

HiQ Protein

Optimization of Black Soldiers Fly
Production through AI Innovation



About NRGene

Employ high end genomics to accelerate natural breeding of elite crops and farm animals

Our history

2010

Company founded

2015

Product launched

2021

IPO — Tel Aviv stock exchange

NRGene Canada

2020

New office opens in Saskatoon, Canada

2021

New Genotyping lab opens in Saskatoon, Canada

12

Local employees
4 hold a PhD

Our outcomes

300

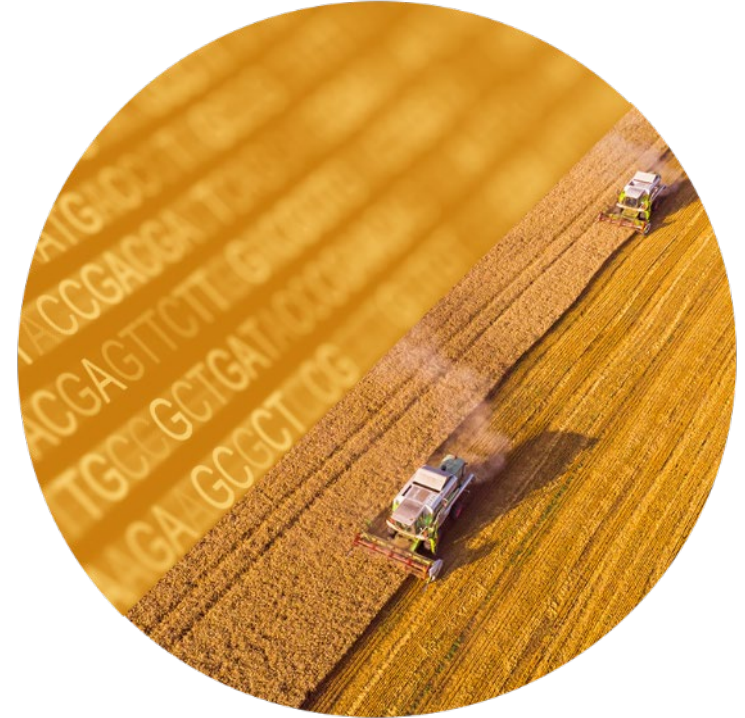
Projects

83

Species

30

Countries



NRGene-Canada's Main Goal

Significantly Improve BSF Productivity Through Genetics

- Disrupt the economics of insect-based ingredients by developing novel, superior varieties of the black-soldier-fly (BSF).
- Establish the world's leading BSF breeding operation in Saskatchewan, CA, delivering superior genetics worldwide
- Engage with strategic partner to build a large scale BSF production facility in Saskatchewan, CA
- Employ a leading team of over 80 R&D and operation professionals (2024), growing to over 200 staff (2029)
- Generate a cash positive operation (2024) that is forecast to grow to USD 380M by 2030



Our Vision:




Black Soldier Fly (BSF) genetics to become a sustainable, prevailing and cost-effective source of protein and oil replacing animal-based ingredients in pets, aquaculture, farm animals feed, and human food.

Our Mission:

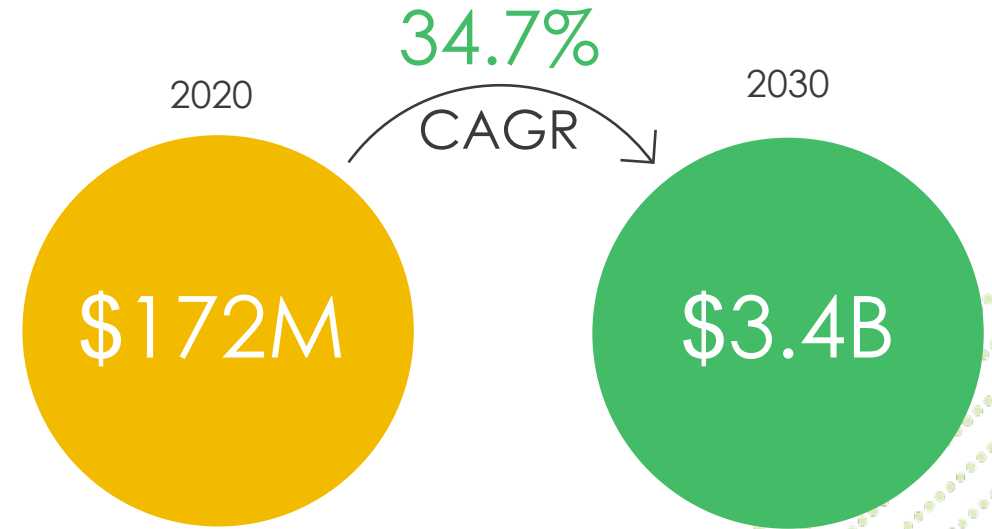
Employ high-end cloud-based-genomics and AI to develop and own novel BSF varieties with superior genetics (IP) through breeding, as a sustainable alternative source for animal-based protein and oil in feed and food.



