

Edible Insect Farming in Africa: Opportunities, Value Addition and Challenges

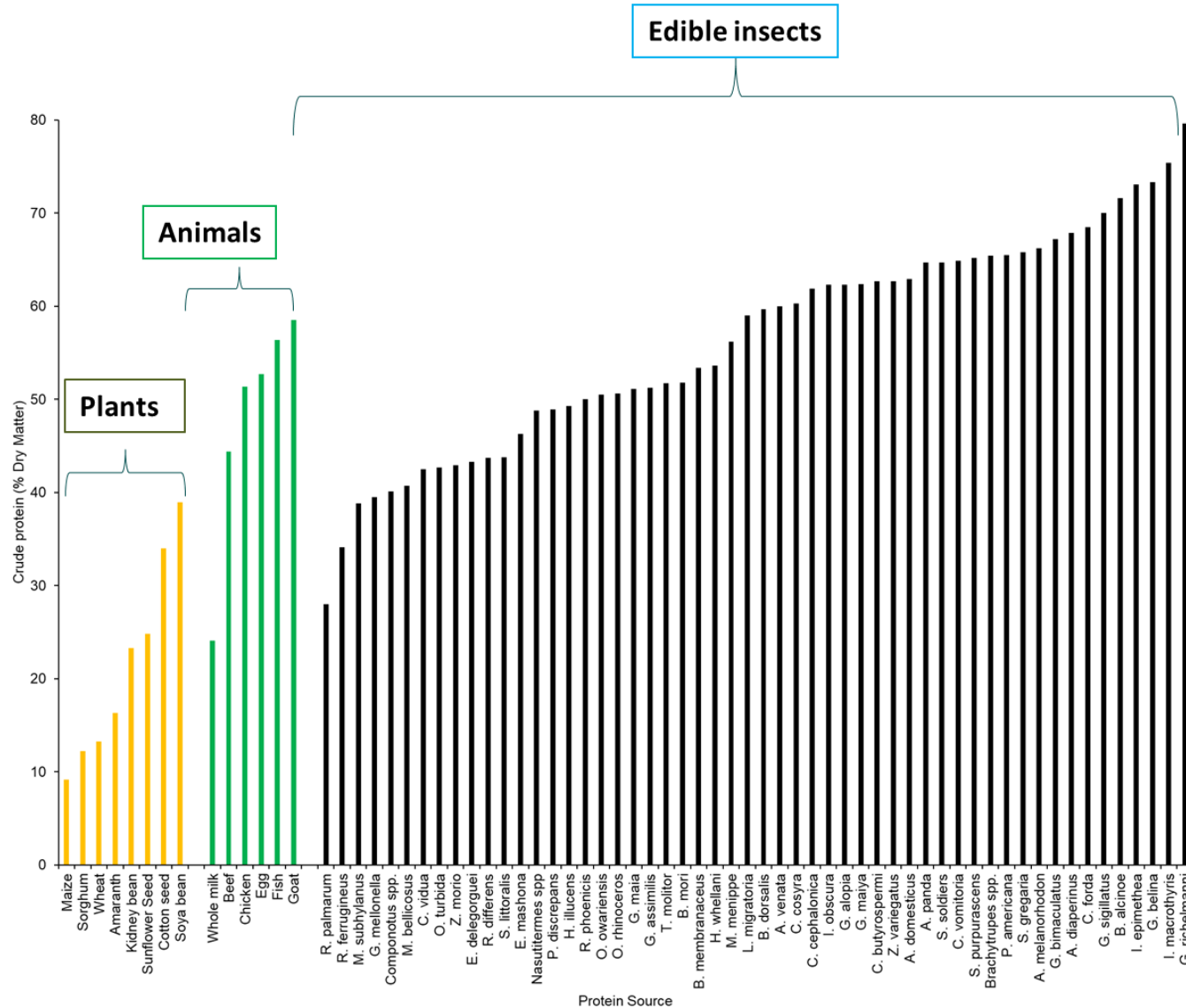
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International Centre of Insect Physiology and Ecology (*icipe*)

Awareness on African Standards and certification schemes for Edible Insects for food and feeds, 14th April 2026

Why Insects?



- Crude protein: 28-80%
- Fat content: 25-40%
- Iron: 4-64 mg/100 g
- Zinc: 8-88 mg/100 g

