Insect slurry as a wet local ingredient for Poultry in Nigeria - SMP24007

December 2024

Arya Rezaei Far (WLR), Natalia Naranjo Guevara (NGN)

Background

The problem

Nigeria's feed and poultry sectors face ingredient shortage, threatening food security.
Insects offer potential as an alternative locally produced ingredient while processing larvae to dried meal is a challenge for insect farmers in Nigeria and increases environmental impact in the Netherlands

The approach

Build a consortium to test the production of a less-processed BSF product as a feed ingredient in Nigeria

The product

Black Soldier Fly larvae slurry; low processing cost, rich in protein and energy

The solution

Introducing Black Soldier Fly larvae (BSF) as a local, stable, and nutritious ingredient

Industrial lead: New Generation Nutrition

Wadudu

OvoCON

IITA

ILRI

Agricultural Consulate

Wageningen Livestock Research

Methodology

Insect rearing (IITA/NGN)

- **Rearing facility** IITA Ibadan
- **Substrate composition**
  - 70:20:10
  - Spent grains
  - Cassava peels:
  - Fruits waste
- **Rearing conditions**
  - 28–32°C
  - 65–75%
- **Data collection**:
  - Total wet weight,
  - FCR)
  - Survival rate.

Processed to slurry

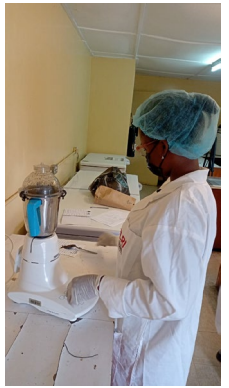
- **Toasting larvae** Traditional method
- **Slurry production** Mixer Grinder
- **Freezing slurry** ≤-18°C
- **Vacuum sealing slurry**

Nutritional composition & Microbial load

- **Proximate and mineral analyses**
- **Microbial profile for bacterial cultures**
- **Microbial profile for fungal cultures**

Feasibility study

- **Data collection**
- **Cost modelling**
- **Process efficiency analysis**
- **Scenario-based financial analysis**



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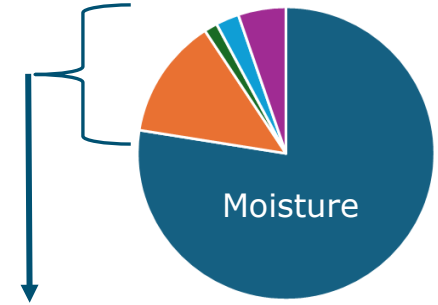
BSF Slurry

