Background

The Texas A&M AgriLife Black Soldier Fly Program has a rich history of studying and implementing the black soldier fly (BSF) for recycling wastes. Our team of scientists has almost 20 years of research experience working with and mass-producing the BSF. The AgriLife BSF Program aims to (1) establish a national industry for recycling food waste, (2) reduce dependence on harvested fish for production of aquaculture feed, and (3) eliminate pollution from food waste in landfills.

Strategic Approach

Currently, 40% of all food produced ends up in landfills. These landfills have resulted in an increase in land, water, and air pollution, and they constitute a tremendous waste of resources. The space needed for landfills, especially in urban areas, under-utilizes land and other resources and devalues the surrounding property.

The BSF can alleviate these environmental concerns by converting 50% of food waste to insect biomass (protein and fat). This biomass can be used for animal and fish feed, while any remaining waste can be sold as compost. This process requires only two weeks to complete as compared to the months that are required to compost food waste.
The AgriLife BSF Program has developed methods to mass-produce the BSF in culture and harvest them efficiently and safely. The program places a major emphasis on:

- Conducting research to improve the efficiency of the BSF system;
- Training the next generation of BSF farmers;
- Creating a network of companies to mass-produce BSF; and
- Developing national standards to be utilized by BSF farmers.

**Collaborations are Essential**

- Industry-scale research is required to evaluate results generated in the laboratory.
- Engineers assist in enhancing current mechanized systems for mass-production of BSF.
- Economists propose appropriate means for efficient mass-production of BSF.
- Microbiologists assure the quality of resulting products.
- Nutritionists assess the quality of the BSF product produced for animal feed.

**Commercialization**

Although relatively new, the BSF industry is currently valued at over $1 billion (USD). The AgriLife BSF Program works with industry partners throughout the world to:

- Develop proper methods for mass production of adult BSF in colony;
- Determine the proper storage of resulting eggs for use in conversion of food waste to protein;
- Enhance methods for conversion of food waste to protein;
- Assess the quality and safety of BSF products; and
- Protect global resources from potential pollutants associated with landfills and food waste.