




 <b>RUMINANTS</b>	 <b>CHICKENS</b>	 <b>EXOTICS</b>
 <b>PETS</b>	 <b>YOUNG ANIMALS</b>	 <b>AQUACULTURE</b>

# BSFL Solutions

## Nutritious, Sustainable, and Consistent Quality

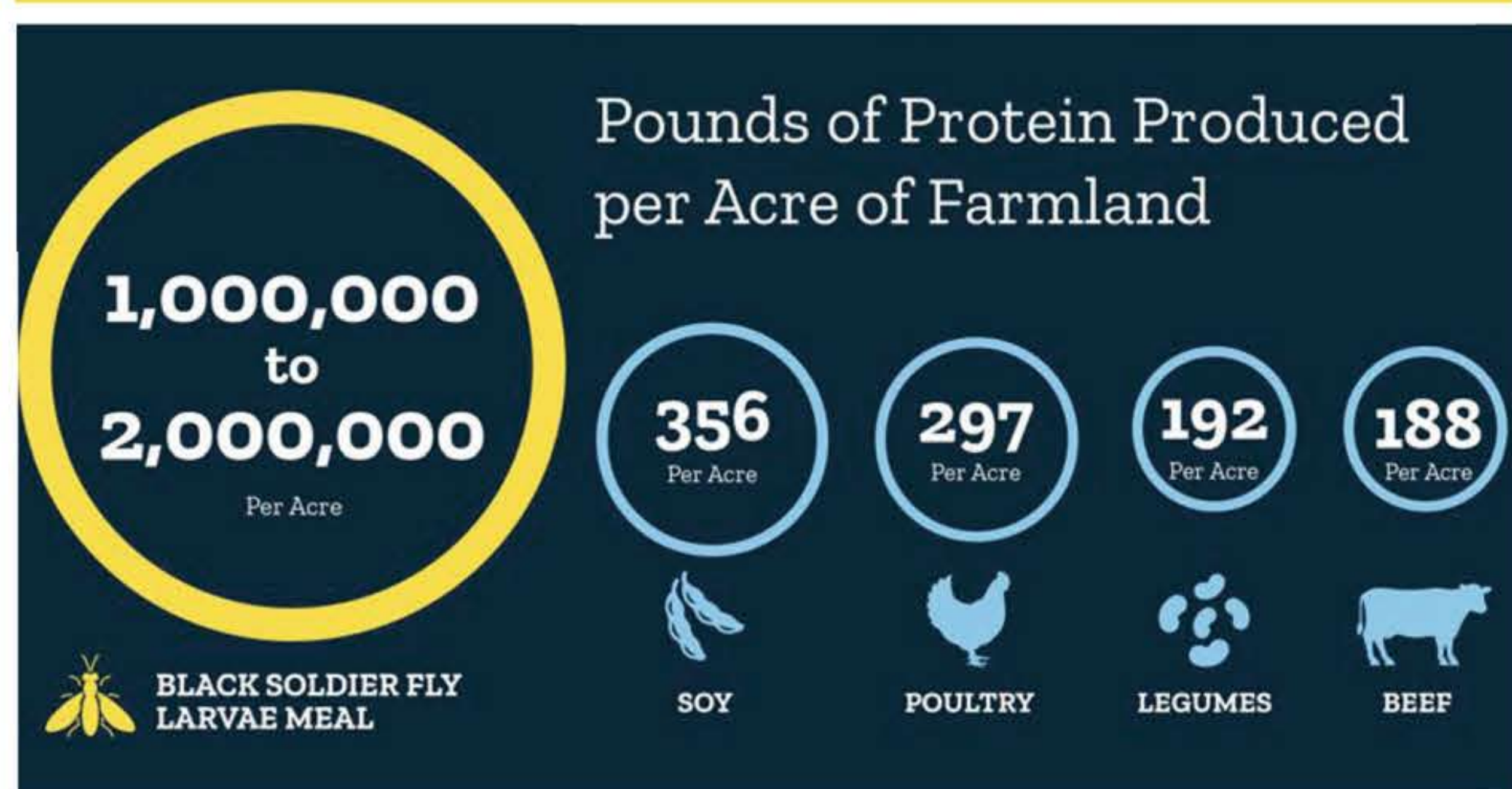
At BSFL, we produce a variety of high quality Black Soldier Fly Larvae (BSFL) products including:

- BSFL Bug (whole dried BSFL)

Our sustainable, high protein, nutrient rich Black Soldier Fly Larvae products can be used as an ingredient in manufactured animal feeds.

## OUR Mission

BSFL develops high quality, sustainable ingredients for animals and plants in a socially responsible way. Our systems upcycle regionally available by-products from human and animal food industries to produce high quality ingredients while minimizing the environmental and financial impacts of animal protein production. By doing so, BSFL contributes to the health of our planet and the people of our world.