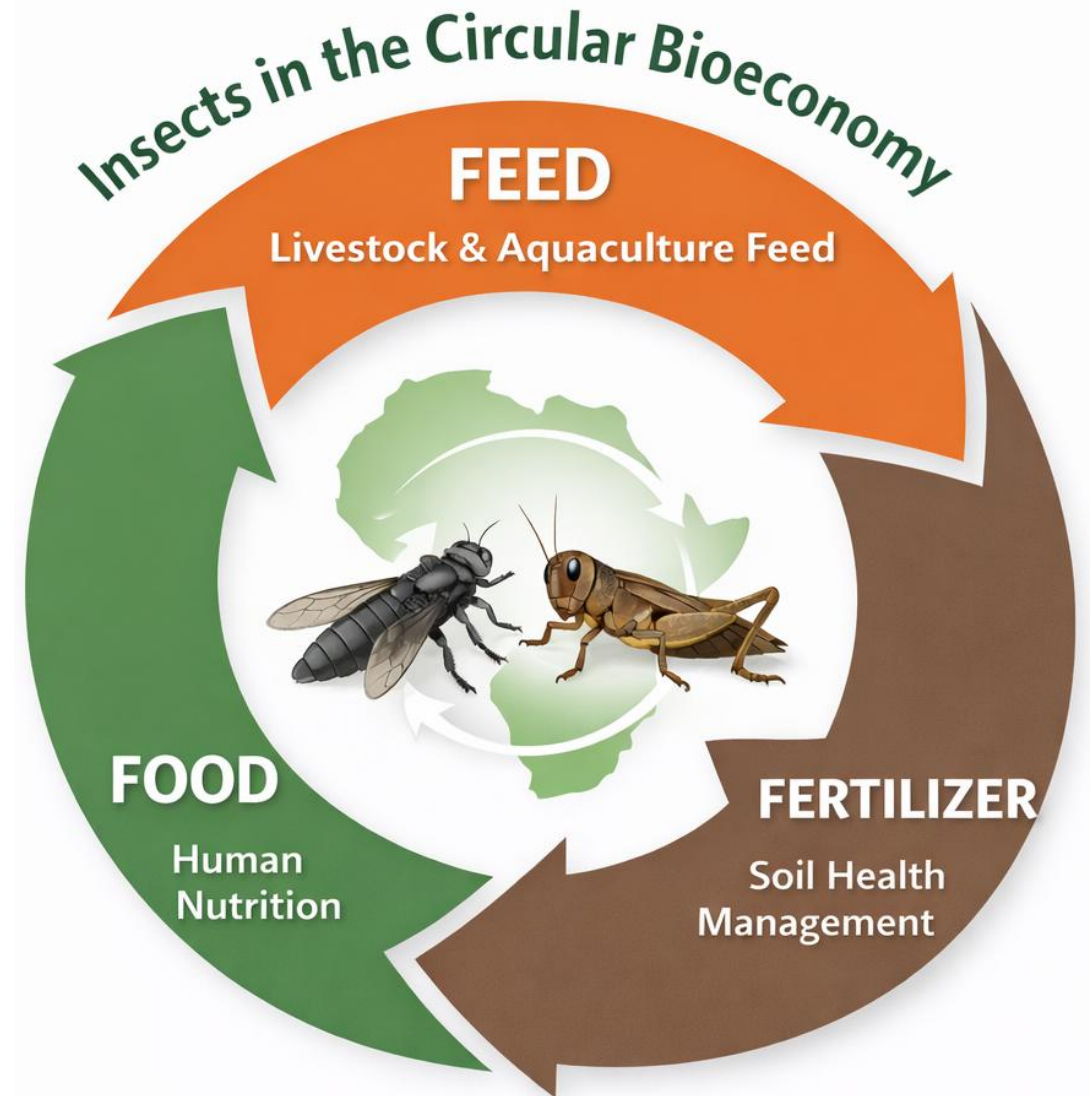
Economic Benefits Edible Insect Farming

- Cost-effective alternative for soybean and fishmeal
- Insects grow rapidly and require minimal resources to start
- Can be reared on organic residual streams
- Increases local availability and job creation
- Reduces dependency on imported feed, fertilizer products



