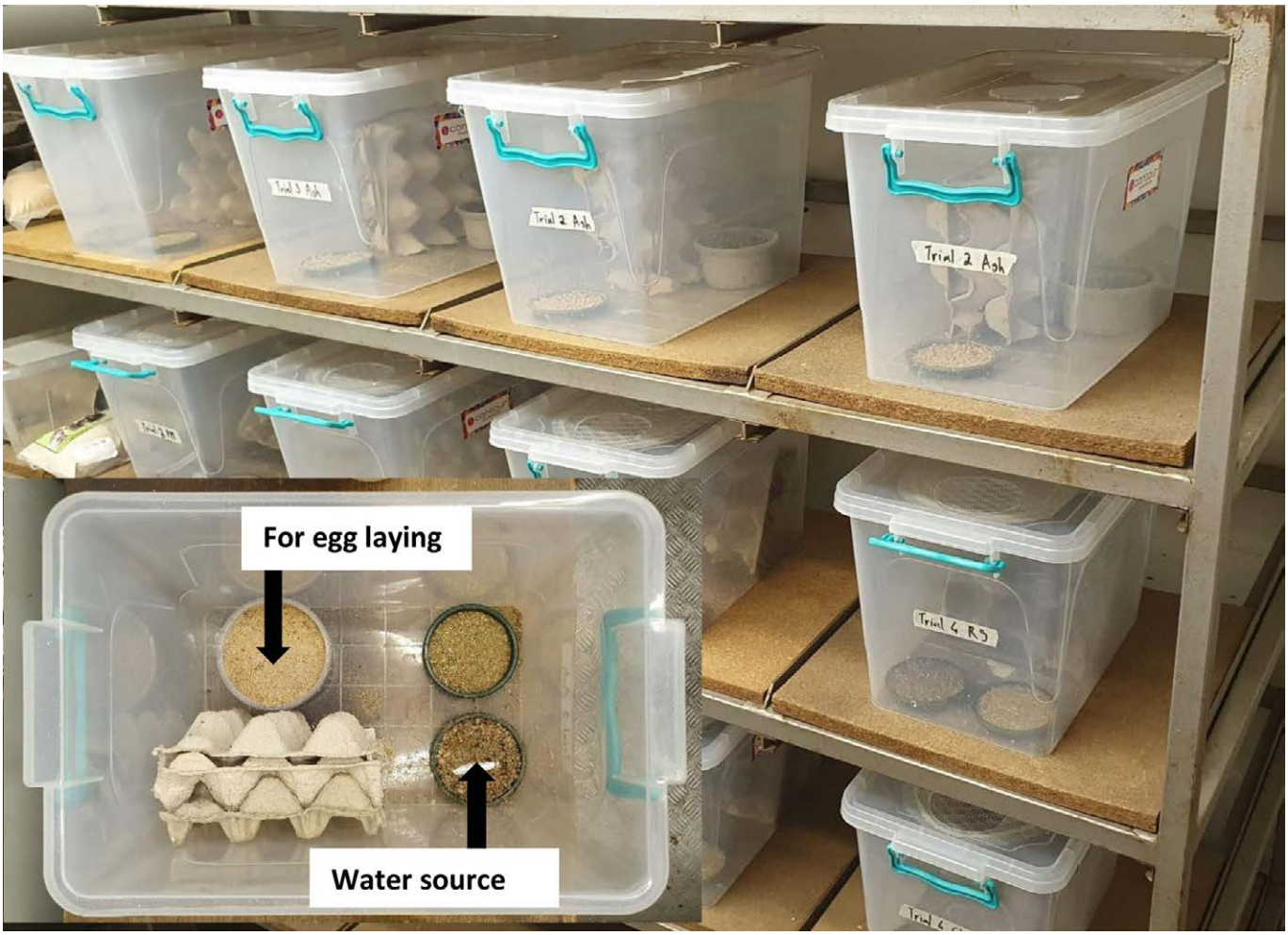
Edible insects? How smart!

If we want to reach global Sustainable Development Goals, we are going to have to utilise insects like crickets and black soldier fly larvae as a supplementary protein source. And you might be surprised at how clever a solution insect farming actually is.

Figure 1.



The human population will reach nine billion by the year 2050. Currently, most countries are unable to meet the minimum food requirements for a completely healthy population in a sustainable way. Hence, at the peak of the COVID-19 pandemic in 2020, over 2 billion people did not receive adequate food and 3 billion more were not able to maintain a healthy diet due to poverty and inequality. This increases demand for farming and especially meat production, which is leading to environmental degradation, higher greenhouse gas emissions, and increased conflict.

To address these and other developmental issues while ensuring sustainable development, the United Nations General Assembly is urging member nations to accelerate development using its 17 Sustainable Development Goals (SDGs). Similarly, the African Union developed its Agenda 2063, which aims for inclusive growth and sustainable development to benefit all Africans. One way to attain both the SDGs and Agenda 2063 is to move away from environmentally harmful food production practices to less intensive ones like 'mini' livestock or simply insect farming.

A history of crunching

Eating insects is a culture of at least 2 billion people in about 113 countries, and Africa accounts for over 120 million insect eaters who mainly collect insects from the wild for household consumption and informal trade.

Eating or feeding insects to animals is recommended because of their unique nutritional profile, which compares with or supersedes those of conventional foods.

