

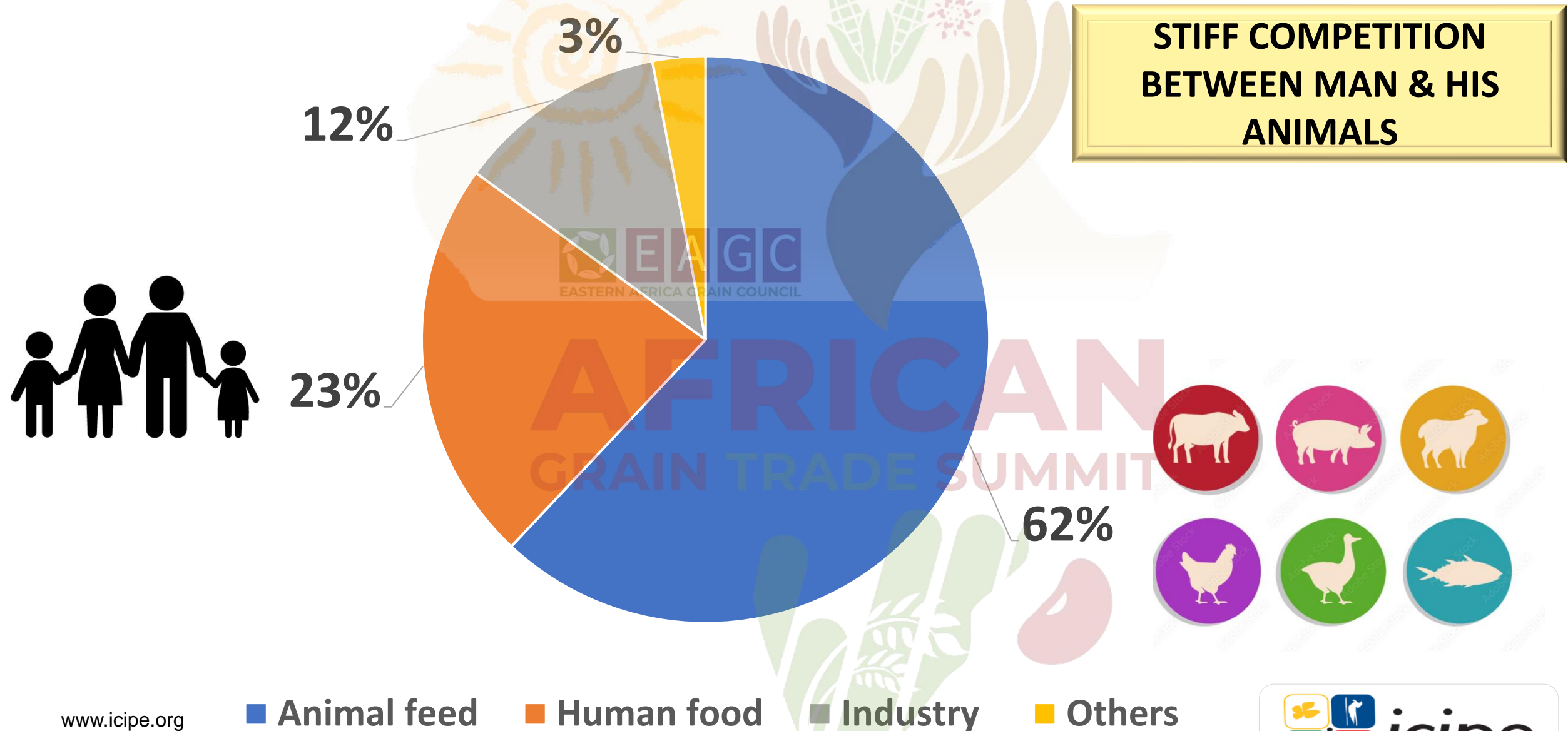
Insect Meals for Reduced Massive Grain Use in Animal Feed: A Myth or Reality?



TANGA MBI CHRYSANTUS



Where Do Our Grains Go?