Insects in the Circular Bioeconomy

The 3F Concept: **F**EED | **F**OOD | **F**ERTILIZER



Some Common Insect Species

Food



Gonimbrasia belina



Ruspolia differens



Nudaurelia krucki



Bunaea alcinoe

Food/Feed



Black soldier fly



Locust

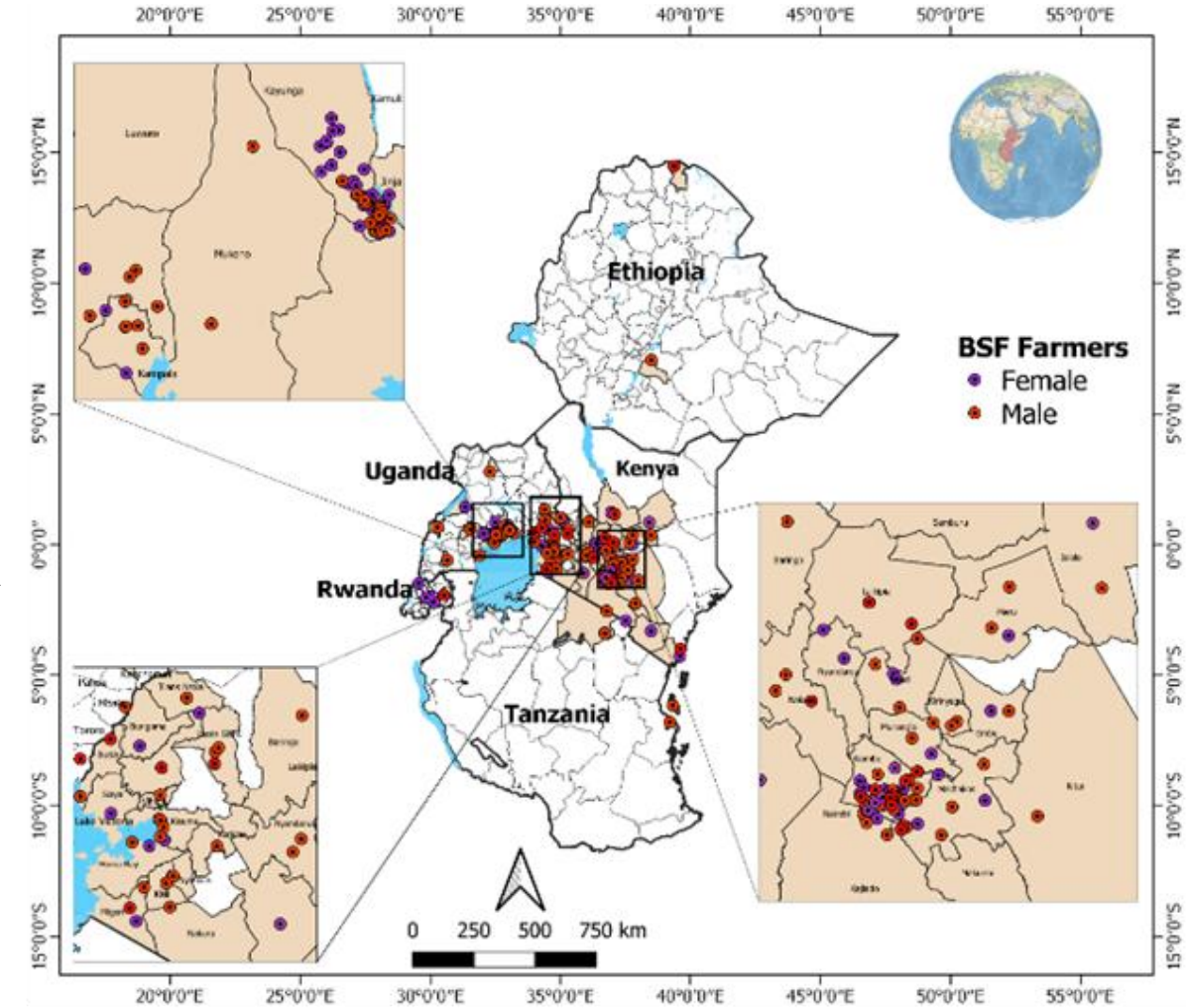
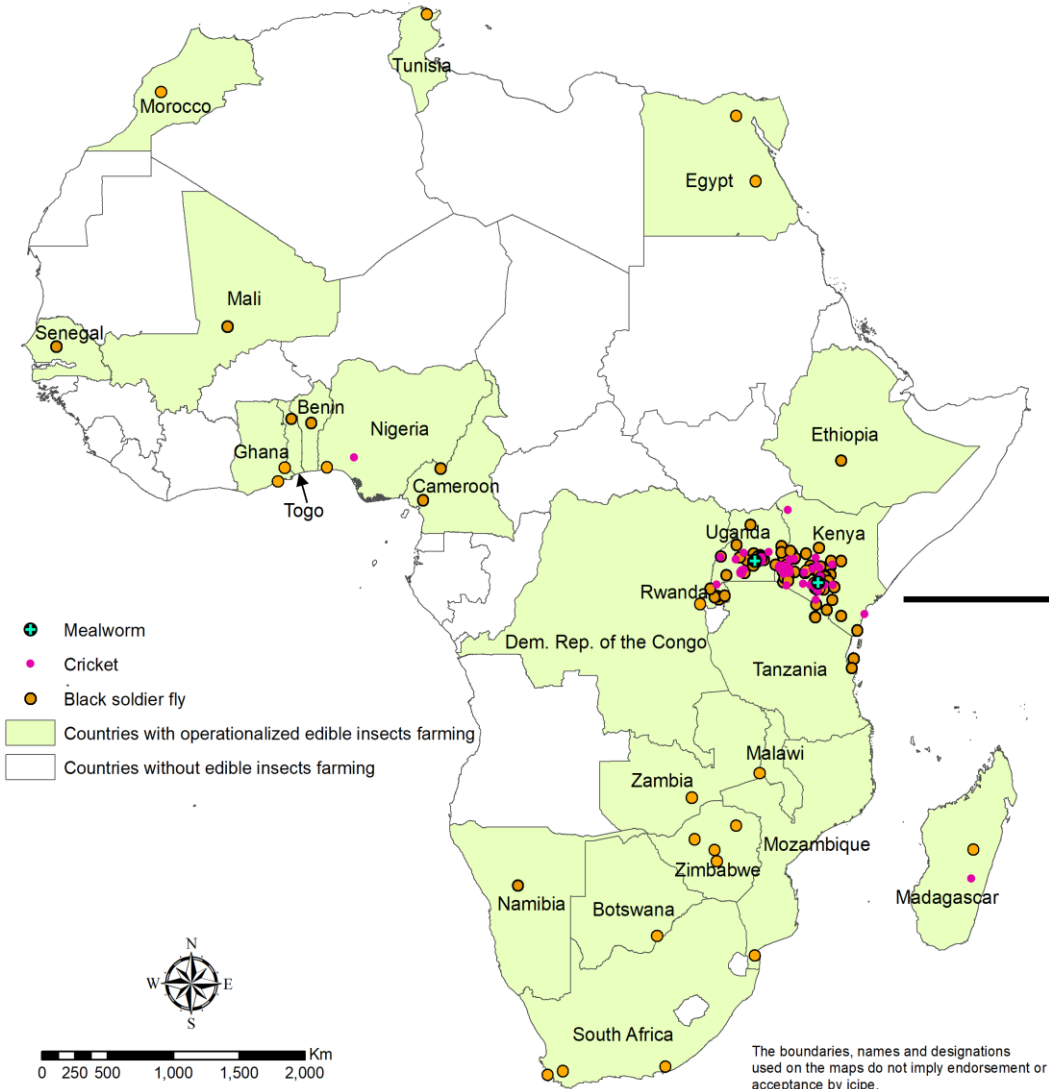


