



Tropentag, September 14-16, 2022, hybrid conference

“Can agroecological farming feed the world?
Farmers’ and academia’s views”

The economic feasibility of insect-based feed for commercial poultry production in Kenya

AFRIKA OKELLO¹, CHRYSANTUS TANGA², MICHAEL KIDOIDO³

¹University of Nairobi, Agricultural Economics, Kenya

²International Centre of Insect Physiology and Ecology (icipe),

³International Centre of Insect Physiology and Ecology (icipe),

Abstract

Integrating insect protein in commercial feed formulation for livestock production is not only expected to reduce pressure on strained natural resources but to also contribute to food and nutrition security, improve farmers’ livelihoods and to promote economic growth. Stakeholder involvement is imperative for the realisation of the stated milestones. The study conducted multiple field experiments with the involvement of smallholder farmers for a period of nine weeks. Specifically, we evaluated the effects of partial and total replacement of fishmeal with black soldier fly (*Hermetia illucens*) larvae (BSFL) at 25 %, 50 %, 75 % and 100 % BSFL inclusion on the performance traits of 280 broiler chicken and the economic impact. The live weight, average body weight gain (ABWG), feed intake and feed conversion ratio (FCR) were captured. Economic marginal analysis and sensitivity analysis at 20 % and 50 % increases in feed cost were computed. We found that there are no significant differences in the live weight and the ABWG of the birds across all diets. Partial and total replacement at 75 % recorded the highest feed efficiency of 2.0 against 2.5 FCR for the control diet. The most profitable diet was 25 % BSFL with 147 % rate of return which is 112 % less than that recorded for conventional feed, and a gross margin of US\$ 8.25 against US\$ 7.79 of the control diet. At both 20 % and 50 % feed price increments, partial replacement at either 25 % or 75 % BSFL remain profitable by at least 74 % compared to the control diet. No doubt that insect protein is an economically feasible feed ingredient for commercial livestock production and consequently for food security and improved livelihoods.

Keywords: Economic, environment, insect, kenya, profitability, smallholder farmers