



FLYING SPARK

FEEDING
THE WORLD
WITHOUT
CONSUMING
THE EARTH



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August 2022
presentation



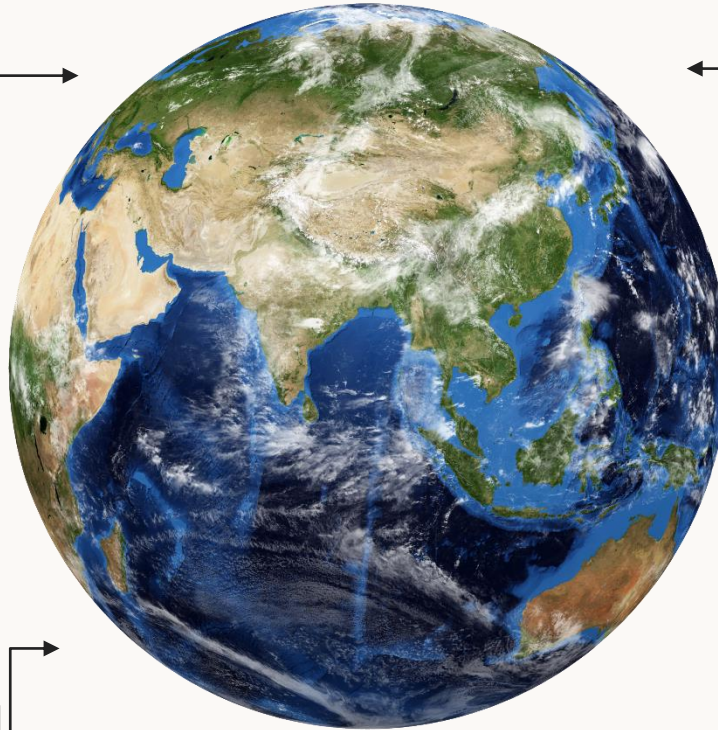
COMPANY PROFILE

Flying Spark is a FoodTech company, active in the Insects alternative protein space

Flying Spark is producing high quality and sustainable alternative protein from the fruit fly larvae

The company leverages the biological traits of the larvae, while creating optimal cultivation conditions

The technology includes methods and processes that facilitate efficient and reproducible cultivation



The company will incorporate its products in aquaculture, pet food, cosmetics and human food (in the future)*

The company is currently building its first production facility in Thailand and **listed on the Tel Aviv Stock Exchange**

(*) The start of marketing and sales of the company's products currently under development is subject to the commencement of actual commercial production at the Company's new Manufacturing plant in Thailand, as well as a number of other conditions (including the establishment of a new production line relying on the company's specialized procured machinery, etc.). In addition, further regulatory approvals are needed also in Europe and the USA. The above excludes the company's alternative protein powder under development which is intended for use in the pet food industry and can already be sold in a number of Asian countries.

LEADING TEAM



GILI COHEN
Chairman of the Board



ERAN GRONICH
Founder & CEO



MICHAEL GETTE
CFO



Dr. GALIT LEVIN
Science Director



TAL OZERI
Factory Manager



LEE BEN YOSEF
VP People



AMIR ZAIDMAN
Director

GLOBAL PROTEIN SHORTAGE

The challenge: Feeding billions of animals and people with sustainable and high quality protein

LIVESTOCK FARMING HAS A VAST ENVIRONMENTAL FOOTPRINT

A major source of greenhouse gas emissions contributing to global warming

Massive production of waste and environmental contamination

Significant consumption and pollution of water and land



70% of all agricultural land is used for livestock feed production

Major cause of antibiotic resistance and disruption of microbiome

A source of diseases such as avian and swine influenza

MULTIPLE MARKETS FOR RISK MANAGEMENT

Aquaculture industry

- The global aquaculture industry has reached about **\$107 billion in 2021¹**
- Estimated to grow to **\$170 billion** by 2026 supported by CAGR of 10%

