

# Turning waste to food with black soldier flies

In 2050, planet Earth will have about nine billion people. A growing middle class will produce more waste and expect a meat heavy diet which is already stressing available land and water resources. The black soldier fly, *Hermetia illucens*, could provide a neat solution to our waste and food problems.

Adult black soldier fly

This is a slender insect that looks more like a wasp than a fly. Unlike wasps that have four wings and are armed with a fierce sting, flies have only two wings and are unarmed though they can produce a loud buzzing when flying. Naturally black soldier flies are found around livestock taking care of decaying organic matter such as animal faeces or plant material.

## A healthy food source

A Western Cape based company has begun to capitalise on black soldier fly larvae being able to consume waste and is producing a nutritious animal feed called AgriProtein. This product is rich in protein and oil and is a healthy food source for poultry and other animals. Approximately 45 000 larvae can consume 24 kg of organic waste in 14 days. The larvae are self-harvesting and as they mature they crawl out of the feed basin and can easily be collected. In addition, black soldier fly larvae leave behind a rich fertiliser for improving soil to grow fruit and vegetables.

## Bring your insect life cycle to life!

Teachers can easily bring their lessons on nutrient recycling and the insect life cycle to life by ordering live black soldier fly larvae online from Gumtree. At Groot Marico Academy in the North West Province the innovative Social Sciences teacher Mr Daniel Duvenage is rearing black soldier fly larvae in old fridges and chest freezers. Proving that solutions might be in our own backyard and that school can be a cool, crazy and beautiful place to be.

Black fly pupa

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Scientists have long argued the virtues of eating insects as an alternative source of nutrition. Not only are insects cheap, they are filled with proteins, fats, vitamins and minerals.

Here is a list of the top five insects we should eat.

### GRASSHOPPERS

These insects are filled with protein. 77% of its entire body is entirely made up of protein.



### PALM GRUBS

These bugs are filled with unsaturated fatty acids. The body consists of 69% pure fat.



### MOPANE WORMS

Mopane worms are a great source of iron. Found predominantly in Southern Africa, these insects are very good for increasing iron levels for people who have vitamin deficiencies.



### MEAL WORMS

Nutritionally meal worms could be compared to beef. In European countries, companies have started growing meal worms in order to be used as bird food. But they are just as good for humans.



### BLACK SOLDIER FLY LARVAE

A Black soldier fly contains 42% protein and 35% fat. These insects are mostly used in animal feed. They are particularly used in the poultry, trout and swine industry. In China they are delicious when deep fried or dried.



Larvae clump

Larvae in channel

Bags of feed

Rearing larvae