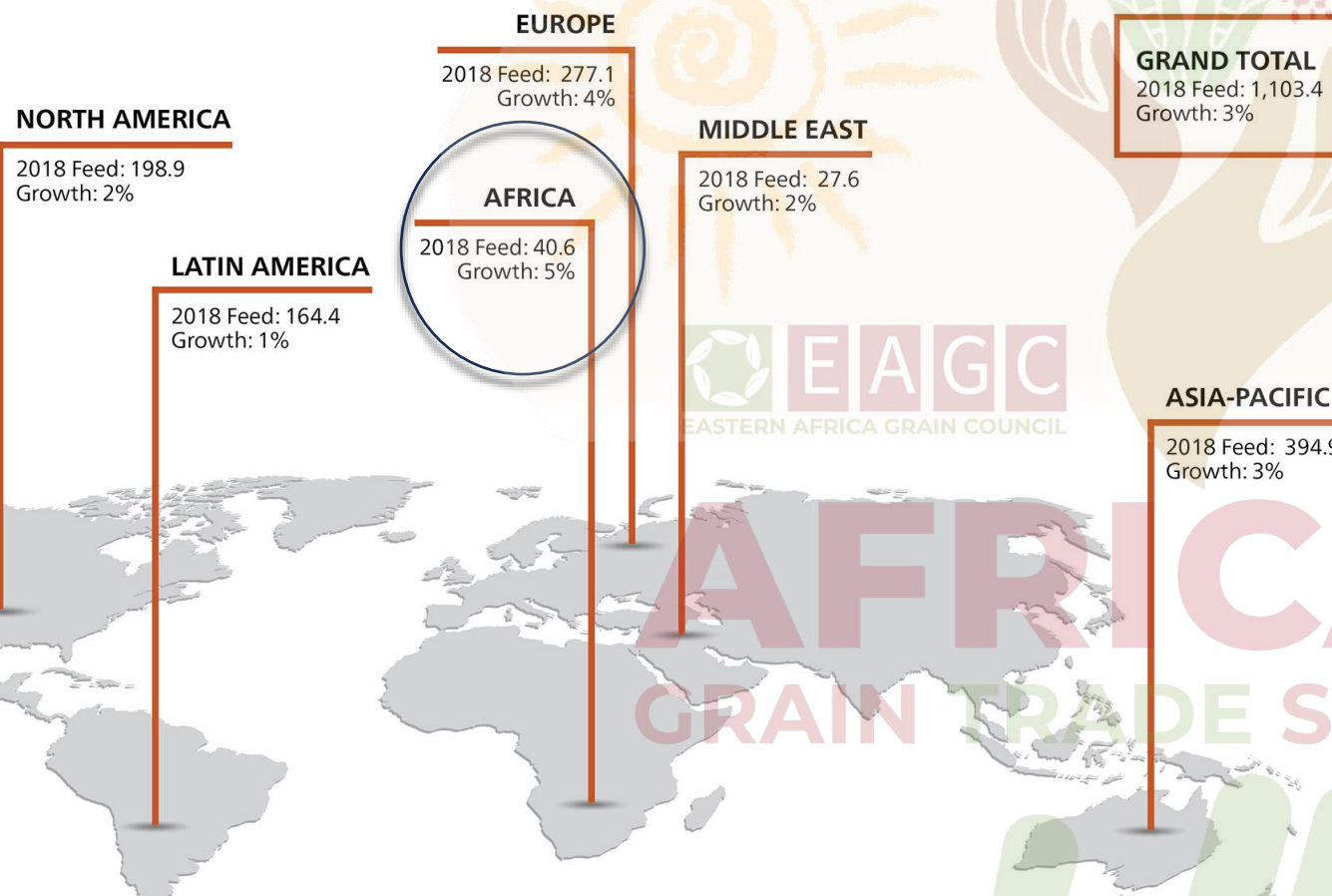
Global Compounded Animal Feed

In 2018 total compound feed production was estimated:

1.1 billion tons

Agricultural land devoted to feeding livestock (pasture + cropland used for animal feed)