Pet food industry

- The global pet food industry has reached about **\$97 billion in 2021⁴**
- Estimated to grow to **\$137 billion** by 2028 supported by CAGR of 5%

The global protein market

- The global protein ingredient market has reached about **\$42 billion in 2021²**
- Estimated to grow to **\$85 billion** by 2028 supported by CAGR of 10%

Oils in the cosmetics industry

- The global oil ingredient market for the cosmetics industry has reached about **\$56 billion in 2020³**
- Estimated to grow to **\$72 billion** by 2028 supported by CAGR of 5%

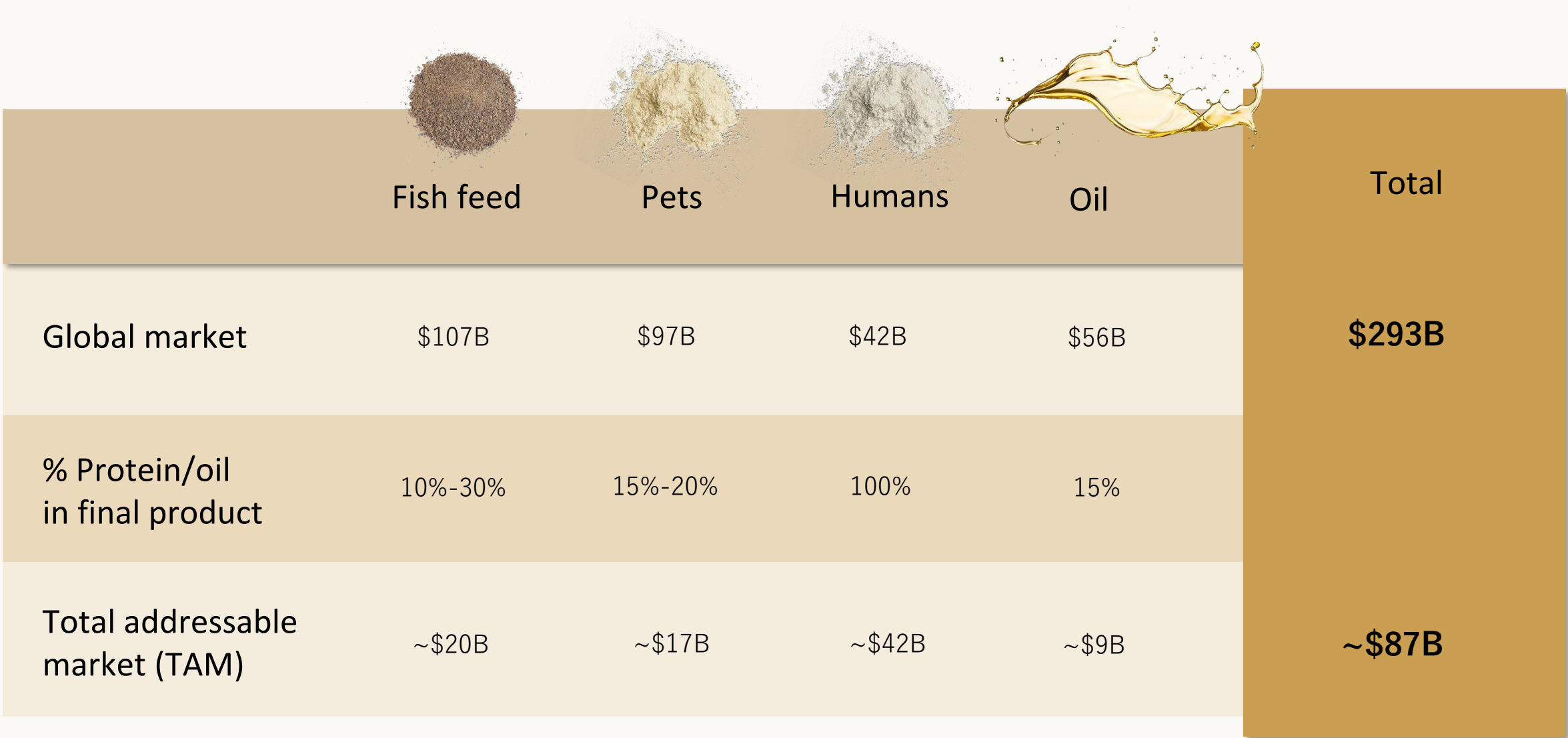
¹ Market Data Forecast. (2021). "Fish Feed Market By Ingredient, By Additive, By End Users Global And By Region 2021-2026"

