

## Abstract 32:

Bioconversion of chicken manure by housefly larvae (*Musca domestica L.*); larval performance and substrate conversion in relation to sterilization and carbohydrate addition

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The larvae of the housefly can be reared on manure and used as animal feed. Larvae can utilize starch and have a largely unknown relation with manure microorganisms. Our study hypothesis was that larvae compete with microorganisms for easily digestible carbohydrates such as starch. This was tested by adding starch, digestible by both larvae and microorganisms, or fructo-oligosaccharides (fos), digestible only by microorganisms, to unsterilized or heat sterilized fresh chicken manure (CMstar, CMfos, sCMstar, sCMfos). Diets and pure manure controls (CM, sCM) were inoculated with housefly eggs and larvae were harvested after five days by flotation. Total larval mass and survival were determined, as were nitrogen and DM content of larvae, diet, and residues. The highest yield (9.7 g) and heaviest larvae (13.2 mg) were on sCMstar, followed by sCM (7.2 g and 8.1 mg). Both CMfos and sCMfos had minimal yields and larval weights (0.3 and 0.2 g, 2.9 and 1.7 mg) with CMstar intermediate (3.3 g and 7.5 mg). Survival differed between diets, sCM and CM averaged 70%, sCMstar 57%, CMstar 33% with 9% for CMfos and sCMfos. DM bioconversion decreased from CM (3.5%), sCMstar (3.1%), sCM (2.6%), CMstar (1%) to CMfos and sCMfos (0.1%). Nitrogen bioconversion was highest on sCMstar (9.9%) and CM (9.3%), lower on sCM (6.6%), CMstar (4%) and the lowest on CMfos and sCMfos (0.5%). The results concur with the study hypothesis but indicate also that sterilization and carbohydrate addition might not be ideal for optimization of chicken manure as larval diet.