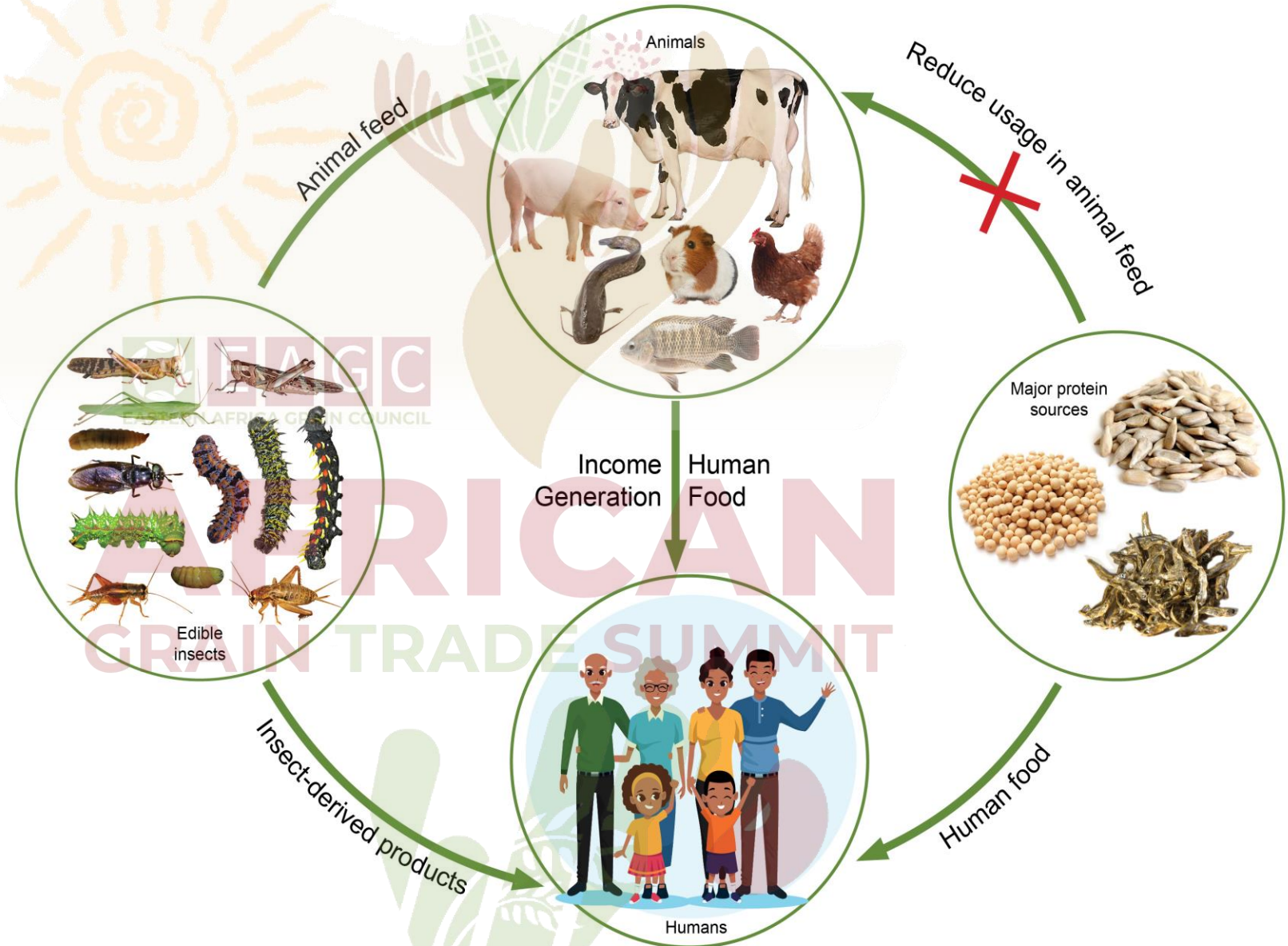
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* All numbers are in million metric tons, unless otherwise noted.