² Grand View Research. (2021). "Protein Ingredients Market Size, Share & Trends Analysis Report 2021 - 2028" [Global Protein Ingredients Market Size Report, 2021-2028 \(grandviewresearch.com\)](https://www.grandviewresearch.com/industry-analysis/protein-ingredients-market)

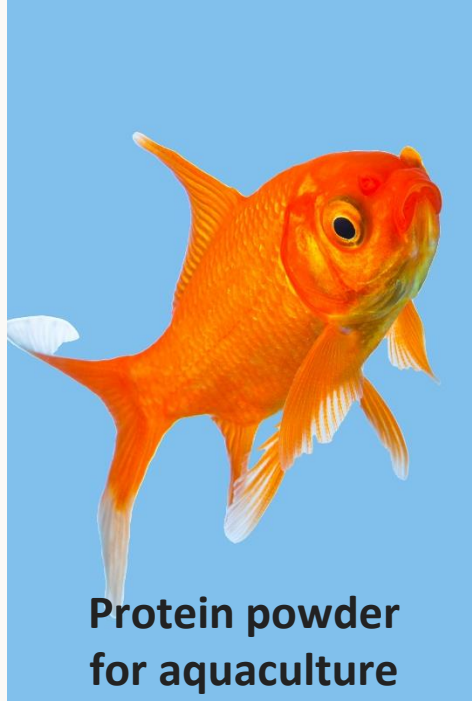
³ Cosmetic Oil Market Growth & Trends: [Cosmetic Oil Market Size & Share | Global Industry Report, 2019-2025 \(grandviewresearch.com\)](https://www.grandviewresearch.com/industry-analysis/cosmetic-oil-market)

⁴ Global pet food market - <https://www.feedandadditive.com/global-pet-food-market-and-trends/>

