Segregation in habitat utilization between honeybees and wild bees in an intensive cereal farming system

Orianne Rollin, Mickaël Henry

SERL 2012

2 – 6 April 2012

CEBC-CNRS, France

ECOLOGY & BEHAVIOUR

8th Meeting – The Homecoming –

Orianne Rollin, Mickaël Henry

ACTA, UMT PrADE, UR 406 Abeilles et Environnement, Avignon, France
INRA, UR406 Abeilles et Environnement, Avignon, France

SEGREGATION IN HABITAT UTILIZATION BETWEEN HONEYBEES AND WILD BEES IN AN INTENSIVE CEREAL FARMING SYSTEM

Bees provide an important pollination service for crops and wild plants. A substantial bee population and diversity decline is being observed worldwide for fifty years. In intensive agricultural systems, the loss of semi-natural habitats is considered as one of the main causes responsible for this decline. Semi-natural habitats provide nesting sites and diversified, stady state pollen and nectar resources, whereas most cultivated crops are not foraged by bees, except some mass-flowering crops that offer big-bang, temporary available, food resources. The objective of this study was to document the relative use of wild floral resources and mass flowering crops by foraging honeybees *(Apis mellifera)*, bumblebees and wild bees. During the oilseed rape and sunflower flowering periods, we counted foraging bees along 50m walking transects within the main flowering crops (oilseed rape and sunflower), semi-natural habitats (grasslands, field margins, hedgerows) and flowering alfalfa. We found a clearcut segregation pattern in the use of floral resources between honeybees and wild bees, both during the oilseed rape and sunflower flowering periods. Honeybees were dominant in the mass-flowering crops while wild bees were dominant in herbaceous semi-natural habitats, where the diversity of floral resources was greater. Bumblebees had an intermediary strategy with an ubiquitous foraging activity. However, they favoured oilseed rape or alfalfa when these two crops where available. This stresses the importance of semi-natural habitats for the wild bees during mass flowering periods. Indeed, the mass-flowering crops and semi-natural habitats provide floral resources for different community of bees.