Mealworms



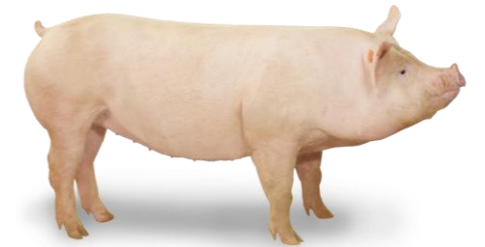
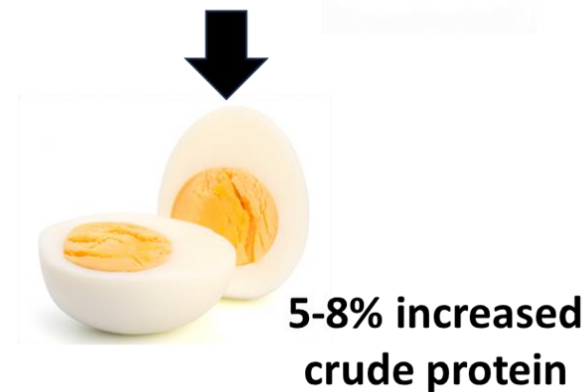
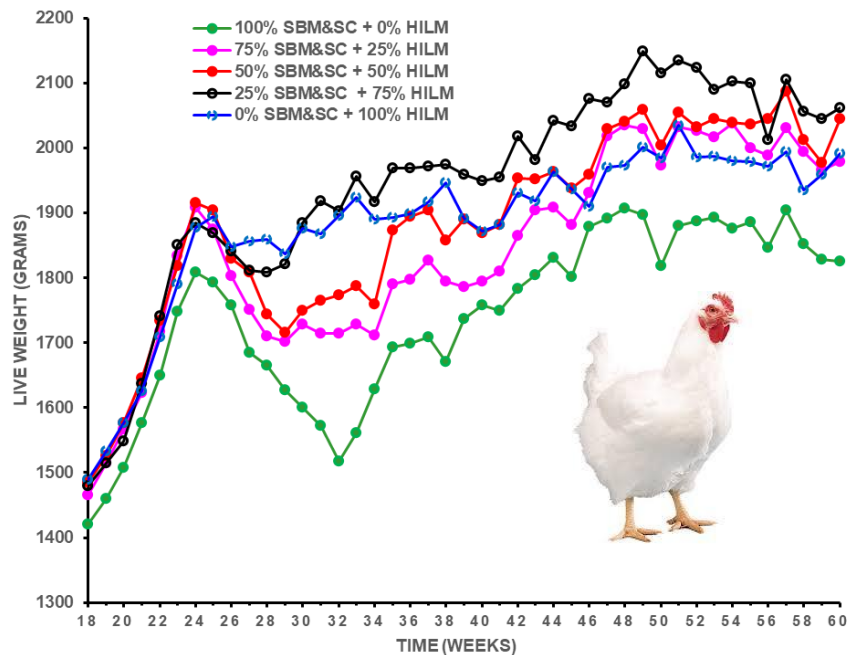
Crickets

Growth of the edible insect Sector in Africa

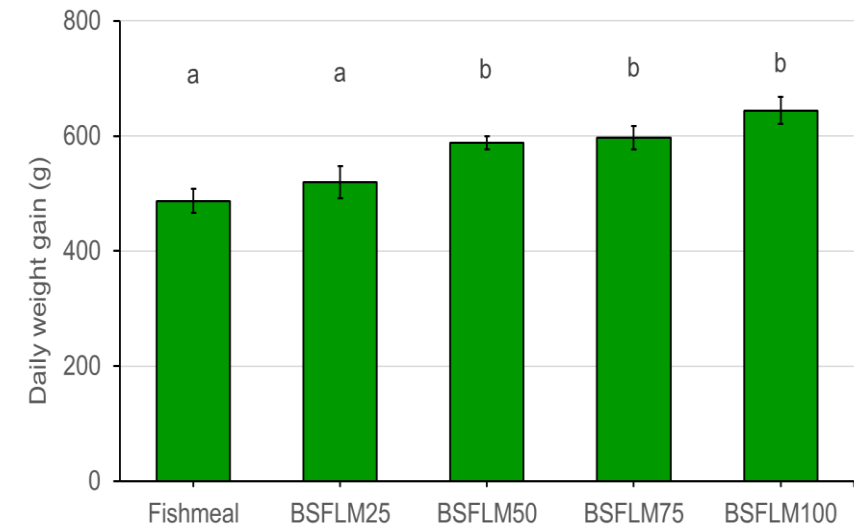