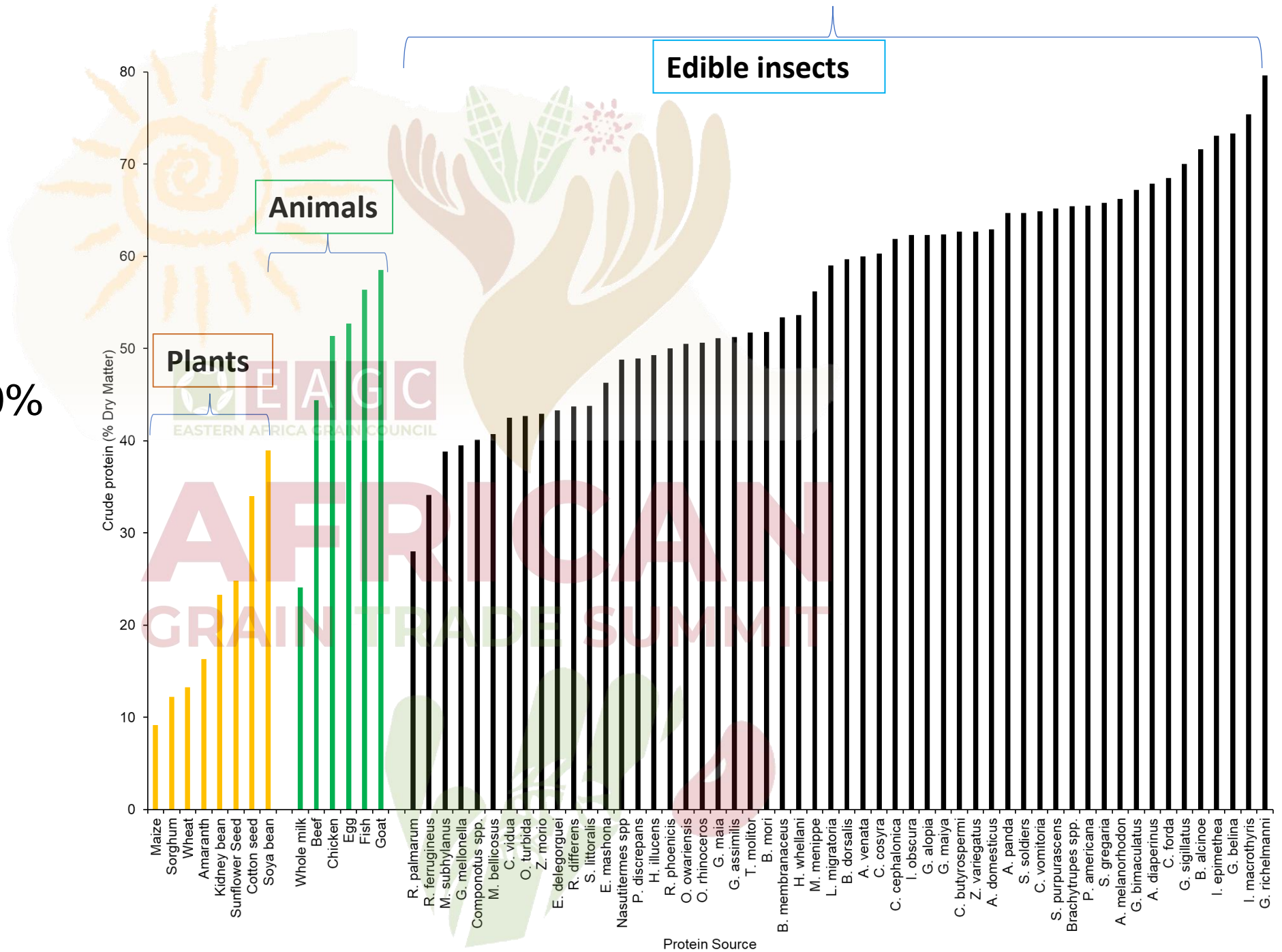
Sustainable Protein Economy Debate

Reduce competition
between man and his
animals



Why Insects?