Why BSF?

-  Among the **most efficient animals** at converting **various organic materials** into feed
-  Great source of highly nutritional protein, containing up to **44% protein** by weight, as well as other micronutrients such as **calcium**
-  Do not considered as pests and **can be shipped** from one geography to another
-  **Simple and short life cycle**, easy to manage in all stages of development from egg to the mature fly
-  **Approved for feed** in Canada, USA, EU and others

Black Soldier Fly market



<https://www.meticulousresearch.com/product/black-soldier-fly-market-5074>

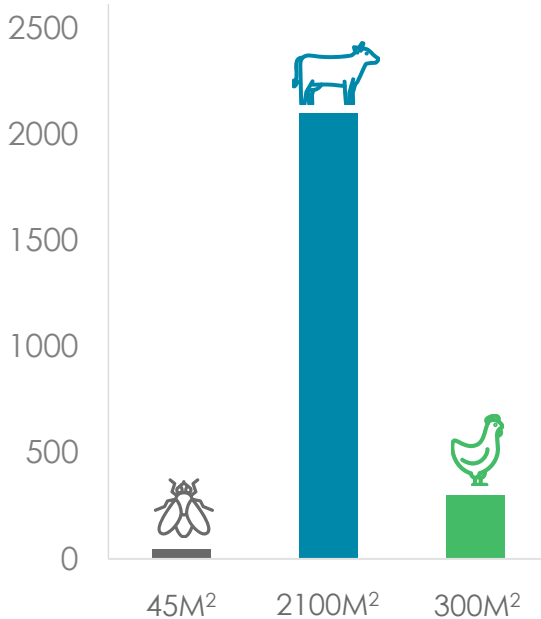
High Quality Alternative for Animal-Derived Food Ingredients is in High Demand



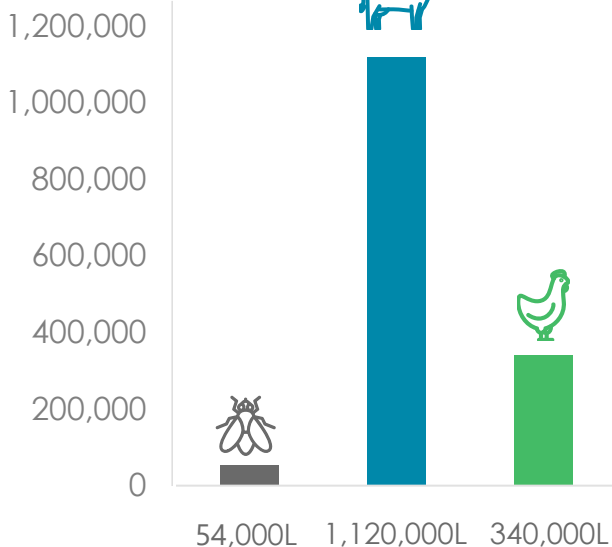
Insects are a Sustainable Alternative for Animal-based Ingredients

