Summary of the dossier:

Title- Whole and ground Grasshopper (*Locusta migratoria*)

Applicant- Fair Insects BV (A Protix Company), Industriestraat 3, 5107 NC Dongen, Netherlands

Presented novel food dossier relates to the application of *Locusta migratoria*, commonly known as locust. This application is being filed in the transition period for the food products that have been lawfully present on the market, as mentioned in article 35.2 of Regulation (EU) 2015/2283. The dossier has been prepared according to the EFSA guidelines described in Regulation (EU) 2015/2283. The dossier corresponds to *L. migratoria* adult insects processed in the following forms:

1. Whole: Thermally processed/Thermally processed and frozen
2. Whole: Thermally processed, frozen and freeze dried
3. Powder: Thermally processed, frozen, freeze dried and ground

The rearing of *L. migratoria* corresponding to the current dossier is done in a closed environment. These insects are fed with GMP+ certified feed material which falls under the 'Substrate group A' - Animal feed materials according to the EU feed material catalogue mentioned in Regulation (EC) No. 68/2013. The insects are harvested and processed according to general food principles (Regulation (EC) No. 178/2002), food contaminant requirements (Regulation (EC) No. 1881/2006) and microbiology requirements (Regulation (EC) 2073/2005, updated by Regulation (EC) 1441/2007). The food processing is based on HACCP principles inclusive of regular quality controls which ensures that food is safe for human consumption.

Insects subject to this application can be farmed with ease. They have a short life cycle and are nutritious. Dried locust contains high levels of protein, including all essential amino acids at levels higher than the recommendations of FAO (2013). Locusts are also rich in alpha linolenic acid (omega-3 fatty acid) and contain high levels of P, Fe, Zn, Cu, vitamin B2, vitamin B3, vitamin B5, vitamin B8 and vitamin B12. Additionally, these insects are a source of Mn and vitamin E.

Performed analytical studies and literature studies reviewed in the dossier indicate no food safety risks related to heavy metals, mycotoxins, PCB/dioxins, pesticides, prions and microorganisms. Results mentioned in the dossier indicate that some anti-nutritional factors are

absent in the product, while others are present in low concentrations posing no risk to the consumers. The tolerable intake limits for minerals and chitin levels corresponding to EFSA opinion on chitin-glucan (EFSA, 2010) were taken into account to calculate anticipated intake data.

The general population excluding infants and toddlers are the target group in this application. The dossier seeks approval for usage of locusts as food and food ingredient in food categories including cereal and cereal-like flours; bread and similar products; breakfast cereals; fine bakery wares; pasta, dough and similar products; spices, seasoning, sauces, condiments; fish and seafood processed; dishes, incl. ready to eat meals; food for particular diet; sausages; meat imitates; soups and salads; alcoholic beverages- beer and beer-like beverage, mixed alcoholic drinks, unsweetened spirits and liqueurs, confectionary including chocolates; processed or preserved vegetable and similar; vegetable and vegetable products; nut/seeds paste/emulsion/mass cream cheese; snacks other than chips and similar; processed whole meat products.

The literature reviewed in the dossier indicate no concerns relating to the absorption, digestion, metabolism and excretion of chitin, minerals and protein. The laboratory results indicated low amounts of undesirable compounds, hence no ADME studies were conducted. Genotoxicity study on the freeze-dried locust in literature showed the absence of a genotoxic character. Further, the cellular toxicity study carried out using the aqueous extracts of *L. migratoria* showed no toxicity towards different cell types (used to study food toxicity) even at the highest concentration tested.

It has been demonstrated in literature that locusts show a cross-reactivity similar to crustaceans and molluscs. The intake assessment was realized for general population excluding infants and toddlers. Therefore, it is mandatory to declare the following statements on the label: ‘People who are allergic to dust mites, crustaceans or molluscs may have an allergic reaction to the consumption of insects’ and ‘Not recommended for children under three years of age’. Additionally, product may contain other allergens based on the nature of feed which should be also declared on the label.

It could be concluded that *L. migratoria* and derived products are safe for the consumption by the target European population. Under the proposed conditions of use and at the anticipated intake levels no adverse nutritional effects are expected.