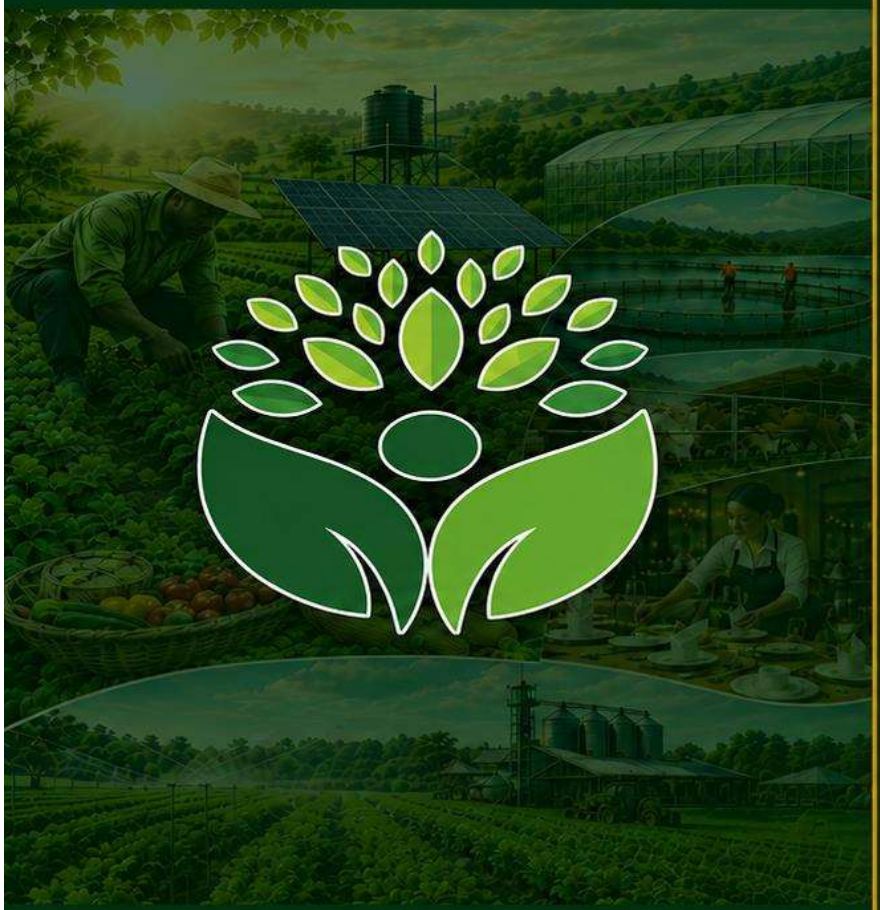
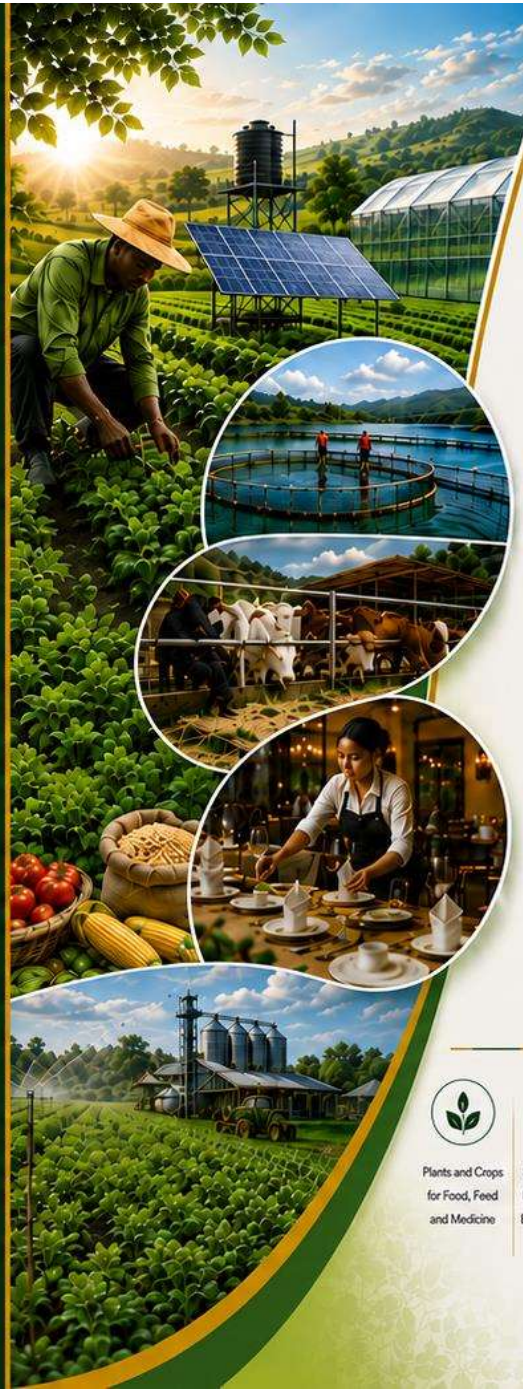