- ✓ Crude protein: 28-80%
- ✓ Fat content: 15-40%
- ✓ Iron: 4-64 mg/100 g
- ✓ Zinc: 8-88 mg/100g



Outcome of Scaling Insects for Feed in East Africa



Black Soldier Fly



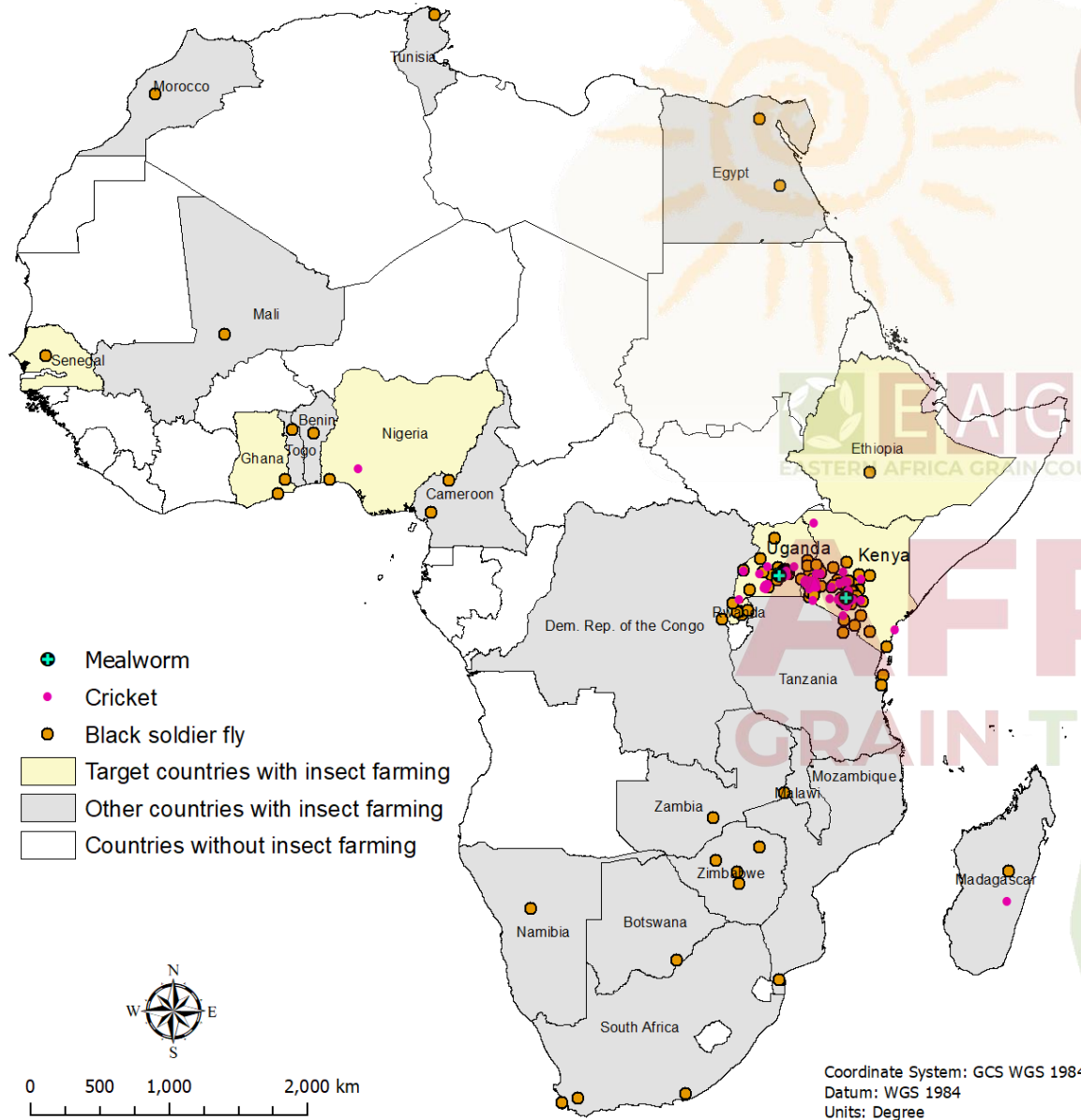
Mid - Large Scale: ~ 26 – 3,600 MT/year

57,000 people trained

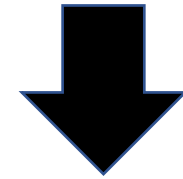
1400+ new SMEs are making money from the insect sector



Emerging Industry in Africa (2300 Insect Farms)