Insects are an excellent source of protein, fatty acids, vitamins and minerals. Besides the traditional practice of

Figure 2.

eating insects in some parts of the world, the increasing demand for alternative sources of nutrients for humans and animals has fuelled the need to farm edible insects. Farming edible insects ensures a continuous supply and offers alternative and cheaper protein sources compared to soy and fishmeal.

Adopting cost-effective technologies for rearing, harvesting, handling, processing, value addition, and packaging of insects is a significant game-changer to help ensure the constant availability of insect proteins and enhance profit margins for farmers and stakeholders.

Insect Agtech

Insects grow faster with high feed conversion efficiency (the rate at which livestock convert feed into desired output) and have fewer requirements for space and water. The carbon footprint of insect farming is much lower than those of conventional livestock farming. Insect farming is gender-friendly and currently there are nearly 1000 edible insect farms in Africa, with the industry projected to be worth up to US$8 billion by 2030.

A recent report from the World Bank estimates that black soldier fly farming alone has the potential to replace 60 million tons of traditional feed production in Africa annually, leading to 200 million tons of recycled crop waste, 60 million tons of organic fertiliser production and creating 15 million jobs.

Therefore, the use of insects as food and feed may help attain the UN Sustainable Development Goals and the aspirations of the African Union's Agenda 2063. Here, we will describe an example of how cricket farming can be used as a tool to achieve the SDGs 2, 3, 5, 8, 10, 11, 12, 13, 15 and the Agenda 2063 goals 1, 3, 4, 5, 7, 13, 14 and 7 (Figure 2).

SDGs 2 and 3 and Agenda 2063 goals 1 and 3 (Nutrition and well-being)

Crickets are one of the insects used as food due to their high protein, iron and calcium contents. They are also a rich source of vitamins such as B12, typically found in animal products. Traditionally crickets are fried, roasted or boiled and eaten. However, to increase acceptance crickets are now processed into powder, flour, or fortified as protein additives in confectionary and bakery products.

SDGs 11-13 and 15; Agenda 2063 goals 5 and 7 (Environmental impact)

Currently, livestock farming utilises over 70% of arable land and is increasing continuously to satisfy demands that come with an increasing human population. To produce one kilogram of beef requires 200 square metres of arable land, 22 000 litres of water and adds 2 850 grams of greenhouse gases. In contrast, to produce a kilogram of crickets, one only needs 1,5 metres, less than a litre of water and only adds a gram of greenhouse gases. Because cricket farming requires little space and investment with little or no capital required, one could easily start up with a box, empty egg cartons, and empty toilet paper rolls with a place for them to lay eggs. This setup can be stacked up in multiple layers (see Figure 1) reducing the requirements for land that is often a source of conflict in communities.

SDGs 5, 8, and 10; Agenda 2063 goals 4, 13, 14, and 17 (Economic growth and equality)

Insect farming is generally gender-friendly with women playing a key role in the edible insects' value chain. Women serve as scouts collecting insects from the wild, processing

and selling them. With easy-to-start cricket rearing, women who are most disadvantaged when it comes to land ownership, can start a cricket farm and earn a living from it.

In conclusion, edible insects can serve as a vehicle for attaining a sustainable future for us. However, we have to use them in a responsible manner by avoiding practices that can be harmful to the environment so that we do not make the same mistake as with conventional livestock production.

There is a need for us to improve the way we promote the practice of using insects for food and feed to integrate indigenous knowledge and improve legislation so that we make it a smart way of utilising natural resources.

Article written by Frederich Hennecke, Abdullahi Yusuf (from the Department of Zoology and Entomology, University of Pretoria) and Saliou Niassy, from the International Centre of Insect Physiology and Ecology, Nairobi, Kenya.

Sustainability

E	C	O	N	O	M	I	C	N	E	C	U	I	A
N	V	A	E	M	E	I	S	W	D	R	L	M	I
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M	L	I	V	N	L	T	I	L	B	C	O	A	S
O	U	C	I	I	E	I	S	D	L	K	I	C	U
W	E	L	R	L	N	N	V	C	E	E	N	T	S
G	C	C	O	I	P	I	E	I	I	T	U	P	T
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N	A	N	M	E	A	A	U	N	S	G	A	O	I
D	I	F	E	S	T	G	A	I	E	A	C	T	N
E	N	L	N	T	A	E	L	M	C	L	I	E	A
R	T	I	T	O	I	N	I	R	T	A	R	I	B
L	I	C	P	C	N	D	T	A	S	E	F	N	L
O	S	T	B	K	A	A	Y	F	I	N	A	O	E

SUSTAINABLE
WILD
LIVING
EQUALITY
GENDER
ENVIRONMENT
PROTEIN
CONFLICT
ECONOMIC
AFRICAN UNION
VALUE CHAIN
AGENDA
ATTAIN
MINILIVESTOCK
CRICKETS
EDIBLE INSECTS
FARMING
IMPACT
WOMEN

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Uma sifuna ukufinyelela ku global Sustainable Development Goals, kuzomele sisebenzise izinambuzane ezifana nama crickets nama black soldier fly larvae ukuze sithole izakha mzimba ezingama protein. Kuzokumangaza ukuthi ukufuya leziznambuzane kuyinto ehlakaniphile. Sikhuluma nje kunezindawo ezi ngo 1000 ezifuye lezizinambuzane ezidliwayo ku Afrika yonkana, lemboni kulindeleke ukuthi imikhiqizo yayo ifike ku US$8 billion uma kufika unyaka ka 2030.

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