FACULTY OF AGRICULTURE
FEDERAL UNIVERSITY OYE-EKITI

BOOK OF PROCEEDINGS OF THE 1ST INTERNATIONAL CONFERENCE OF THE FACULTY OF AGRICULTURE, FEDERAL UNIVERSITY OYE-EKITI



BOOK OF PROCEEDINGS

FOR THE

1ST INTERNATIONAL CONFERENCE
FACULTY OF AGRICULTURE

FEDERAL UNIVERSITY OYE-EKITI

HELD AT:

New Agriculture Twin Hall,
Faculty of Agriculture,
Federal University Oye Ekiti
(Ikole Campus)

[29th June – 2nd July 2026]

Theme:

"Sustainable Agriculture and Food Security in a Changing World"

SUB-THEMES

- Plants and Crops for Food, Feed and Medicine
- Soil, Water and the Environment – Our Basis for Productivity
- Livestock Production, Fisheries and Management for Disease Control
- Agriculture and Fisheries Management
- Food Security, Nutrition and Sustainable Food Systems
- Demand-driven and Policy-focused Agriculture and Agricultural Research

BOOK OF PROCEEDINGS

FOR THE

FACULTY OF AGRICULTURE 1ST INTERNATIONAL CONFERENCE
FEDERAL UNIVERSITY OYE-EKITI (FUOYE)

HELD AT

NEW AGRICULTURE TWIN HALL
FACULTY OF AGRICULTURE, FEDERAL UNIVERSITY OYE-EKITI
(IKOLE CAMPUS).

29th June – 2nd July 2026

© 2026, Faculty of Agriculture, Federal University Oye-Ekiti

ISSN: 3156 - 2930

BOOK OF PROCEEDINGS – 1ST INTERNATIONAL CONFERENCE FACULTY OF AGRICULTURE, FUOYE | [2026]

BOOK OF PROCEEDINGS

FOR THE

FACULTY OF AGRICULTURE 1ST INTERNATIONAL CONFERENCE
FEDERAL UNIVERSITY OYE-EKITI (FUOYE)

Editors

Prof. O. B. Adeniji
Prof. T. O. Ariyomo
Dr. J. O. Jimoh
Dr. A. M. Oyinloye
Dr. O. A. Agbetuyi
Mr. A. A. Fabusoro

SOUTHWEST, NIGERIA. - IDOWU O., AND OLOWOKERE-AYODELE O. O. 99

SECTION C: LIVESTOCK PRODUCTION, BREEDING, RANGE MANAGEMENT & DISEASES CONTROL (LPBRC)

LPBRC01 – EFFECTS OF PLANTING SPACING AND HARVESTING AGE ON THE PROXIMATE AND DETERGENT FIBRE COMPOSITION OF CONGO GRASS (BRACHIARIA RUZIZIENSIS) – DANDARA G. B., OLUWADELE J. F., EKEOCHA A. H., OMOSOFE P. O., ADELUSI T. O., DAKUNA D. S., SULAIMAN D. AND AGANGA A.A 104