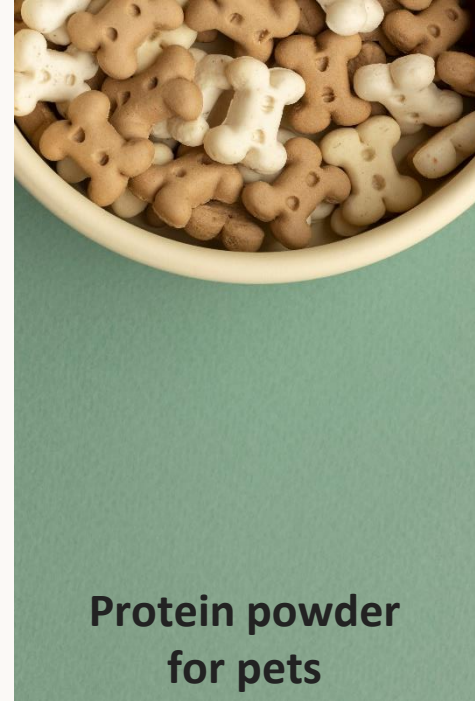
A \$87 BILLION ADDRESSABLE MARKETS



MULTIPLE PRODUCTS FOR RISK MANAGEMENT



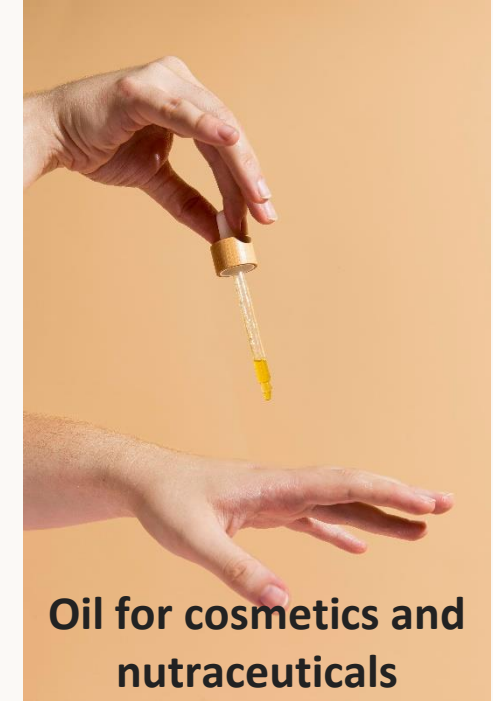
Advanced, sustainable solution for fish feed, with beneficial components from dietary residues of larvae



High quality, sustainable protein ingredient for pet food products



High quality, sustainable protein ingredient for human food products



A unique active ingredient for cosmetics and nutritional supplements industries

CONSUMERS ARE SHIFTING TO **ALTERNATIVE PROTEIN**



Health reasons

People are choosing to consume less animal protein for health reasons such as heart diseases, weight control and diabetes



Ethical reasons

Ethical reasons concerning animal welfare are motivating people to re-examine the impact of their nutritional choices on animals



Environmental concerns

Growing awareness towards negative effects on the environment that result from farming and processing of meat

ADVANTAGES OF PRODUCING PROTEIN FROM THE FRUIT FLY LARVAE



MINIMAL ECOLOGICAL FOOTPRINT



99%
Reduction of land
use with
Vertical farming

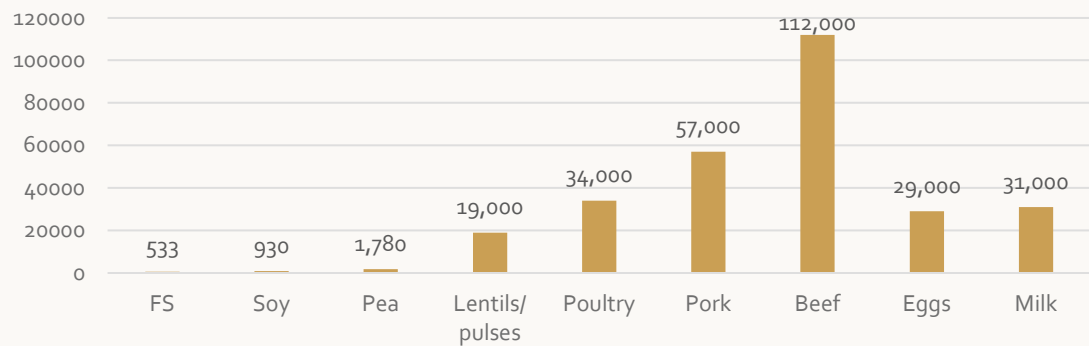
0
Methane
emissions

Waste
minimization

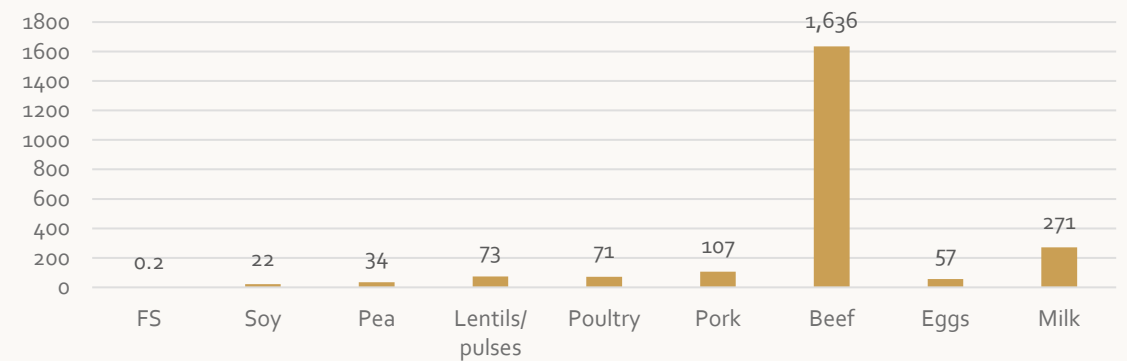
100%
Cultivation in a
closed and
controlled
environment

