetation to counter the weed but their effect is not strong enough to drive down the number of this invasive species.

# Acknowledgements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THANK YOU FOR YOUR ATTENTION