Over 20,000 MT/Year



394,640,000 tonnes of feed at 50% inclusion of BSF meal



Mash Feed



Crumble Feed

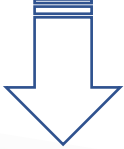


Pellet Feed

Feed Recipes for Livestock & Fish



Insect Oils and Its Application



Rich in Vitamin
E & Lauric Acid

Rich in three
Omega-3 fatty
acids

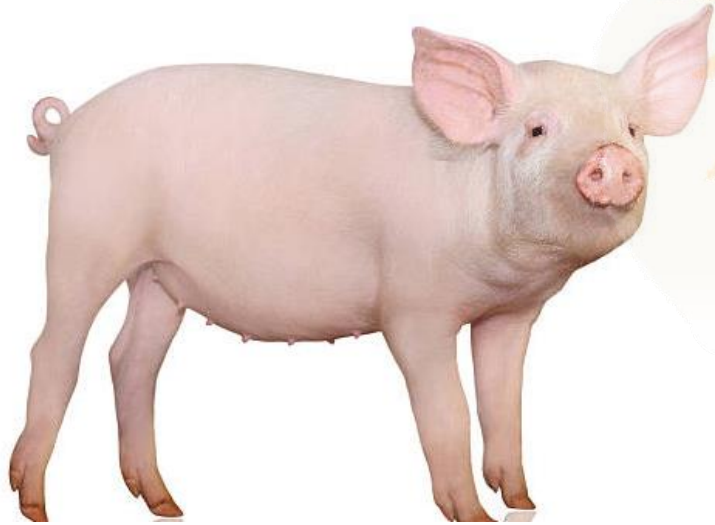


Feed Products



AFRICA
GRAIN TRADE SOCIETY

Faster Growth Rate to Market Size



1.5 - 2 months earlier than
normal (87 – 125 kg)