99%
Less water
consumption
needed

Water usage (L) for producing 1kg of protein



Land use (sqm) per 1kg of protein



Mekonnen, M.M. and Hoekstra, A.Y. (2012) , A Global Assessment of the Water Footprint of Farm Animal Products, Ecosystems
 Mekonnen, M.M. and Hoekstra, A.Y. (2010) The green, blue and grey water footprint of farm animals and animal products, Value of Water Research Report Series No. 48, UNESCO-IHE, Delft, the Netherlands.

Hannah Ritchie and Max Roser (2020) - "Environmental Impacts of Food Production". Published online at OurWorldInData.org. Retrieved from: '<https://ourworldindata.org/environmental-impacts-of-food>' [Online Resource]
 Poore, J., & Nemecek, T. (2018). Reducing food's environmental impacts through producers and consumers. Science, 360(6392), 987-992.

MUCH BETTER THAN PLANT BASED PROTEIN

Rich in
Minerals:
Iron, Calcium,
Magnesium and
Zinc

Contains all
essential
**Amino
Acids**

**Cholesterol
Free**

Contains
Omega 7
fatty acid and
dietary fibers

Exceeds
animal protein in
its nutritional
values

	Soy protein	Pea protein	Whey protein	Fruit fly larvae protein
Energy (Kcal)	328	455	385	380
% Protein	64	75	67	65
Cholesterol (mg/100 gram)	ND	ND	205	2>
% Fat	0.5	9	5	16
Calcium (mg/100 gram)	363	136	256	700
Iron (mg/100 gram)	11	23	0.9	25
Magnesium	140	ND	180	1,700

1 COW IN 1 SQM IN 1 MONTH

The lifespan of the larva is **7 days**

Body mass
Multiplies by 250 in 7 days
In comparison, beef multiplies by 10 in one year

Exponential growth:
300-350 offspring per female

Year-round continuous production process.
With no seasonal constraints

Highly efficient production process, **100% utilization of the larvae**, residues processed into feed product



We are able to produce a quantity equal to 300-400 kg of beef in:
1 square meter every month!

FOCUS ON ESG



Environmental

- ✓ Water saving
- ✓ Land saving
- ✓ Carbon and Methane emission reduction
- ✓ Closed and fully control on production area
- ✓ Minimal waste



Social

- ✓ Future food security solution in third world country
- ✓ High employment standards in third world country
- ✓ Production of healthy ingredients
- ✓ Focus on diversity and inclusion



Governance

- ✓ Public company standards
- ✓ Stakeholder engagements
- ✓ Board diversity and structure

PRODUCTION FACILITY COMPLETED IN LESS THAN A YEAR!

MILESTONES ACHIEVED SINCE THE IPO: INFRASTRUCTURE



Flying Spark's
production facility -
7,000 sqm



STRATEGIC PARTNERS & CUSTOMERS

MILESTONES ACHIEVED SINCE THE IPO: COMMERCIAL



INVESTORS BELIEVE IN INSECT PROTEIN



Establishment of a third plant in France (following France and Holland). Development and production of alternative food produced from mealworms



Establishment of a third plant in the USA (following two in France). Development and production of alternative protein and oil produced from black soldier fly larvae



First plant established in France in 2021. Development and production of alternative protein produced from mealworm and crickets



