

Technical University of Denmark



Efficiency and scalability in producing feed from manure using the common housefly

Fischer, C.; Heckmann, L. H. L.; Nordentoft, Steen; Hald, Birthe; Bjerrum, L.

Published in:
Insects to Feed The World

Publication date:
2014

Document Version
Publisher's PDF, also known as Version of record

[Link back to DTU Orbit](#)

Citation (APA):
Fischer, C., Heckmann, L. H. L., Nordentoft, S., Hald, B., & Bjerrum, L. (2014). Efficiency and scalability in producing feed from manure using the common housefly. In *Insects to Feed The World: Abstract book*

DTU Library

Technical Information Center of Denmark

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Efficiency and scalability in producing feed from manure using the common housefly

Fischer, C.H.¹, Heckmann, L.H.L.¹, Nordentoft, S.², Hald, B.² and Bjerrum, L.¹

¹ Danish Technological Institute, Kongsvang Alle 29, DK-8000 Aarhus C, Denmark; ² DTU, National Food Institute, Mørkhøj Bygade 19, DK-2860 Søborg, Denmark

BioConVal (BioConversion to Value) is a R&D project carried out amongst Danish R&D institutes and European SMEs. The project aims at developing and demonstrating an integrated system for cultivating pathogen-free fly larvae (*Musca domestica*) in poultry manure locally at farms, and subsequently use them as dietary supplement for the livestock.

The fly larvae are very nutritious and a natural food source for poultry. They have an amino acid composition that is similar to fishmeal, and which is especially rich on the essential amino acids methionine and cysteine. Among laying hens, the lack of methionine may lower the production and may possibly lead to feather pecking and cannibalism, a problem often seen in organic farming. Feeding live larvae could help overcome these problems; and is furthermore expected to increase gut health and animal welfare and behaviour. Thus, BioConVal provides a sustainable approach to meeting EU requirements for organic farms (100% organic feed in the near future).

Fly larvae have an amazing ability to convert fresh manure to compost in a very short time [1]. However, many factors influence the cultivation of high-quality larvae, e.g. the manure temperature, dosage of fly eggs, humidity, hatchability of fly-eggs, as well as efficient retrieval of the larvae [2] prior to being applied as feed [3]. To address these issues, a number of laboratory and pilot scale tests have been carried out to optimize the system. Our experiences from BioConVal will be disseminated in this presentation highlighting efficiency and scalability, which are key to establishing a commercially viable system.

1 Wang, H, Zhang, Z, Czapar, GF, Winkler, MK, Zheng, J (2013) A full-scale house fly (Diptera: Muscidae) larvae bioconversion system for value-added swine manure reduction. *Waste Management & Research* 31:223-231.

2 Čičková, H, Kozánek, M, Morávek, I, Takác, P (2012) A Behavioral Method for Separation of House Fly (Diptera: Muscidae) Larvae from Processed Pig Manure (2012) *Journal of Economic Entomology* 105:62-66.

3 Van Huis, A (2013) Potential of insects as food and feed in assuring food security. *Annual Review of Entomology* 58:563-583.