Resources required to produce 10KG of protein

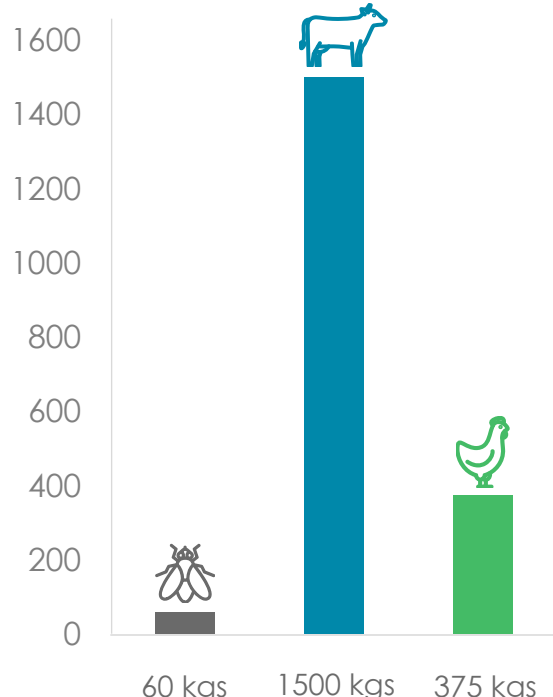
Land Use



Water Use



CO2 Emission



<https://www.pfma.org.uk/pfma-members-sustainable-ingredient-initiatives>

The Challenge

Gaining long term economic efficiency for industrial-scale BSF production

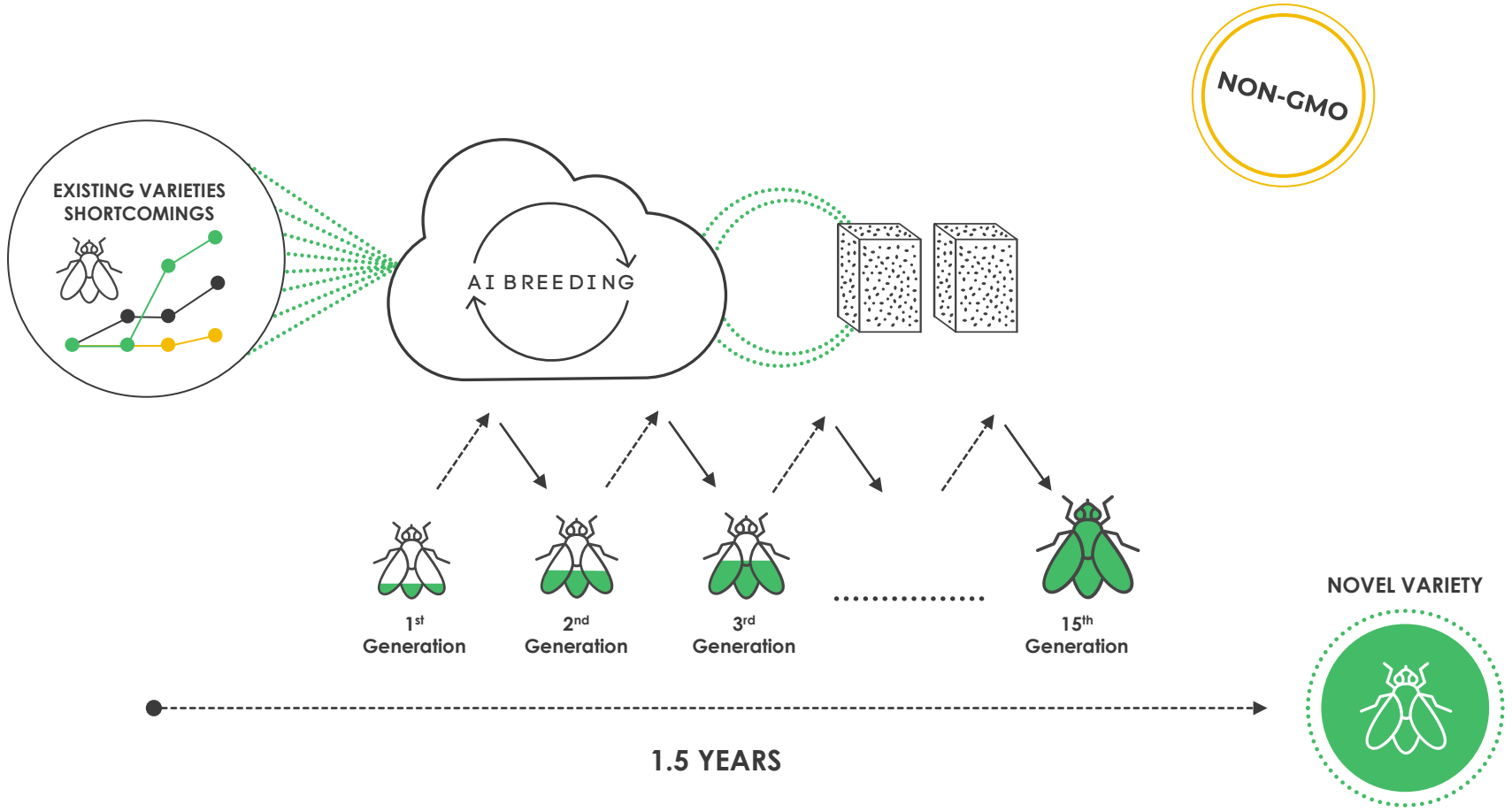
Optimizing BSF productivity by:

- Decrease of production costs –
 - ✓ Improved Food Conversion Rate;
 - ✓ Higher Yield;
 - ✓ Shorter Lifecycle.
- Optimization of BSF genetics to specific types of agricultural meals
- Ongoing maintenance of colony health and prevention of diseases and parasites spread