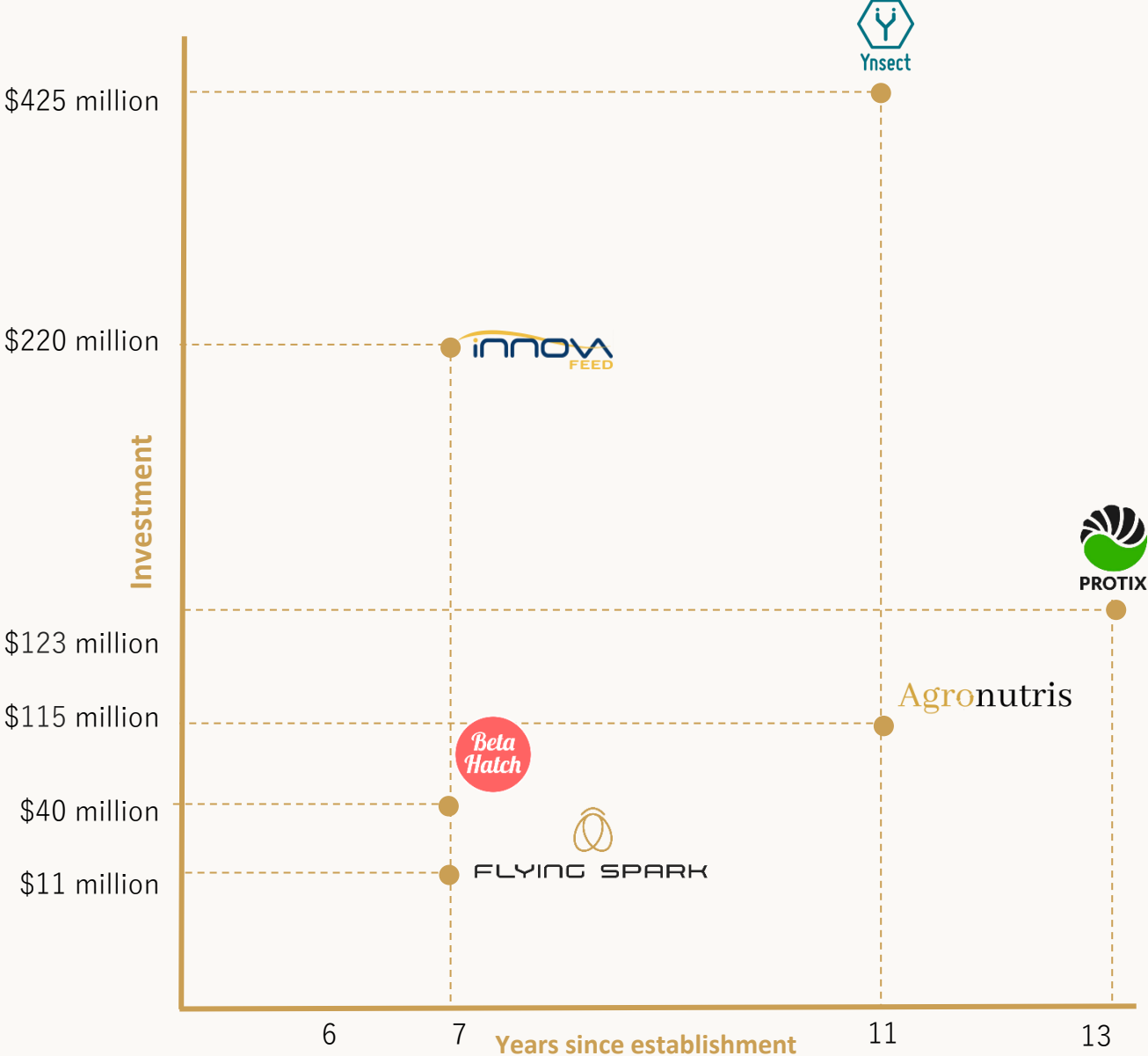
First plant established in Holland in 2019. Development and production of alternative protein and oil produced from black soldier fly larvae.



