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## Section 5 - Monitoring

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### 5.1 Large-scale monitoring of effects of clothianidin dressed OSR seeds on pollinating insects in Northern Germany: Effects on large earth bumblebees (*Bombus terrestris*)

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#### Abstract

Aim of this study was to investigate the effects of Elado<sup>®</sup>-dressed oilseed rape (OSR, 10 g clothianidin & 2 g beta-cyfluthrin / kg seed) on the development, reproduction and behaviour of large earth bumblebees (*Bombus terrestris*) as part of a large scale monitoring field study in Northern Germany, where OSR is usually cultivated at 25-33% of the arable land. For both reference and test site, six study locations were selected and ten bumblebee hives were placed at each location. In each site, three locations were directly adjacent to OSR fields, three locations were situated 400 m apart from the nearest OSR field. The development of colonies was monitored from the begin of OSR blossom in April until June 2014. Pollen from returning foragers was analysed for its composition and residue content. At the end of OSR blossom hives were removed from the study sites and eventually dissected assessing young queens as well as the undeveloped queen brood cells. An average of 44% of OSR pollen was found in the pollen loads of bumblebees indicating that OSR was a major resource for the colonies. Colony development in terms of hive weight and the number of workers showed a typical course no statistically significant differences were found between the sites. Reproductive output (young queens and queen brood) cells was comparatively high and not negatively affected by the exposure to treated OSR.

In summary, Elado<sup>®</sup>-dressed OSR did not cause any detrimental effects on the development or reproduction of bumblebee colonies.

#### Reference

All papers of this and related studies in Sternberg were published in a special issue of *Ecotoxicology*, vol. 25 number 9 in November 2016 and are open access. They can be downloaded under: <http://link.springer.com/search?query=&search-within=Journal&facet-journal-id=10646&package=openaccessarticles>.

### 5.2 27 Year polderen about bees and pesticides in the Netherlands; working group Pollinating insects, pesticides and biocides

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*Polderen* is a typical Dutch word, meaning striving for cooperation and compromises in politics and generally, a common way to come to an acceptable solution by (long) talking. Since 1990 representatives of the beekeepers associations, bee research, honeybee and bumblebee experts, the legislation authority, national food security agency, agricultural extension service, plant protection industry, producers of biological control organisms, the agriculture organisation and conservation societies, meet annually. The continuous underlying point of interest is the question whether legislation and practice in the field of potential exposure of pollinating insects to pesticides are still geared to one another. In these meetings, incidents with honeybee mortality, national and international development in legislation of pesticides, bees may be exposed to, are reported. Furthermore, lists of honey- pollen and honeydew yielding plants are discussed and brought up to date, new development in the ecotoxicology bees are reported and broad concerns of the impact of pesticides on nature, are on the agenda. Besides reported honeybee toxicity incidents, three remarkable cases discussed in the working group, will be presented: the enigma of a late summer honeybee mortality near *Dicentra spectabilis* fields, the fixing of the mismatch between legislation and practice of dimethoate and more recent the quest of the, till last year, unsolved 10-year mysterious honeybee mortality incidents in the province of Noord Brabant.