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Postdispersal seed predation may have strong impacts on the demography of annual plants[1].

If this phenomenon is well-known in tropical and woody systems, there is no information about weed seed predation in French agroecosystems.

Material & Methods

To quantify seed loss due to predation, seeds of 7 contrasted weed species + plastic globules were glued on sandpaper cards[2] and pinned on the soil surface of an organic winter wheat.

7 weed + 1 artificial species = 36 unique species pairs
* 15 reps. + 2 controls = 612 cards (2*25 seeds each)

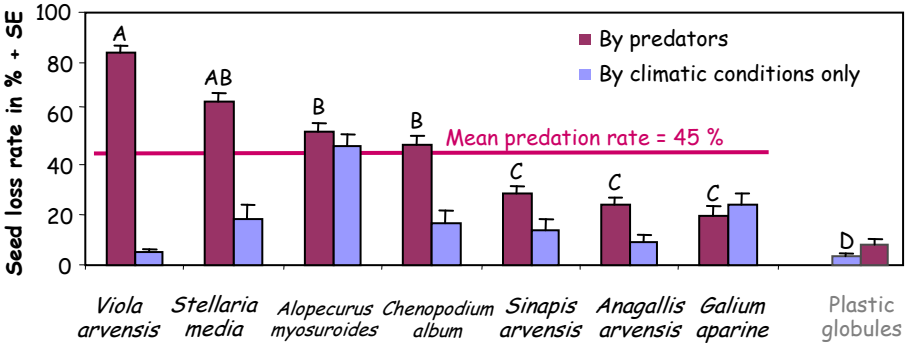
Seed cards

Double **control** for accidental seed losses:
1) Seed cards placed under a narrow wire mesh
2) Presentation of dummy seeds (plastic globules)

Wire mesh

Dummy seeds

Results



✓ **Seed predation** was **significantly higher** than removals of plastic globules and seed losses under the wire mesh.

✓ Seed predation differed among the tested species (Wilcoxon $\chi 2 = 381$; df = 7; $p < 0.0001$). ("**species preference rank**", Figure)

✓ **Seed characteristics** like weight, color, lipid or protein content are **not linearly correlated** to the observed predation rate.

✓ **Spatial and temporal variation** could not directly be explained by climatic variables or field border distance.

High seeds removal rates (19-84%) suggest that:

1) Weed seeds may constitute an **important food resource** for animals in the agro-ecosystem.

2) Seed predation may be an important factor **shaping weed population dynamics** and **community composition** of arable weeds.

So, to make optimal use of seed predation for reducing weed infestation in arable farming, research should focus on the mechanisms causing variability in predation.

[1] Pullaro, et al. 2006. Effects of killed cover crop mulch on weeds, weeds seeds, and herbivores. *Agriculture, Ecosystems and Environment*, 115, 97-104.

[2] Westerman et al. 2003. Relative importance of vertebrates and invertebrates in epigeaic weed seed predation in organic cereals fields. *Agriculture, Ecosystems and Environment*, 95, 417-425.

24th German Conference on Weed Biology and Weed Control. 4-6 March 2008, Hohenheim, Germany.