



Tropentag, October 9-11, 2007, Witzenhausen

“Utilisation of diversity in land use systems:  
Sustainable and organic approaches to meet human needs”

## Protein Concentrates for Animal Feedstuff Derived from Fly-Massproduction: *Hermetia-Meal* as an Alternative to Fishmeal

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### Abstract

Regarding the growing demand for fishmeal in the animal feed sector, the calls for alternatives are getting louder especially when facing decreasing fish stocks and fast growing prices for fishmeal. Looking for alternatives scientists recently were focussing on the possibility of mass-rearing of flies on organic manure. The fly *Hermetia illucens* occurring in warm countries all over the world (including the Mediterranean states and southern parts of Switzerland) seems to be an ideal candidate. This organism can be reared on animal manure and other agricultural wastes which have to be deposited on rather high costs, normally. The developing stages of this fly reduce the volume of those substrates by up to 50 % producing biomass with a protein content of about 43 % and a fat content up to 35 %. In the year 2006 a study on the technical and economical feasibility of the mass-production of *Hermetia* was conducted. The first European colony of *Hermetia illucens* was established and a series of substrate-tests was done as well as an economic extrapolation of possible production scenarios. A feeding trial on rainbow trout showed little decrease in feed conversion when replacing the diet's fishmeal with non-defatted *Hermetia-meal* to an extend of 50 %. Decrease was more substantial in the case of 75 % supplementation. Results are expected to become much better with de-fatting the meal and reducing the chitin content. Tests on the taste and quality of the filet did not show significant differences between the *Hermetia-fed* fishes and the controls. The cost-extrapolation showed that the production can be realised below the costs of fishmeal-production by using existing logistical structures and taking in account production volumes between 1,000 and 10,000 t per annum. Keeping in mind that the world-wide demand for fishmeal was about 6 million tons in the year 2005 production volumes in the above mentioned range will just be a small beginning.

**Keywords:** Fishmeal, *Hermetia illucens*, insect-proteins, protein-demand for feedstuff