INSECTS FOR FEED – Transforming Livestock Systems

- Insect meal replacing fishmeal/soybean meal in poultry, fish and pig feeds
- Insect oil as an alternative lipid source

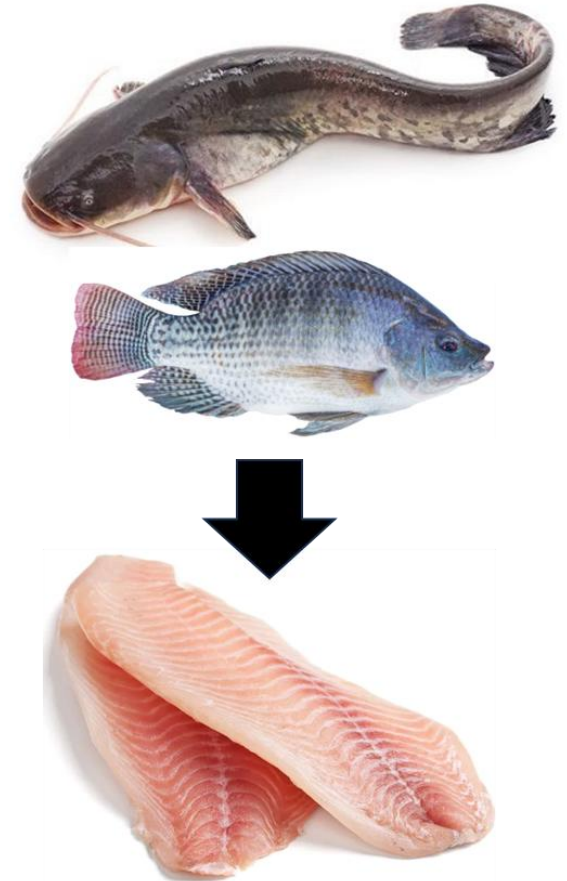
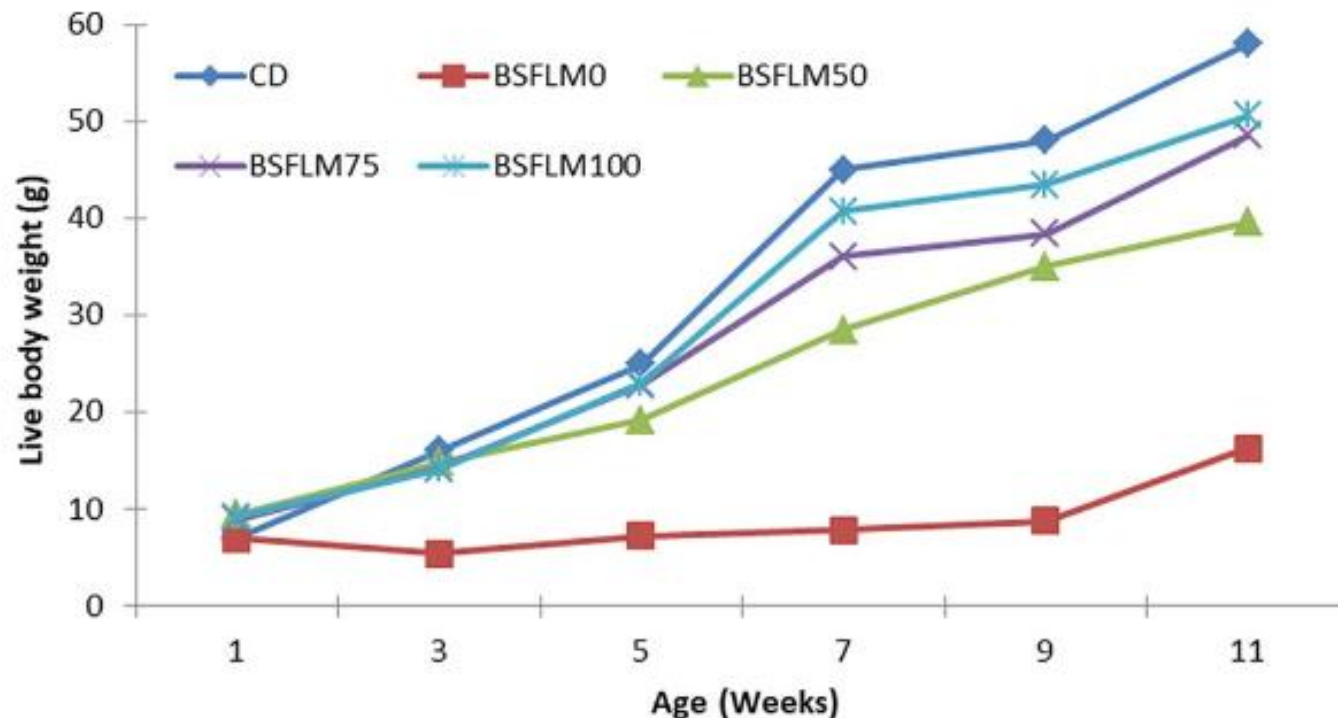