LPBRC02 – PREVALENCE OF GASTROINTESTINAL HELMINTHS OF INDIGENOUS ADULT MALE PIGEONS KEPT UNDER INTENSIVE SYSTEM OF MANAGEMENT IN MINNA METROPOLIS. – IBRAHIM D.Y., USMAN A. AND ADAMA J.Y 110

LPBRC03 – GENETIC ARCHITECTURE OF FEED EFFICIENCY TRAITS AT EARLY-LIFE IN BROILER BREEDERS – JESUYON, OLUWATOSIN M. A.....116

LPBRC04 – BLACK SOLDIER FLY LARVAE MEAL AS A SUSTAINABLE ALTERNATIVE PROTEIN SOURCE IN BROILER PRODUCTION: A REVIEW – IBIKUNLE, R.O., AKANDE, K.E. AND IJAIYA, A.....123

LPBRC05 – PERFORMANCE AND BIOECONOMIC RESPONSE OF GROWING RABBITS FED GRADED DIETARY LEVELS OF FERMENTED SORGHUM WASTE – KEHINDE, O. A ., GABRIEL, O. G. FOLAYAN, T. A., KOLAWOLE, B. J., KUYETI, O. O., ATAYERO, G. O., OLA-ALAWODE, I. A., ODUNJO, T. D., OLAWALE, V. O., AND DAIRO, F.A.S 130

LPBRC06 – SUSTAINABLE MICRO-ANIMAL PRODUCTION AND FOOD SECURITY IN A CHANGING WORLD – A REVIEW – KOLAWOLE, B.J AND AGANGA, A.A 137

LPBRC07 – COPPER DEFICIENCY IN LIVESTOCK: EFFECTS ON IMMUNE FUNCTION, DISEASE RESISTANCE AND MICROBIAL INFECTIONS – A REVIEW – AKANDE, K.E. AND AKANDE, J.O.....143

LPBRC08 – THERMAL RESPONSE AND OXIDATIVE STRESS MARKERS OF RABBIT FED DIFFERENT CONCENTRATION OF BETAINE DURING DRY SEASON – GABRIEL G. O ., OGUNLADE J. T., OKE I. T.,

IBRAHIM A. A., KOLAWOLE T., TAOFEEK F., IBIKUNLE O., ADOEGUN A. A., DANDARA G. B., KEHINDE O. A., AND FOLAYAN A. T 149

LPBRC09 – SUSTAINABLE PRODUCTION OF AFRICAN GIANT POUCHED RAT, GRASSCUTTER, GUINEA PIG AND RABBIT – A REVIEW – KOLAWOLE, B.J AND AGANGA, A.A.....156

LPBRC10 – MOLECULAR AND STATISTICAL APPROACHES FOR IDENTIFYING HEAT ADAPTATION IN SHEEP AND GOATS IN THE TROPICS: A SYSTEMATIC REVIEW – ADETUNMBI T., ADUBAZI G. I, AJADI P. M., AKINBINU, A .J., AND OSUNKEYE J.O 163

LPBRC11 – EFFECT OF GENOTYPE ON REPRODUCTIVE TRAITS OF IMPROVED CHICKENS REARED IN HUMID ENVIRONMENT – AKINSOLA, K. L., OYEWOLE, Y. O., OLAWALE, A. S., AND ASAOLU, S. O 170

LPBRC12 – PERFORMANCE OF GROWING WAD GOATS OFFERED DIFFERENT SOURCES OF ORGANIC AND INORGANIC SALTS IN TUBER-BASED SUPPLEMENT – OCHEJA M. E., ARIBIDO S.O, AJAGBE A.D AND ADUBAZI G. I.....180

LPBRC13 – PHYTOGENIC FEED ADDITIVES IN RUMINANT PRODUCTION: A REVIEW OF RUMEN MODULATION, PERFORMANCE, AND ENVIRONMENTAL SUSTAINABILITY – FABUSORO, O. T. KEHINDE, O. A. GABRIEL, G. O. AND FOLAYAN, T. A 187

LPBRC14 – INSECT MEAL IN LIVESTOCK PRODUCTION: BENEFITS, LIMITATIONS AND POSSIBLE SOLUTIONS - EGBEYEMI1 O. B, AGANGA A. A, EKEOCHA A.H 194