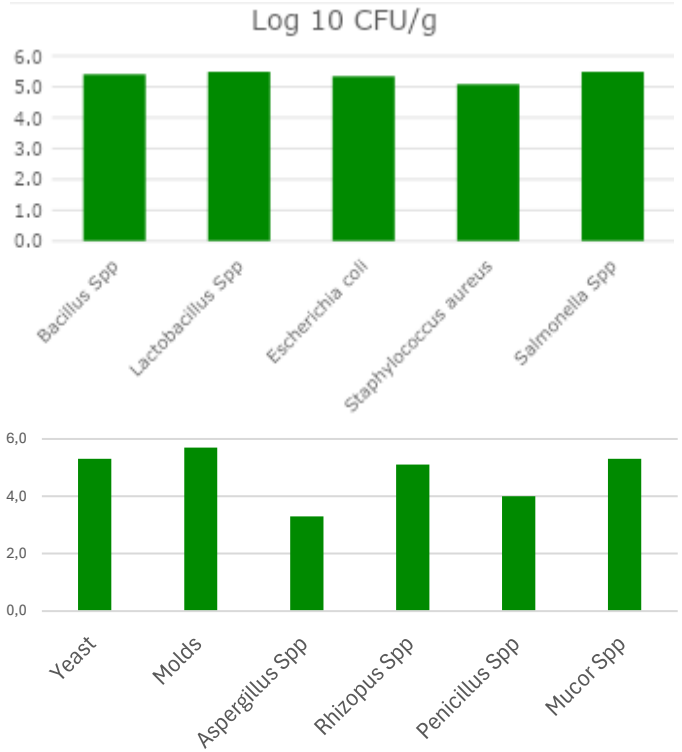


Crude Fibre	22.6
Ash	11.0
Fat	6.3
Crude Protein	57.6

	g/kg as is
Ca	4.7
P	3.5
Mg	1.1
K	4.5

	mg/kg as is
Zinc	21
Iron	70
Mn	50
Na	4
Cu	3

	Log 10 CFU/g
Total viable bacteria	**6.2**
Total viable fungi	**4.8**



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Business Case

g/kg feed
13 crude protein
1.4 Fat
700 mg Lauric acid

g/kg feed
73 Crude protein
7.9 Fat
3600 mg Lauric acid

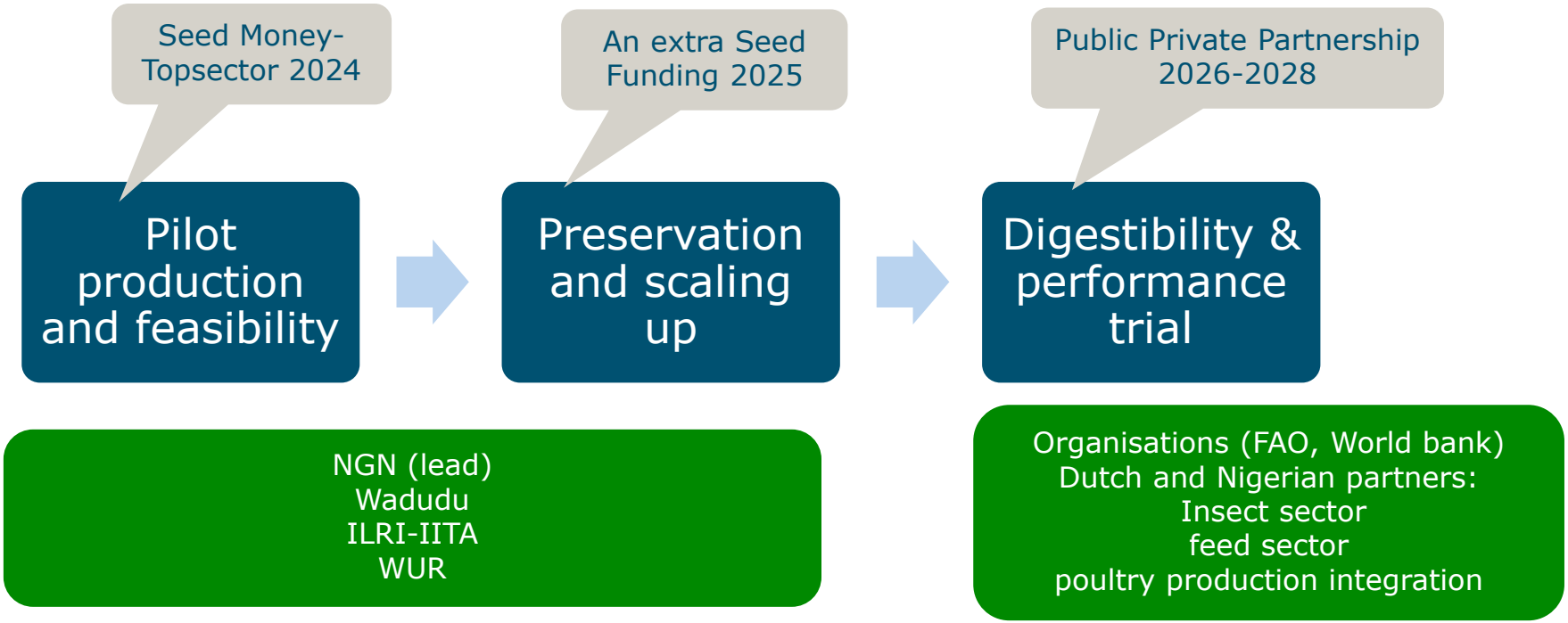
Local price /kg

- BSF live larvae: ₦;750 (€0.44)
- Dried BSF larvae: ₦3500 (€2.06)
- Slurry processing: ₦1025 (€0.90)
- Slurry: ₦2277 (€1.34)
- Fish meal: ₦1500/3000 (€0.88-1.77)
- Soy bean meal: ₦1250 (€0.74)

Conclusions

- There is an urgent need for local, reliable, and nutritious ingredients for feed in Nigeria
- BSF slurry have promising chemical composition and acceptable microbial load
- Need to test further preservation methods; Organic acid application or fermentation
- Slurry viability: Sourcing free or low-cost substrates, optimizing logistics scaling production capacity.

Next steps



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Impact of support

- Produced the slurry in lab-scale and determined challenges/risks; Preservation method and scalling up
- Prepared the financial feasibility of BSF slurry production and scenarios for its application in poultry feed; Applicable to Nigeria and the Netherlands
- Reinforced the partnership between knowledge institutes and private sector in Nigeria and the Netherlands and formed a Dutch-Nigerian consortium to apply for other funding tools
- Improved market position in Nigeria

Thank you for your attention!

Arya Rezaei Far
Researcher Poultry Nutrition at
Wageningen Livestock Research
arya.rezaeifar@wur.nl

Natalia Naranjo-Guevara
NGN – New Generation Nutrition
Senior Project Manager
natalianaranjo@ngn.co.nl

TOPSECTOR TUINBOUW & UITGANGSMATERIALEN

IITA Transforming African Agriculture

ILRI CGIAR

NGN impact with insects

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