- Replacing fishmeal with BSFLM in pig feed increased weight gain by 7 – 32%



INSECTS For Aquaculture Feed

- Improves growth rates and feed conversion
- Inclusion rate: Up to 50% insect meal
(*Jeyaprakashsabari & Aanand, 2024*)



**7-10% increased
crude protein**

FEED – Value Addition Opportunities

Value Addition in Feed Products



FEED – Value Addition Opportunities

- Defatted insect meal
- Insect oil
- Functional feed ingredients



Customized feed formulations



Fresh larvae



Dried larvae



Larvae meal

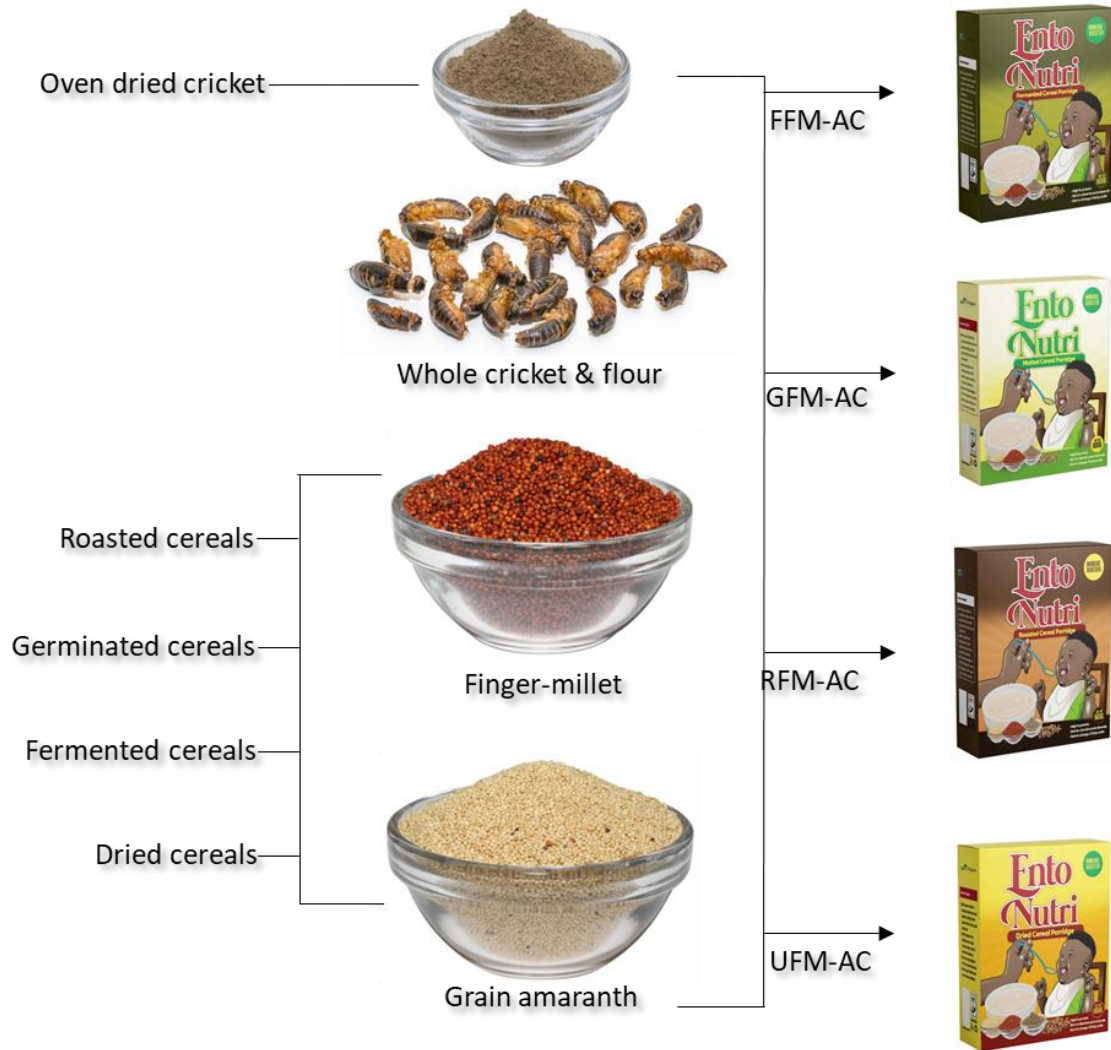


Nutrient recovery from BSF larvae



Parameter (%)	Full Fatted	Defatted	Amino acid (mg/g)	Defatted	Full Fat BSFL
Dry matter	93.65 ± 0.035	92.41 ± 0.198	Histidine	0.19 ± 0.004	0.18 ± 0.003
Protein	48.17 ± 0.427	57.00 ± 0.219	Isoleucine	1.23 ± 0.124	0.76 ± 0.025
Ash	10.43 ± 0.145	14.43 ± 0.033	Leucine	2.36 ± 0.083	1.59 ± 0.067
Fat	21.48 ± 0.223	9.47 ± 0.067	Lysine	0.46 ± 0.011	0.31 ± 0.009
Fibre	7.12 ± 0.113	9.11 ± 0.162	Methionine	1.03 ± 0.034	0.30 ± 0.005
			Phenylalanine	2.65 ± 0.293	1.69 ± 0.050

INSECTS FOR FOOD – Human Nutrition Potential

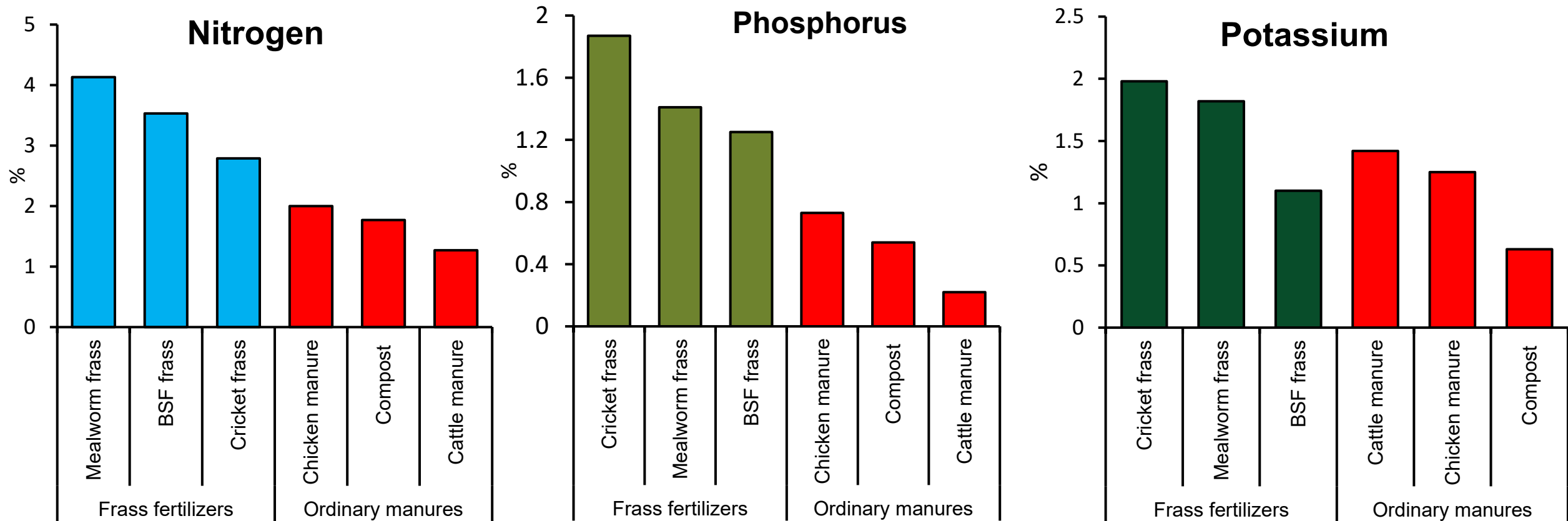


FOOD – Value Addition

- Insect flour incorporation
- Fortified foods
- High-value urban and specialty markets-
 - insect-based snacks, protein bars, etc.
- market segment relatively small, but important
 - ‘survival food’ to ‘premium, sustainable nutrition.
- Processing and product development are key to overcoming acceptance barriers.



FRASS FERTILIZER – The Hidden Opportunity



- Supplies 18 nutrients for optimal plant growth compared to 3 - 5 supplied by synthetic fertilizer