SECTION D: AQUACULTURE AND FISHERIES MANAGEMENT (AQFIM)

AQFIM01 – EVALUATING EXOTIC MEDICINAL PLANT EXTRACTS AS ANTIBACTERIAL AGENTS IN AQUACULTURE: A CRITICAL REVIEW OF FISH PATHOGEN CONTROL STRATEGIES – AKINYEMI, I. G., AJAGBE, S. O ., AYOOLA, O. A., ADEREMI, T. F., FADIMU, O. B., OLOMOLA, A. O., SHORUNGBE, M. F. AND OYEDIRAN O. O 202

AQFIM02 – ANTIBACTERIAL POTENTIAL OF INDIGENOUS MEDICINAL PLANTS AGAINST FISH PATHOGENS: AN ANALYTICAL SYNTHESIS FOR SUSTAINABLE AQUACULTURE – AKINYEMI, I. G., AJAGBE, S. O ., AYOOLA, O. A., OLOMOLA, A. O., ADEREMI, T. F., FADIMU, O. B, SHORUNGBE, M. F., AND OYEDIRAN O. O.....209

BLACK SOLDIER FLY LARVAE MEAL AS A SUSTAINABLE ALTERNATIVE PROTEIN SOURCE IN BROILER PRODUCTION: A REVIEW

IBIKUNLE, R.O.[1,2]*, AKANDE, K.E.[1] AND IJAIYA, A.[1]

[1]*Department of Animal Production Technology, Federal University of Technology, Minna, Niger State.*
[2]*School of Agriculture and Agricultural Technology, The Federal Polytechnic Bida, Niger State.*
*Corresponding Author Email: olurich84@gmail.com

ABSTRACT

The rising costs of conventional feed ingredients and the quest for sustainable livestock production have intensified the search for alternative protein sources. Black soldier fly larvae (BSFL; *Hermetia illucens*) meal has emerged as a promising option due to its high protein content, balanced amino acid profile, and waste conversion potential. This review synthesized information obtained from peer-reviewed journal articles and scientific databases published between 2009 and 2025 on the nutritional value and utilization of BSFL meal in poultry production. The review examines the nutritional composition, growth performance effects, and sustainability implications of BSFL meal in broiler production. Studies report crude protein levels of 35–55%, beneficial lipids, minerals, and bioactive compounds (Ahmed et al., 2023; Spranghers et al., 2017). Inclusion of BSFL in broiler diets improves feed efficiency, reduces reliance on fish and soybean meal, and supports circular agriculture through waste recycling (Gasco et al., 2019; Onsongo et al., 2018). Challenges remain in nutrient variability, processing standardization, and consumer acceptance. Nonetheless, BSFL meal holds great promise for sustainable poultry production in Nigeria. Standardized production, investment in insect farming, and supportive policies are recommended for large-scale adoption.

Keywords:
Black soldier fly larvae, broiler production, sustainability, alternative protein, poultry feed.

INTRODUCTION

Poultry production contributes significantly to food security and economic development in developing nations. However, high feed costs, especially protein sources such as fish meal and soybean meal, limit profitability, as feed represents 60–70% of total production costs

BOOK OF PROCEEDINGS – 1ST INTERNATIONAL CONFERENCE FACULTY OF AGRICULTURE, FUOYE | [2026]

(Ahmed et al., 2023). Competition between humans and livestock for feed resources has driven interest in alternative proteins. Insects, particularly black soldier fly larvae (BSFL), have gained attention for their nutritional value, efficient waste conversion ability, and environmental benefits (Van Huis, 2013; Makkar et al., 2014).

BSFL efficiently convert organic waste into nutrient-rich biomass while requiring minimal land, water, and energy inputs (Diener et al., 2009; Wang and Shelomi, 2021). Their larvae contain high-quality protein, beneficial fats, and antimicrobial compounds that support poultry health and productivity (Elahi et al., 2020). Several studies have reported that incorporating BSFL into broiler diets enhances growth performance, carcass yield, and feed conversion efficiency (Gasco et al., 2019; Moula and Detilleux, 2019). This review highlights the nutritional value, sustainability benefits, challenges, and future prospects of BSFL meal in broiler production.