First plant established in the USA. Development and production of alternative protein produced from mealworms.



First plant established in Thailand. Development and production of alternative protein produced from fruit fly larvae.
The Company is in a preliminary stage compared to the benchmark - establishment of its first production plant



*Investment figures source: Crunchbase.com

LEADING STRATEGIC INVESTORS



- World's largest tuna and seafood products manufacturer (about 15% global market share)
- Headquartered in Thailand, deployed globally
- OEM pet food manufacturer for global brands including Nestle Purina, Mars and others
- The protein alternatives field is in the core of the company's strategy



- Strauss Group is among the largest food manufacturers in Israel
- Strong global presence and a global leader in food innovation
- Produces dairy products, snacks, spreads, coffee, water technologies, and more
- Among the world's leading Hummus producers (together with PepsiCo)

PATENTS

Material Patent

Patent applications have been submitted in 11 countries:
China, EU, USA, Japan,
Thailand, South Korea,
Indonesia, Malaysia, India,
Mexico and Israel

Aquaculture patents

Following a joint research, 3 patents in the fish feeding space have been submitted, in collaboration with Sumitomo Chemical



OVERVIEW OF THE COMPANY'S STRATEGY 2022-2024

MULTIPLE REVENUE CHANNELS:

AQUACULTURE | PET FOOD | COSMETICS | HUMAN FOOD



COMPANY'S STRATEGY MAIN KPI'S

Main KPI's	2022 YTG	2023	2024-2026
Production facilities	Phetchaburi Thailand	Phetchaburi Thailand	Phetchaburi Thailand + Establishment of new facility during the years
Maximum capacity (Ton) Premium Protein Powder / Oil	Up to 100 / 40	Up to 1,000 / 400	Company's target is reaching up to 10,000 based on new factory establishment
Gross Margin	Negative	Positive	Reaching over 40%
OCF	Negative	Negative	Moving to positive during the period
Expected CAPEX for capacity increase	\$1M	\$4-5M	New factory significant investment
Use of proceeds of future funds raise	<ul style="list-style-type: none"> Facility launch Sales team expansion CAPEX R&D 	<ul style="list-style-type: none"> Facility expansion (CAPEX) Business development Working Capital R&D 	<ul style="list-style-type: none"> Facility expansion New production site initiation Working Capital

*For each 1 ton of premium protein, 13 ton aquaculture (dietary residues) will be produced. 1 Ton of premium protein represents 15k-20k USD (based on mix) potential income for all products (Premium protein, oil and aquaculture feed)

** The plan is based on additional future fund (via shelf offering report and/or private placement) raising ; 2022-2023 total fund raise needed estimated at \$10-15M and pending BOD approval for each milestone execution

GO-TO-MARKET STRATEGY 2022- 2024

Aquaculture industry



Focus on APAC Market during 2022-2023:

- Sumitomo Chemical – Flying Spark's partners with GTM strategy in APAC
- Showa Kosan – Flying Spark's distributor in Japan
- Several commercial pilots to be launched in 2023

Pet food industry



Focus on APAC Market during 2022-2023:

- Collaboration with Thai Union Pet Care division – MOU for 20 tons signed and will be supplied in 2023.
- Showa Kosan – Product distribution in Japan
- Ongoing discussions with pet food manufacturers and retailers

Oil for the cosmetics industry



Focus on Thai Market following by APAC during 2022-2023:

- Joint venture with Garguar Labs (OEM cosmetics manufacturer) and Head100 (top tier branding and marketing agency) 2022-commercial pilot for anti-aging product, 2023 sales growth expected
- Ongoing discussions with leading cosmetics customers

Global protein market



Focus on APAC market and following by Western markets during 2023-2024:

- Flying Spark will start building its customers funnel in parallel to the FDA approval process which estimated to be completed in H1-2024

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TASE: FLYS
michael@flyingspark.com
www.flyingspark.com