AFRICAN
GRAIN TRADE SUMMIT



1 - 2 weeks earlier



37% higher growth
rate and 23% weight
gain

NUTRITIOUS EGGS & MEAT



15-25% egg production



**5-8% increased
crude protein**

www.icipe.org



**7-10% increased
crude protein**



**Lean meat to fat
CP: 65-93%**

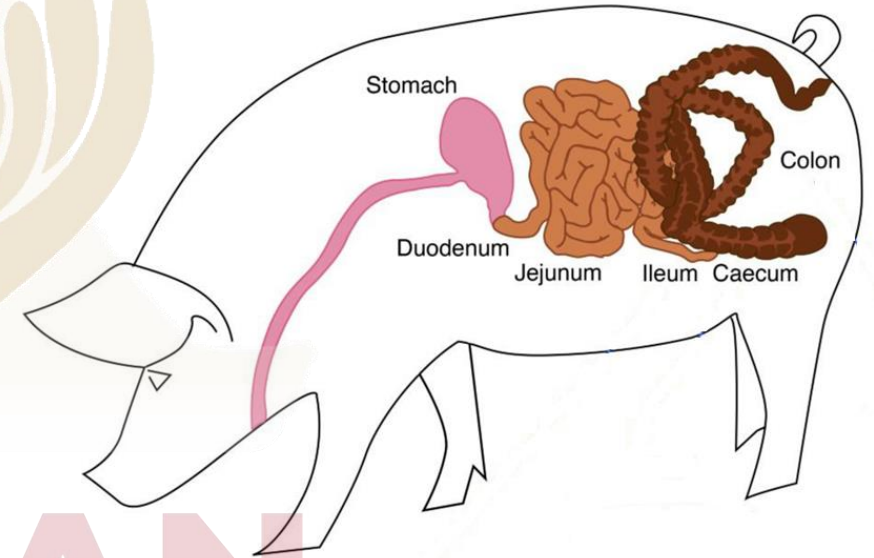
 **EAGC**
EASTERN AFRICA GRAIN COUNCIL

AFRICAN
GRAIN TRADE SUMMIT

Improved Gut Health & Disease Control



 **EAGC**
EASTERN AFRICA GRAIN COUNCIL



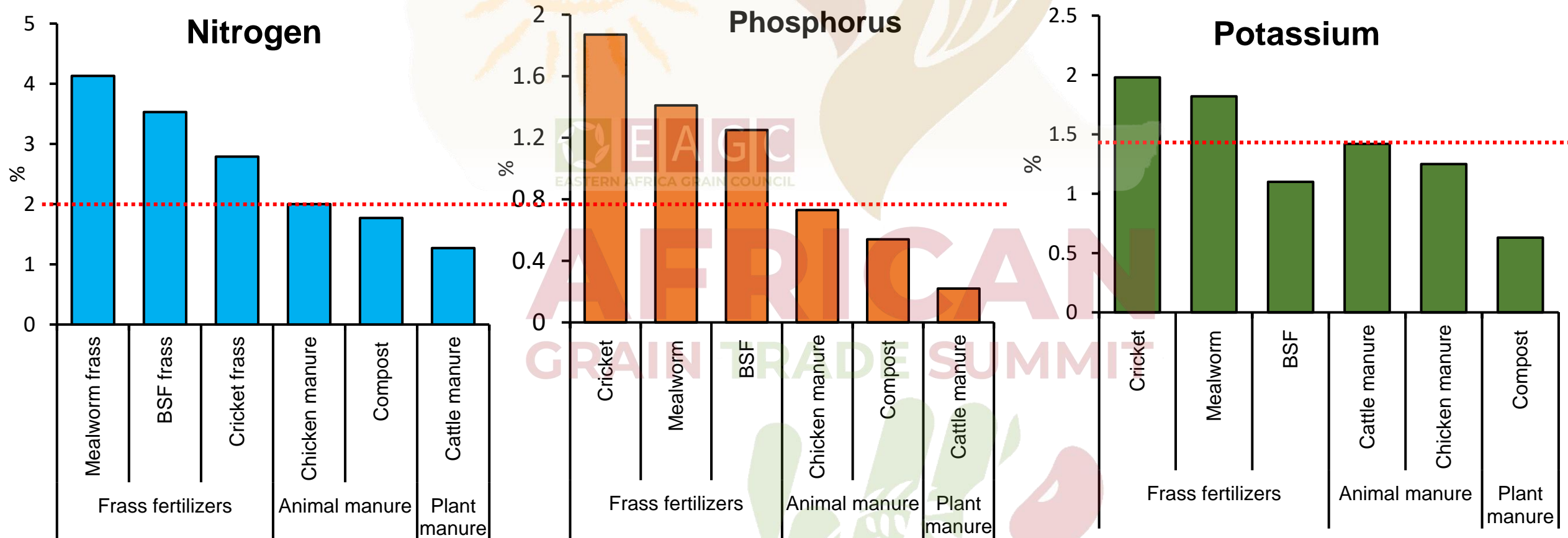
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Diarrhea

Superiority of Insect Frass Fertilizers

Insect frass fertilizer contains 3 – 9 folds higher nitrogen, phosphorus, and potassium





- Fast-release fertilizer
- Suitable for all crops



Powdered



- Slow-release fertilizer
- Suitable for perennial crops



Granulated



Liquid and chitin-fortified

- Multipurpose
- High pest and disease suppression

EAGC
EASTERN AFRICA GRAIN COUNCIL
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Root knot nematodes