METHODOLOGY

This review was conducted through a structured search of peer reviewed literature on black soldier fly larvae meal in broiler production. Relevant articles were obtained from Google Scholar, Scopus, ScienceDirect, Web of Science, and related scientific publications. Search terms included "black soldier fly larvae meal", "*Hermetia illucens*", "broiler nutrition", "alternative protein sources", "insect meal", and "sustainable poultry production". Literature published between 2009 and 2025 was prioritized. Studies were selected based on their relevance to nutritional composition, growth performance, environmental sustainability, and challenges associated with BSFL utilization in poultry feeding. Information obtained from selected studies was critically synthesized to provide a comprehensive overview of current knowledge and future prospects.

RESULTS AND DISCUSSION

Nutritional Composition

BSFL meal composition varies with substrate type, rearing conditions, larval age, and processing methods, but generally contains 35–55% crude protein and 15–35% crude fat (Ahmed et al., 2023). It provides essential amino acids such as lysine, methionine, and threonine, as well as important minerals including calcium, phosphorus, zinc, and iron (Spranghers et al., 2017; Abd El-Hack et al., 2020). In addition, BSFL contains chitin and lauric acid, which have been associated with improved gut health, antimicrobial activity, and enhanced immune response in poultry (Abd El-Hack et al., 2020; Elahi et al., 2020). The ability of BSFL to convert low-value organic waste into high-quality protein biomass further highlights its sustainability potential (Diener et al., 2009; Seyedalmoosavi et al., 2022).

Table 1 provides a comparison of the nutrient composition of dry and defatted black soldier fly larvae (BSFL) meal.

Table 1: Nutrient composition of dry larvae and defatted BSFL meal

Nutrient	Dry larvae	Defatted larvae
Crude protein content (%)	40.88	60.69
Crude fat content (%)	20.99	7.97
Lysine (%)	1.93	2.96
Methionine (%)	0.49	0.72
Cysteine (%)	0.31	0.47
Threonine (%)	1.37	2.01
Tryptophan (%)	0.45	0.71

Source: Cullere et al. (2016)

Although most studies consistently report high nutritional value, nutrient composition may vary depending on substrate quality and processing methods. Such variation can affect feed formulation and animal performance, emphasizing the need for production standardization and quality control measures (Spranghers et al., 2017; Crosbie et al., 2020). In animal feed production, BSFL products are commonly available as either full-fat or defatted meal. The primary difference lies in their fat and saturated fatty acid content. Both defatted and full fat BSFL possess rich amino acid profiles and are increasingly recognized as sustainable alternatives to conventional soybean meal and fish meal (Crosbie et al., 2020).

Effects on Broiler Growth Performance

Moderate inclusion levels of BSFL meal can replace fish meal or soybean meal without compromising broiler performance. Birds fed BSFL based diets have demonstrated comparable or improved body weight gain, feed conversion ratio, and carcass yield compared with birds fed conventional diets (Chhetri et al., 2025; De Marco et al., 2015). Several studies have also reported improvements in breast muscle development and meat quality characteristics following BSFL inclusion (Cullere et al., 2016; Biasato et al., 2016). These findings suggest that BSFL meal can serve as an effective alternative protein ingredient in broiler nutrition (De Marco et al., 2015; Gasco et al., 2019). However, responses are not always consistent across studies. Differences in inclusion levels, nutrient composition, processing methods, and management conditions may influence performance outcomes. Excessive inclusion rates may reduce feed palatability and nutrient digestibility due to elevated chitin content (Abd El-Hack et al., 2020; Moula and Detilleux, 2019). Therefore, proper processing and determination of optimal inclusion levels are essential for maximizing benefits.

