

Annex I. Our comments on the Draft Assessment Report of Cyantraniliprole

1. Residue studies

A) Cyantraniliprole is a systemic molecule (xylemic translocation) (B.3.1.5). Therefore, we welcome the fact that residue analyses have been included in the DAR (Vol 3, B.8 and Vol 3, B.9). This should be a requirement for all the molecules to which bees may be exposed.

B) Studies included in the DAR highlight a translocation of cyantraniliprole and of its metabolites in nectar and pollen (B.7.1.5 and B.9.4). Cyantraniliprole is detected in most of the analyses, sometimes at very high concentration (more than 100 µg /kg in pollen and nectar of citrus nectar (Bocksch 2011j)¹, more than 1400 µg /kg in pollen of apple tree (Bocksch 2011). High quantities have also been found in nectar and pollen of canola, sunflower, tomato (Chapleao 2007), melons (Bocksch 2011o) and grapes (Bocksch2011j). Cyantraniliprole and its metabolites, as IN-HGW87 toxic for bees, have also been found in guttation water (Kleinhenz 2011k). Kleinhenz (2011k) highlights as well contamination of wax, pollen and honey.

C) However, note that these residues analyses do not enable to identify a risk coefficient for bees, as no first nor second tier studies have established a NOEC (No Observed Effect Concentration) or NOEL (No Observed Effect Level).

2. Toxicological effects on bees

Cyantraniliprole acts on ryanodine receptors and induces insect muscle contraction. The symptomology of affected insects can be described as: Initial intoxication by ingestion or contact exposure; Impairment of insect muscle function, including rapid cessation of feeding within minutes to a few hours after intoxication; Lethargy; Paralysis; Insect mortality.

As demonstrate by the residues analyses, bees are exposed over the time to cyantraniliprole or its metabolites, through the plants and into the hive. However, chronic toxicity (lethal and sublethal effects) has not been assessed through reliable tests. The data related to chronic exposure were only furnished through tunnel and field tests. The EFSA scientific opinion² highlights that tunnel tests, such as field test, do not confront bees to the same quantities of pesticides that they are confronted to in the reality. The exposure is therefore insufficiently demonstrated and often very low, mainly in tunnel, where most of the studies³ have been done in 50m² tunnels, of which 40m² of crops received a treatment (with the exception of Mamet 2008a and 2008b). This has been considered insufficient by the EFSA scientific opinion.

Despite of the low exposure rate and the fact that the product is sprayed after foraging period, effects are observed. These effects are lethal or almost always sublethal (e.g. cramping bees, apathy). Sublethal effects are observed in acute toxicity test at lower doses than the LD50. These effects can be irreversible (e.g. establishment of LD50 for SC formulation) or reversible (e.g. establishment of LD50 formulation SE and various tunnel or field studies). Note that these effects have only been identified through observations of bees' behavior. No tests on bee physiology have been carried out (e.g. Hypopharyngeal glands test), neither do tests on the

¹ The scientific references here under refer to the DAR of cyantraniliprole, Vol 3, B.9

² EFSA (2012) Scientific Opinion on the science behind the development of a risk assessment of Plant Protection Products on bees (*Apis mellifera*, *Bombus* spp. and solitary bees). EFSA Journal 2012;10(5):2668 [275 pp.]. doi:10.2903/j.efsa.2012.2668

³ Bocksch 2010c, 2011f, Gonsior 2006; Kleinhenz 2009, 2010a, 2011j, 2011k ; Liepold 2010.

capacity of orientation. The latter cannot easily be performed under tunnel conditions, as bees only activate their orientation system when they fly further than 1km away from the hive.

Cyantraniliprole is primarily active as a larvicide; however depending upon the pest species may also act as an ovicide and also as an adulticide on some species (Vol 1, 1.5.2.). The EFSA recommends the application of bee brood feeding test (i.e. a lab test, where larvae are reared in polystyrene grafting cells). As soon as bees are in contact with contaminated nectar and pollen, larva's exposure may also occur. Moreover, cyantraniliprole has been proved to contaminate the hive (Kleinhenz 2011c, 2011k) . Cyantraniliprole cannot be authorized before bee brood feeding test is performed.

The level of control offered by cyantraniliprole obliges the products is applied many times. European Good Agricultural Practices (GAP) recommend 2 to 4 applications, but on some crops such as colza, up to 9 applications are planned (authorization on going for the US). Moreover, for long term crops, it is recommended to apply cyantraniliprole products with 'other approved insecticides' (Vol 1, 2.1.3.). Considering the persistence of residues of cyantraniliprole and its metabolites, molecules are going to coexist in the environment. Synergetic effects must therefore be evaluated as well, as they potential existence has been demonstrated.