Potato cyst nematodes



Cabbage root fly



Tomato bacterial wilt



Insect Frass Fertilizer Enhances Crop Yield & Quality



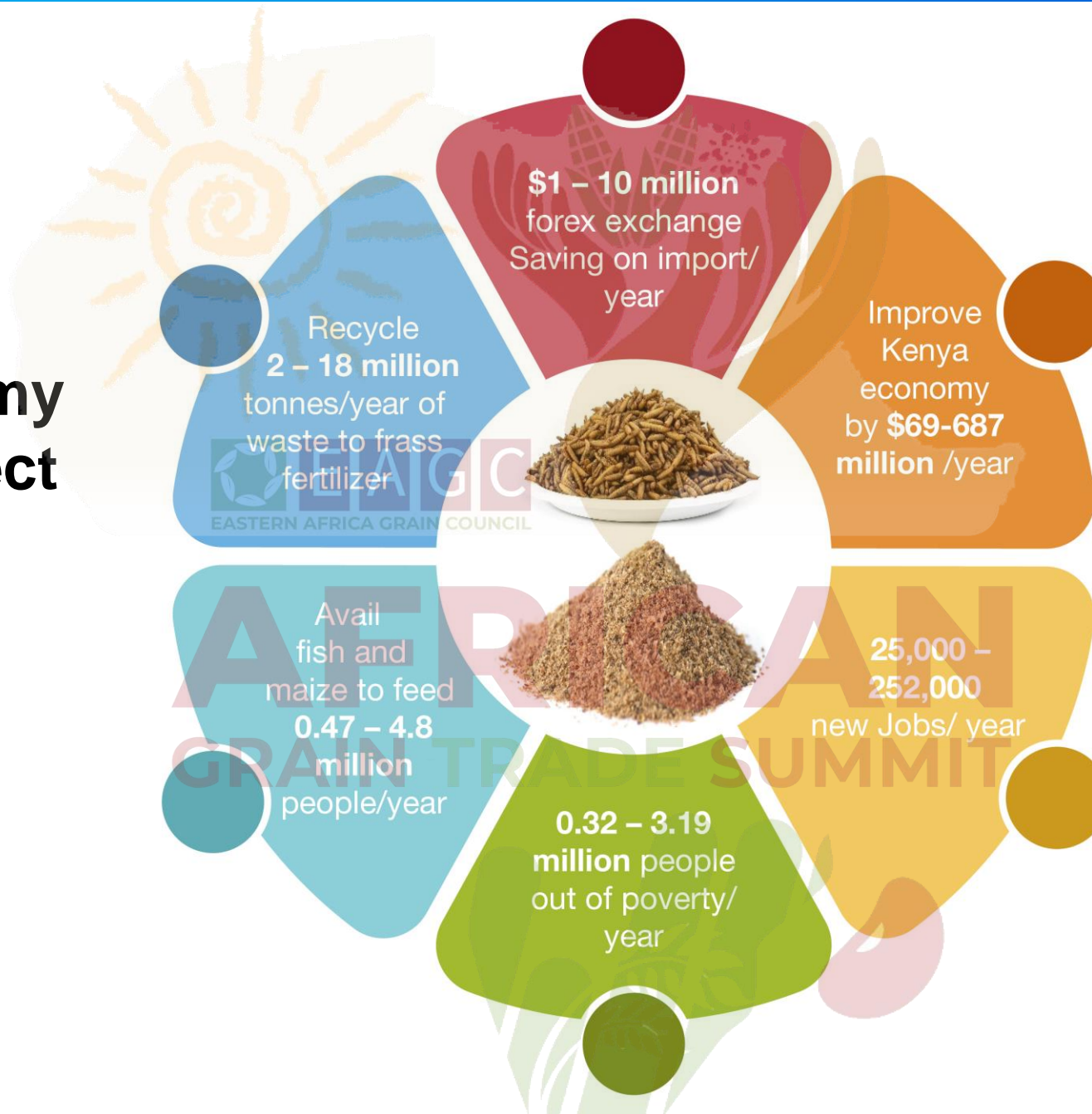
✓ 20%+ yield increase

✓ 44% profitability

✓ 2-3 folds increase in crude protein

✓ 2-8 folds increase of minerals

Circular Economy Benefits of Insect Farming



Take-Home Message

- Insect-based technology has high potential to improve health and nutrition of human and animals, soil health, crop productivity and transform food systems through circular economy.
- Cutting-edge research is critical to harness the full potential of the edible insect sector and build confidence among the end users.
- Capacity building to further research on insects for feed and scaling innovations, public-private sector partnerships, and support of governments and development partners are key to success.
- Need to create continental standards and enabling policies for quality control, commercialization and increased adoption- of IBF.

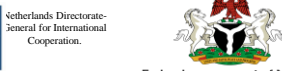
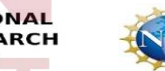
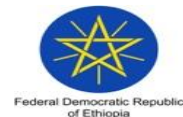
Donor Acknowledgement



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Thank you



International Centre of Insect Physiology and Ecology

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