BOOK OF PROCEEDINGS – 1ST INTERNATIONAL CONFERENCE FACULTY OF AGRICULTURE, FUOYE | [2026]

Sustainability and Environmental Benefits

BSFL farming supports waste management and circular agriculture by converting organic waste such as food residues, agricultural by products, and animal manure into high value protein biomass. Production requires less land and water than conventional protein sources such as soybean meal and fish meal while potentially reducing greenhouse gas emissions (Wang and Shelomi, 2021). Another important advantage is the production of frass, a nutrient rich residue that can be used as an organic fertilizer, thereby promoting nutrient recycling and sustainable crop production (Wang and Shelomi, 2021; Heuel et al., 2021). Through these mechanisms, BSFL production can reduce the environmental footprint associated with poultry feed manufacturing (Gasco et al., 2019; Heuel et al., 2021). Although the environmental benefits of BSFL are widely acknowledged, further large-scale assessments are required to quantify long term environmental and economic impacts under commercial production systems, particularly in developing countries.

Challenges to Adoption

Several challenges continue to limit the widespread adoption of BSFL meal in poultry production (Abd El-Hack et al., 2020; Heuel et al., 2021). Variability in nutrient content due to inconsistent substrates and processing techniques complicates feed formulation and quality assurance. Consumer perception also remains a challenge, as some individuals may be unfamiliar with insect derived feed ingredients. Furthermore, regulatory frameworks governing insect farming and feed utilization are still evolving in many countries (Van Huis, 2013; Heuel et al., 2021). Smallholder farmers may also face constraints related to capital investment, technical knowledge, and processing infrastructure. Addressing these limitations will require improved production standardization, technological innovation, policy support, and increased awareness among producers and consumers (Abd El-Hack et al., 2020; Heuel et al., 2021). Future research should also focus on improving processing technologies, reducing nutrient variability, and evaluating the economics of large scale BSFL production systems.

Prospects in Nigeria

Nigeria possesses favourable climatic conditions and abundant organic waste resources suitable for BSFL production (Onsongo et al., 2018; Tanga et al., 2021). Organic materials generated from households, restaurants, markets, breweries, and agricultural activities can serve as low cost substrates for larval production (Diener et al., 2009; Tanga et al., 2021). Utilization of these materials can simultaneously reduce feed costs and environmental pollution. Adoption of BSFL meal could reduce dependence on imported feed ingredients, improve farmer profitability, and create employment opportunities for youth and agribusiness entrepreneurs (Onsongo et al., 2018; Heuel et al., 2021). Across Africa, countries such as Kenya, Uganda, Ghana, and South Africa have demonstrated increasing

success in insect farming through partnerships involving research institutions, development organizations, and private enterprises (Tanga et al., 2021; Van Huis, 2013). These experiences provide useful lessons for Nigeria regarding production systems, farmer training, quality assurance, commercialization, and regulatory development (Tanga et al., 2021).Collaborative efforts among universities, government agencies, private investors, and farmer organizations will be crucial for scaling up BSFL production and establishing quality standards. Integrating BSFL technology into existing agricultural systems aligns strongly with Nigeria's goals of food security, environmental sustainability, and agricultural transformation.

CONCLUSION

Black soldier fly larvae meal offers a viable and sustainable solution to rising feed costs and protein scarcity in broiler production due to its favourable nutritional profile, growth-promoting effects, and environmental benefits (Gasco et al., 2019; Abd El-Hack et al., 2020; Heuel et al., 2021). It supports growth performance and feed efficiency while reducing the environmental burden associated with conventional protein sources. Although challenges relating to processing, regulation, nutrient variability, and consumer perception remain, the prospects for BSFL adoption in Nigeria are highly encouraging. Continued research, supportive policy frameworks, and investment in insect farming enterprises will facilitate large-scale implementation. The integration of BSFL meal into poultry nutrition strategies has the potential to contribute significantly to sustainable livestock production, environmental management, and national food security.