## High quality sustainable ingredients derived from Dried Black Soldier Fly Larvae

Nutrient	BSFL Bug
Moisture, %	8.00 (10.0 Max)
Crude protein, %	34.0 (34.0 Min)
Crude fiber, %	6.00 (10.0 Max)
Acid detergent fiber, %	7.20
Crude Fat, %	34.0 (32.0 Min)
Ash, %	8.75 (10.0 Max)
Ca : P	3.75 : 1
Calcium, %	3.00
Phosphorus, %	0.80

Values are on as-is basis and are typical, based upon current averaged analysis (Oct 2019);

*BSFL products are all natural, free of added hormones and raised without antibiotics or pesticides.*

### FEEDING DIRECTIONS

This product is NOT a complete feed.

Consult your nutritionist for diet formulation to the specific needs of the intended species.

### SHELF LIFE

Store product in dry area and maintain cool environmental conditions. After opening, ensure proper sealing of packaging to avoid moisture and air.

# BSFL SOLUTIONS

📍 UK: 2nd Floor, Berkeley Square House,  
Mayfair, London, W1J6BD

☎ UK Office: +44 208 214 1187  
UK WhatsApp: +44 772 836 1654

📍 UAE: Suite 702, Regal Tower, Downtown  
Burj Khalifa, Business Bay, Dubai, UAE

☎ UAE Office: +971 4 399 3615  
EST: +37 282 209 180

🌐 [www.BSFL.com](http://www.BSFL.com)  
[info@BSFL.com](mailto:info@BSFL.com)



# BSFL

## What we do?



Black Soldier Fly as (BSFL) Poultry and Fish Feed represents a sustainable alternative to traditional feed in Canada. Black Soldier Larvae are capable of efficiently converting a wide variety of organic materials, from food waste, into insect biomass. As of today, Black Soldier Fly have been permitted for use with salmonids and poultry. The traditional protein-rich animal feed comes either from plant-based sources or is made from other animals such as fish. Plant-based animal feed requires resources such as water, land, fertilizer, and human labor. In addition, fishmeal, in turn, requires more protein-rich foods to feed to fish. This makes the industry of feed production a costly and unsustainable industry. Other animal feed production can lead to loss of nutrients with drainage water and seepage. In addition, the concentration of nutrients that feed Aquaculture can lead to pollution of surface waters. Waste-fed Animal and fish food is, therefore, more likely to alleviate pollution than cause it, mainly by reducing the Carbon Dioxide in the environment. Most of the food waste and manure produced in developed countries is currently disposed of by use of either aerobic or anaerobic microbial decomposition. The former occurs with composting, while the latter takes place in lagoons and landfills. Microbial decomposition or organic matter emits substantial amounts of greenhouse gases each year, primarily in the form of carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>). One potential advantage of using Black Soldier Fly Larvae (BSFL) is the animal's ability to recycle large amounts of carbon into edible insect proteins and oils rather than simply breaking it down into carbon dioxide and methane.





## PUBLIC HEALTH CONCERNS

Have also been raised about the use of traditional feed in poultry and fish production on several levels. For example, the risks of direct pathogen transfer to humans in fishponds fertilised with manures are high.

Although faecal bacteria and viruses are present in poultry manures, rapid attenuation of pathogens occurs in most stable, waste-fed ponds.

The relative risks are likely to be insignificant compared to other causes such as direct human abuse.

There has also been an implicit connection made between integrated livestockfish systems and influenza pandemics that have led to widespread comment and discussion of the desirability and impacts of traditional animal feed.

Integrated aquaculture encourages the raising of pigs and poultry together to provide manure for fish and that this, in turn, increases the risks of new forms of influenza developing. The purposeful blooms of toxic blue-green algae have also been raised as an issue.

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## Nutritious, Sustainable, and Consistent Quality

We plan to set up an animal feed business in the Durham Region in Ontario, Canada. Our product is high-protein poultry and fish feed that is competitively priced, sustainable, and a "superfood" in terms of its nutritional value. We buy pre-consumer organic waste materials from supermarkets and restaurants, feed them to black soldier fly larvae and sell these larvae as poultry and fish feed.

Our animal feed product will revolutionize feed production in Canada by using larvae that can turn low-grade organic waste into high-protein feed without requiring any of the limiting resources of the current animal feed industry. No water, arable land or any other primary resources is required for this process. In addition, black soldier fly larvae are higher in protein and other nutrition such as phosphorus and calcium than soybeans.

Feed based on larvae of black soldier fly is an attractive option to substitute current feed in poultry and fish industry. The black soldier fly (*Hermetia illucens*) is a non-pest insect found on carcasses or piles of rotting fruit. Our black soldier fly larvae feed will reduce the amount of crop-based animal feed grown on cropland could have a positive effect on the availability of food and have a positive environmental impact by cutting greenhouse gas emissions. Using the insect-based feed in poultry and fish industry will generate value and close nutrient loops as they reduce pollution and costs.

