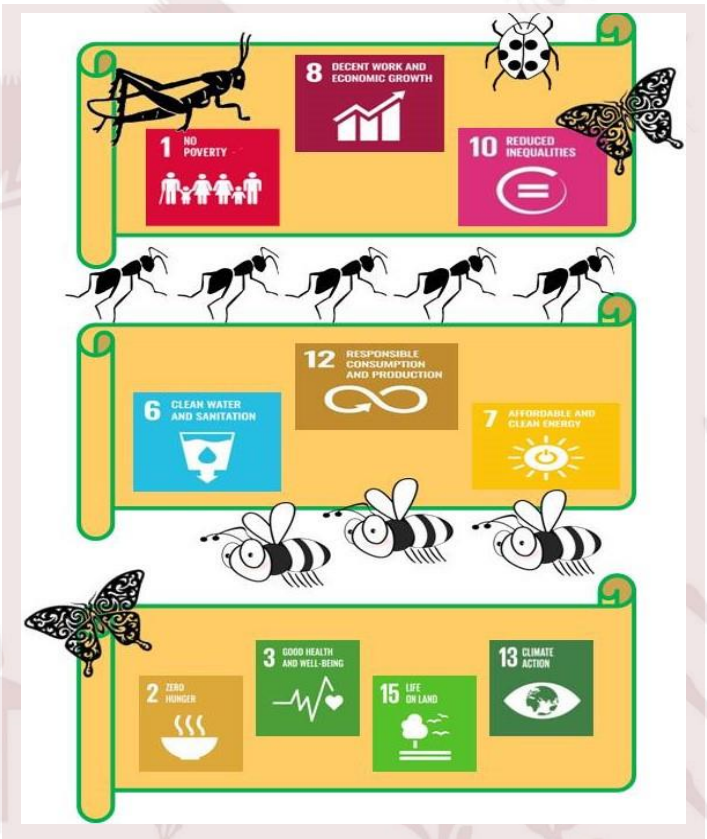
The insect idea and the global goals

Climate change and sustainability are the two overly discussed topics in recent times. The problems are imminent and now at our doorstep. Expectedly, we are trying hard to find out the means to combat the crisis with measures like afforestation, organic farming, trials on alternative fuel, renewable energy, etc., and even set for Sustainable Development Goals (SDG) to stimulate actions in areas of critical importance for humanity and the planet. The seventeen SDGs are dealing with wellness, development, and environmental issues for posterity.

Food production is intricately associated with the majority of the SDGs, be it the reduction of hunger and malnutrition, or land use and other resource use, or, economic development, or addressing inequality. On line with global projections, changing demography, economic profile, and cultural preference will emphasize an animal protein-rich diet, therefore, incrementing animal husbandry practices. Currently, food production processes whether it is agriculture or animal husbandry are labor intensive, energy and resource hungry, and creator of massive environmental footprint. Despite the implementation of various sustainable steps at different levels, the targeted low impact standards are still far away.

So, how about insects? Is there any way out through them?

The word “insect” comes with the images of butterflies, dragonflies, grasshoppers, beetles, bees. Likewise, these dazzling stars mesmerize us with their vivid colors, agility, appearances, and diverse activities. Their antiquity and numbers both surpass human existence on Earth. The close entanglement of insects with humans is manifested through multiple ways, food is one of them. So, it is not astonishing that more than two thousand species are suitable for human consumption globally. And here lies the gastronomic association that has immense potential for partial fulfillment of a couple of SDGs in the coming days.



So, let’s explore a few.

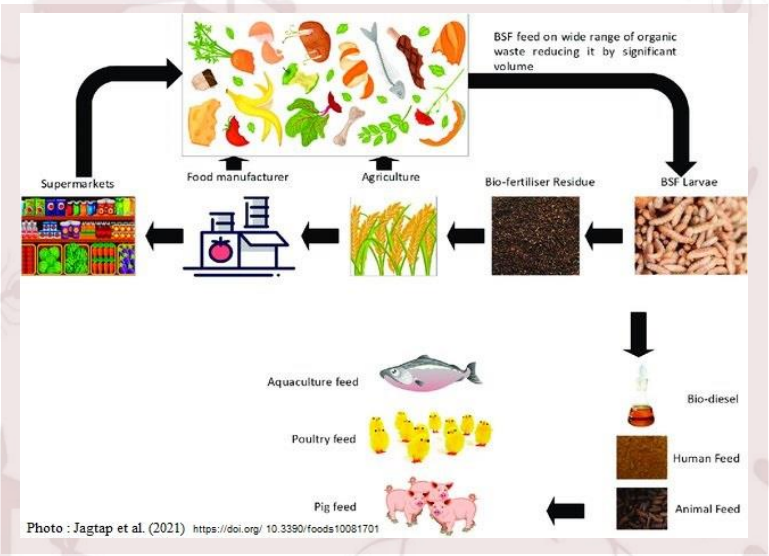
The edible insects, when they are a part of the regular diet, have a critical role in alleviating hunger, providing nutrition, promote sustainable agriculture (as insect farming has a lesser environmental footprint than conventional agricultural practices). Moreover, their demand in the food market is related to income generation, livelihood improvement, and ease of gender inequality (as a majority of the insect collectors are women). One solid example can be drawn from the Asia-Pacific insect food

market. This 142.42 Million $ business (as estimated in 2021) is an integral part of the rural economy in Thailand, Vietnam, and Laos where wild insect harvesting occupies almost 80% of the collections and the practice of insect farming is on a steep rise.

Have you ever thought about the link between insects and sanitation? It sounds a little absurd but quite a pragmatic approach to liquid waste management. Animal and human excreta are favorable grounds for insect breeding and growth. Studies on the organic waste treatment especially sludge management with Black soldier fly larvae show very promising result in South Africa. It has been found that, the larvae of black soldier fly were capable enough to reduce almost 31% of the sludge and bioconversion at 10% (i.e. byproduct developed after treatment). Although the treatment activities and outcomes are dependent on multiple factors the role of the insect larvae is already well established.

What about monetary gains?

The answer is YES. Apart from regular economical indicators like income generation, new business models, market expansion, and, livelihood improvement, insects conceptually well fit into the idea of the circular economy model in food production and consumption. Circular economy hinges on the extended life cycle of the products and minimum or zero waste production which is essential for a sustainable food production system. Given the fact that, the global account of the food waste reaches up to a startling amount of 1 billion tonnes per year, insects can be used as a consumer of that waste and thus act as a filler to the gap in the current food production cycle. Therefore, whatever leftover is generated during the food production, distribution, and consumption steps, can be diverted toward the insect farming system. Commercial initiatives have already started in this direction. For instance, In Kenya, Agricultural and food wastes are used as cricket feeds to produce nutrient rich cricket flour for human consumption.



Likewise, couple of other SDGs are directly or indirectly associated with our tiny neighbors. And there are many challenges yet to be addressed. We still don't know how to scale the insect farming techniques without affecting the environment, dealing with the toxic byproducts of the insects, possible impact of the insect harvesting on the ecosystem and many more. However, we all know that today's' constraints foster tomorrow's innovation. Hope, the mutual understanding with the insect world will help us to achieve the global goals.

Source: Moruzzo et al. (2021) https://doi.org/ 10.3390/insects12060557
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