REFERENCES

Abd El-Hack, M.E., Shafi, M.E., Alghamdi, W.Y., Abdelnour, S.A., Shehata, A.M., Noreldin, A.E. and Swelum, A.A. (2020). Black soldier fly (*Hermetia illucens*) meal as a promising feed ingredient for poultry: A comprehensive review. *Agriculture*, 10(8), 339. https://doi.org/10.3390/agriculture10080339

Ahmed, I., Yang, Y., Wang, Z., Khan, S., Shah, A.A., Ahmad, H. and Pan, K. (2023). Black soldier fly as a potential alternative protein source in broiler diets. *Annals of Animal Science*, 23(4), 939–949. https://doi.org/10.2478/aoas-2022-0094

Biasato, I., De Marco, M., Rotolo, L., Renna, M., Lussiana, C., Dabbou, S., Capucchio, M.T., Biasibetti, E., Costa, P., Gai, F. and Gasco, L. (2016). Effects of dietary *Tenebrio molitor* meal inclusion in free-range chickens. *Journal of Animal Physiology and Animal Nutrition*, 100(6), 1104–1112. https://doi.org/10.1111/jpn.12587

Chhetri, S., Sharma, P., Sharma, S. and Bhattarai, S. (2025). Effect of black soldier fly larva meal on broiler chicken production, meat quality and physiological properties: A meta-analysis. *Kafkas Üniversitesi Veteriner Fakültesi Dergisi*, 31(4), 441–452. https://doi.org/10.9775/kvfd.2025.34043

Crosbie, M., Zhu, C., Shoveller, A.K. and Huber, L.A. (2020). Standardized ileal digestible amino acids and net energy contents in full-fat and defatted black soldier fly larvae meals (*Hermetia illucens*) fed to growing pigs. *Translational Animal Science*, 4(3), txaa104. https://doi.org/10.1093/tas/txaa104

Cullere, M., Tasoniero, G., Giaccone, V., Miotti-Scapin, R., Claeys, E., De Smet, S. and Dalle Zotte, A. (2016). Black soldier fly as dietary protein source for broiler quails: Apparent digestibility, excreta microbial load and meat traits. *Animal*, 10(12), 1923–1930. https://doi.org/10.1017/S1751731116001270

De Marco, M., Martínez, S., Hernandez, F., Madrid, J., Gai, F., Rotolo, L., Belforti, M., Bergero, D., Katz, H., Dabbou, S., Kovitvadhi, A., Zoccarato, I., Gasco, L. and Schiavone, A. (2015). Nutritional value of two insect larval meals for broiler chickens: Apparent nutrient digestibility, apparent ileal amino acid digestibility and apparent metabolizable energy. *Animal Feed Science and Technology*, 209, 211–218. https://doi.org/10.1016/j.anifeedsci.2015.08.006

Diener, S., Zurbrügg, C. and Tockner, K. (2009). Conversion of organic material by black soldier fly larvae: Establishing optimal feeding rates. *Waste Management and Research*, 27(6), 603–610. https://doi.org/10.1177/0734242X09103838

Elahi, U., Xu, C.C., Wang, J., Wu, S.G. and Zhang, H.J. (2020). Insect meal as a promising feed ingredient for poultry nutrition. *Animals*, 10(11), 2085. https://doi.org/10.3390/ani10112085

Gasco, L., Biasato, I., Dabbou, S., Schiavone, A. and Gai, F. (2019). Animals fed insect-based diets: State-of-the-art on nutritional, functional and environmental implications. *Animals*, 9(4), 170. https://doi.org/10.3390/ani9040170

Heuel, M., Sandrock, C. and Leiber, F. (2021). Black soldier fly larvae meal in animal feed and its environmental impact: A review. *Sustainability*, 13(18), 10455. https://doi.org/10.3390/su131810455

Makkar, H.P.S., Tran, G., Heuzé, V. and Ankers, P. (2014). State-of-the-art on use of insects as animal feed. *Animal Feed Science and Technology*, 197, 1–33. https://doi.org/10.1016/j.anifeedsci.2014.07.008

Moula, N. and Detilleux, J. (2019). A meta-analysis of the effects of insects in feed on poultry growth performance. *Animals*, 9(5), 201. https://doi.org/10.3390/ani9050201