FRASS – Value Addition



Fast-release fertilizer

- Suitable for all crops



Multipurpose

- Pest and disease suppression

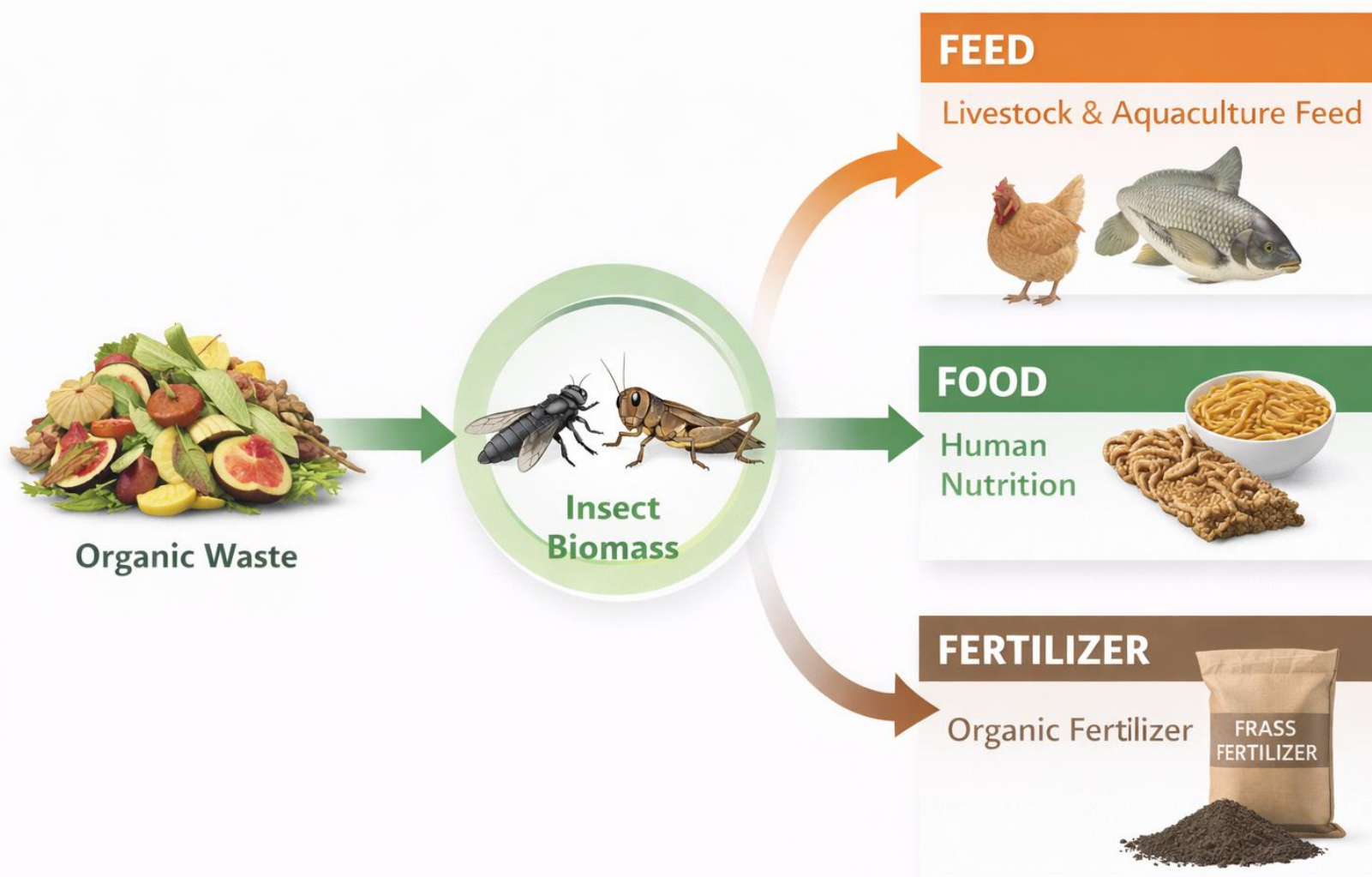


Slow-release fertilizer

- Suitable for perennial crops



Integrated Value Chain - From Waste to Wealth



Business Case

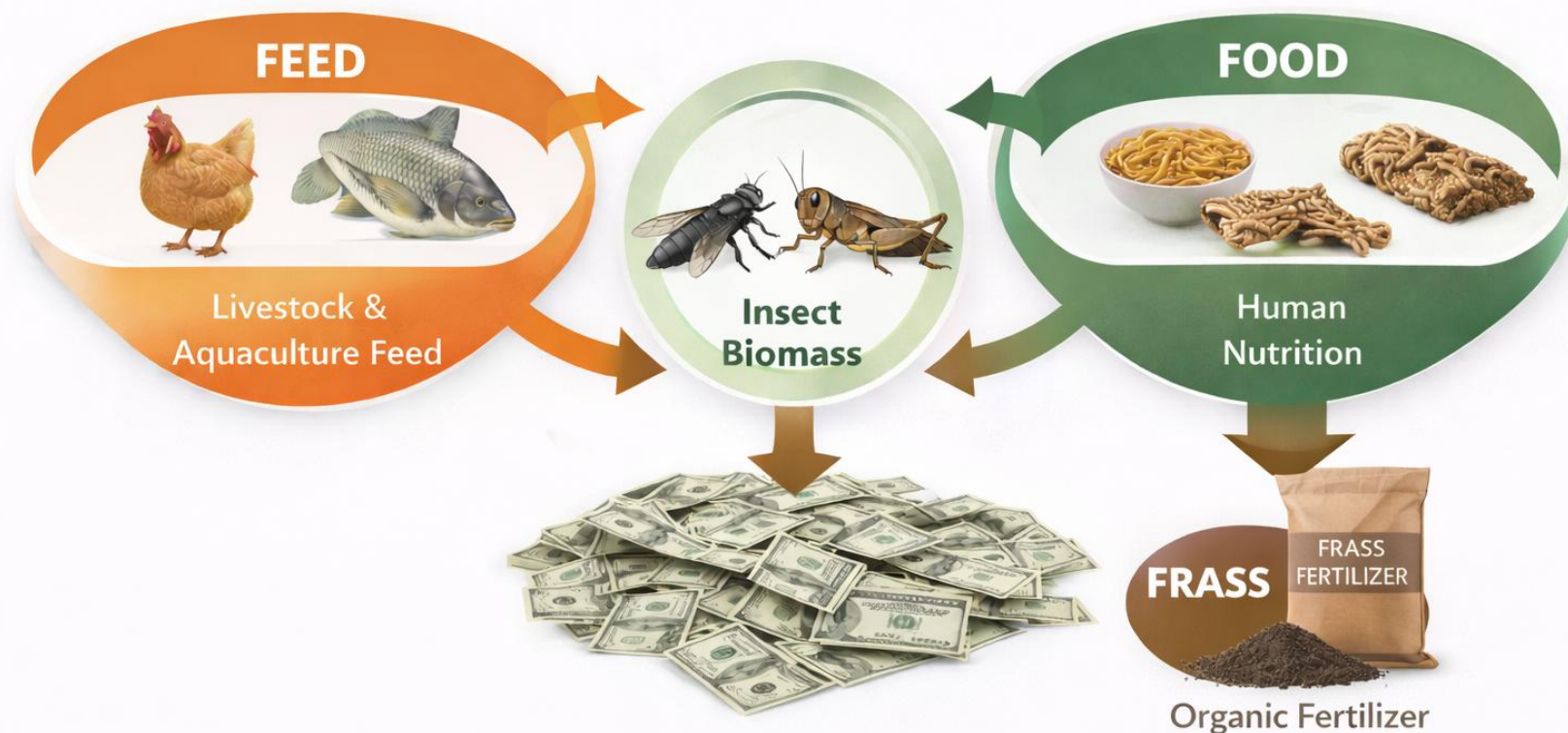
Revenue streams

- Insect meal
- Insect oil
- Frass fertilizer

Cost drivers

- Substrate
- Processing
- Labor

Profitability depends on **diversification** — not a single product.



Business Case – Insect-based Enterprise Development

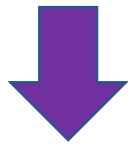
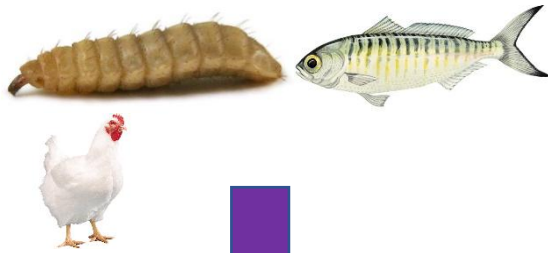
Food products



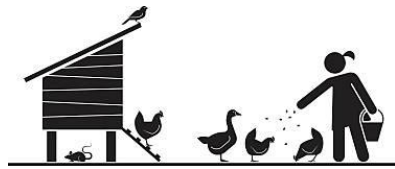
Insect pasta



Feed products



Insect-Based Feeds



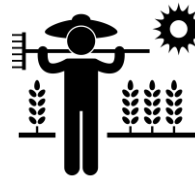
Fertilizer products



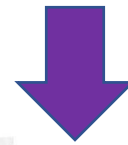
Organic waste



Frass fertilizer



Chitin and Chitosan



Various fields: health, nutrition, and agriculture

Insect oil



Insect oil

Potential of scaling insect farming in Africa



313,000 tons of fertilizer



208,667 hectares fertilized



560,000 new jobs

1.479 million tons of fertilizer