The Solution – Artificial Intelligence (AI) Breeding

Using Big-Data and AI to optimize the BSF genetics for higher productivity



x2

In food conversion rate

x1.5

Eggs lay

-25%

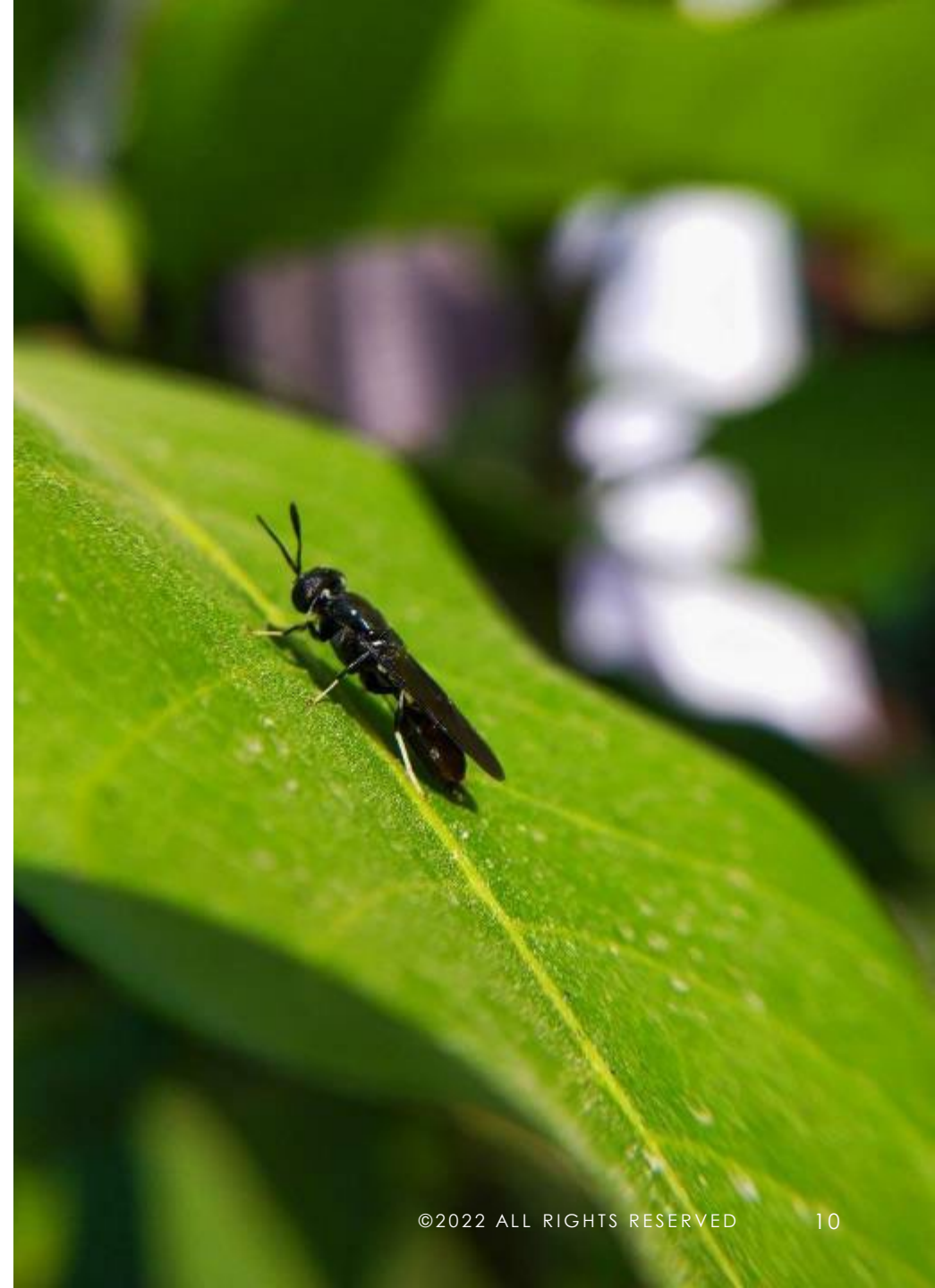
Larvae growth time

Optimized to feed on specific agricultural meal

BSF - from Agricultural By-products to High Quality Oil & Meal

Turning BSF into an efficient farm animal

- Through cycles of natural breeding, BSF specific traits can be improved, turning it into a cost-efficient farm animal.
- Advanced AI-based predictive tools accelerate natural breeding processes, reducing trial and errors and increasing success rates.
- There are many examples of domesticated farm animals successfully bred for higher productivity



BSF is a Sustainable Alternative for Protein Source

Join us in building a sustainable future!

Thank You!



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