Onsongo, V.O., Osuga, I.M., Gachuiri, C.K., Wachira, A.M., Miano, D.M., Tanga, C.M., Ekesi, S., Nakimbugwe, D. and Fiaboe, K.K.M. (2018). Insects for income generation through animal feed: Effect of replacing soybean and fish meal with black soldier fly larvae meal in broiler diets. *Journal of Economic Entomology*, 111(4), 1966–1973. https://doi.org/10.1093/jee/toy118

BOOK OF PROCEEDINGS – 1ST INTERNATIONAL CONFERENCE FACULTY OF AGRICULTURE, FUOYE | [2026]

Seyedalmoosavi, M.M., Mielenz, M., Veldkamp, T., Daş, G. and Metges, C.C. (2022). Growth efficiency, intestinal biology, and nutrient utilization and requirements of black soldier fly (Hermetia illucens) larvae compared to monogastric livestock species: A review. J. Anim. Sci. Biotechnol., 13(1):31.

Tanga, C.M., Beesigamukama, D., Hailu, G. and Ekesi, S. (2021). Scaling up insect-based feed technologies in Africa: Opportunities, challenges and pathways for adoption. *Sustainability*, 13(14), 7890. https://doi.org/10.3390/su13147890

Van Huis, A. (2013). Potential of insects as food and feed in assuring food security. *Annual Review of Entomology*, 58, 563–583. https://doi.org/10.1146/annurev-ento-120811-153704

Wang, Y.S. and Shelomi, M. (2021). Review of black soldier fly larvae as a sustainable manure management and feed production strategy. *Journal of Integrative Agriculture*, 20(5), 1167–1179. https://doi.org/10.1016/S2095-3119(20)63305-8

BOOK OF PROCEEDINGS FOR THE 1ST INTERNATIONAL CONFERENCE OF THE FACULTY OF AGRICULTURE, FEDERAL UNIVERSITY OYE-EKITI (FUOYE)

PERFORMANCE AND BIOECONOMIC RESPONSE OF GROWING RABBITS FED GRADED DIETARY LEVELS OF FERMENTED SORGHUM WASTE

KEHINDE, O. A*., GABRIEL, O. G. FOLAYAN, T. A., KOLAWOLE, B. J., KUYETI, O. O., ATAYERO, G. O., OLA-ALAWODE, I. A., ODUNJO, T. D., OLAWALE, V. O., and DAIRO, F.A.S.

Department of Animal Production and Health, Federal University Oye Ekiti, Nigeria.
*Corresponding author's email: oluwafemi.kehinde@fuoye.edu.ng/ +2348032423405

ABSTRACT

Feed cost remains the major constraint in rabbit production, necessitating evaluation of alternative feed resources such as fermented sorghum waste (FSW). This study evaluated the effects of graded dietary inclusion of fermented sorghum waste (FSW) on growth performance and bioeconomic indices of growing rabbits. Four diets were formulated with 0, 10, 20, and 30 percent inclusion levels, replacing brewers dried grain. Sorghum waste was fermented anaerobically for 72 hours at 28±2°C without inoculum. Twenty-four rabbits aged 8 to 9 weeks were assigned to treatments in a completely randomized design (CRD) (6 rabbits/treatment) for 49 days and seven days acclimatization period. Growth performance indices including average daily feed intake (ADFI), average daily weight gain (ADWG), feed conversion ratio (FCR), and protein efficiency ratio (PER) were measured. Bioeconomic indices including feed cost per kilogram and cost per kilogram weight gain were computed. Data were analysed using analysis of variance. Fermented sorghum waste had high carbohydrate, moderate fibre, and low crude protein, confirming its role as an energy diluent. Growth performance was not significantly ($P>0.05$) affected across treatments. Numerically, FCR improved from 13.69 (control) to 13.62 at 30% inclusion, and PER improved from 0.26 to 0.31 though not statically significant ($P>0.05$). Feed cost per kilogram decreased from ₦206.61 in the control to ₦152.40 at 30 percent inclusion ($P<0.05$), a 26% reduction. Fermented sorghum waste can be included up to 30% in diets of growing rabbits without adverse effects on performance while significantly reducing production cost.

Keywords: *Fermented Sorghum Waste, Rabbits; Growth Performance; Feed Cost; Agro by-products*