1.19 million hectares fertilized



2.6 million new jobs

60 million tons of fertilizer



24 million hectares fertilized



15 million new jobs

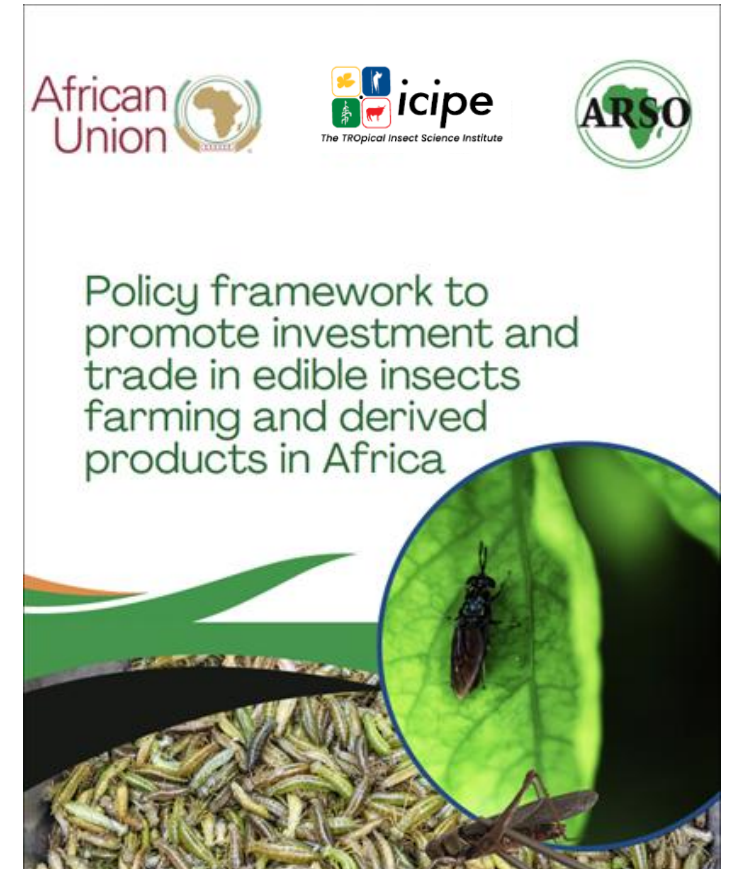
Standards & Certification - Why They Matter

- Food safety
- Feed safety
- Quality assurance
- Market access
- Trade facilitation



Key Standardization Areas

- Substrate safety
- Production hygiene
- Processing protocols
- Nutritional consistency
- Traceability systems



Challenges In Edible Insect Farming



Strategic Solutions



Strengthen research–industry linkages



Invest in processing technologies



Promote harmonized standards



Build capacity across value chain



Promote public-private partnerships

Future Outlook of Edible Insect Farming

Rapid sector growth expected

Increasing private investment

Integration into formal feed systems

Expansion into export markets



Key Take-Home Message

Edible insects are a strategic resource for Africa's food systems

Insects for Food, Feed and Fertiliser represent an integrated opportunity

Value addition and diversification drive profitability

Standards are critical for scaling

Thank you

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