

## **Bio-Gene Presentation - NWR Virtual Healthcare Conference 2025**

Bio-Gene Technology Limited (ASX:BGT, Bio-Gene or the Company), an Australian company developing new insecticides derived from nature to achieve high impact worldwide, is pleased to attach presentation slides that CEO & Managing Director Tim Grogan will present at 2:40pm AEDT today Thursday 20 March 2025.

Shareholders, investors and interested parties are encouraged to register to attend the presentation at the following link:

[https://us02web.zoom.us/webinar/register/WN\\_tKgGOYTvS8a9Op-rlevYUg](https://us02web.zoom.us/webinar/register/WN_tKgGOYTvS8a9Op-rlevYUg)

A recording will be available at the above link shortly after the conclusion of the live session, and the replay will also be available via the Company's website and social media channels.

Questions can be submitted on the day or sent in advance to [matt@nwrcommunications.com.au](mailto:matt@nwrcommunications.com.au)

For more information please visit: <https://nwrcommunications.com/healthconf>

Approved for release by the Board of Directors.

- ENDS -

### **For further information, please contact:**

Bio-Gene Technology Limited:  
E: [bgt.info@bio-gene.com.au](mailto:bgt.info@bio-gene.com.au)

Matthew Wright  
NWR Communications  
E: [matt@nwrcommunications.com.au](mailto:matt@nwrcommunications.com.au)  
M: 0451 896 420

### **About Bio-Gene Technology Limited**

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Bio-Gene is an Australian company developing novel bio-insecticides to address the global challenges of insecticide resistance and toxicity. Its unique products are based on a naturally occurring class of compounds proven to overcome resistance to control pests with minimal impact on human health and the environment.

Bio-Gene's products have multiple applications across public health, crop protection, grain storage, and consumer use. They provide new options derived from nature to meet market demand for effective and safe pest management solutions.

Flavicide® and Qcide® are registered trademarks of Bio-Gene Technology Limited in Australia.

# Tim Grogan

MD & CEO

Developing new insecticides derived from nature to achieve high impact worldwide.

20 March 2025

# NWR Virtual Healthcare Conference 2025



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# Investment Highlights

Focused development of two new insecticides with strong commercial validation.

## 01. Two New Actives

Two insecticidal compounds **derived from nature with novel modes of action:**

- » **Flavocide®** and **Qcide®** are derived from a unique sub-type of eucalypt
- » effectiveness against some major insect pests with resistance to standard products
- » Strong drivers are increasing the demand for **safer and more environmentally friendly** products

## 02. Large Target Markets

**Crop Protection** (incl. Grain Storage), **Public Health**, **Consumer**, **Animal Health**, total addressable markets of \$31B, as **both stand-alone and combination products**<sup>1</sup>

## 03. Focused Pipeline

Pipeline of eight (formulated) product opportunities:

- » Public Health – vectors for disease
- » Crop Protection, Aquaculture, Professional Turf and Ornamentals
- » Grain Storage Protection
- » Consumer (home & garden)

## 04. Strong Partnering Progress

Three partnerships to date:

- » Clarke Mosquito (US), Evergreen Garden Care (EU, UK, AU & NZ), STK (Israel) & collaboration with Envu



# The Global Challenges We Help Solve

Our products address the demand for effective pest control & sustainable agriculture.

## Public Health Vector Control



### The mosquito is “the world’s deadliest animal”<sup>1</sup>

- » Causes more human deaths than any other creature on earth
- » 247 million malaria cases in 2021, in 84 malaria endemic countries<sup>2</sup>
- » Between 2019 - 20 malaria deaths increased by 10% to 625,000<sup>3</sup>
- » Over 32,000 cases of Dengue recorded in Singapore in 2022<sup>4</sup>

1. US Centers for Disease Control and Prevention
2. Global expansion and redistribution of Aedes-borne virus transmission risk with climate change, S.J. Ryan et al
3. World Malaria Report 2022
4. NEA Launches National Dengue Prevention Campaign Early To Urge Continued Vigilance And Avert A Dengue Outbreak In 2023
5. Savary, S., Willocquet, L., Pethybridge, S.J. et al. The global burden of pathogens and pests on major food crops. Nat Ecol Evol 3, 430–439 (2019)
6. ‘The current and potential costs of invertebrate pests in grain crops’, GRDC
7. 2024 CropLife magazine Biologicals online survey, The state of US crop biologicals in 2024 (agfundernews.com)

## Crop Protection

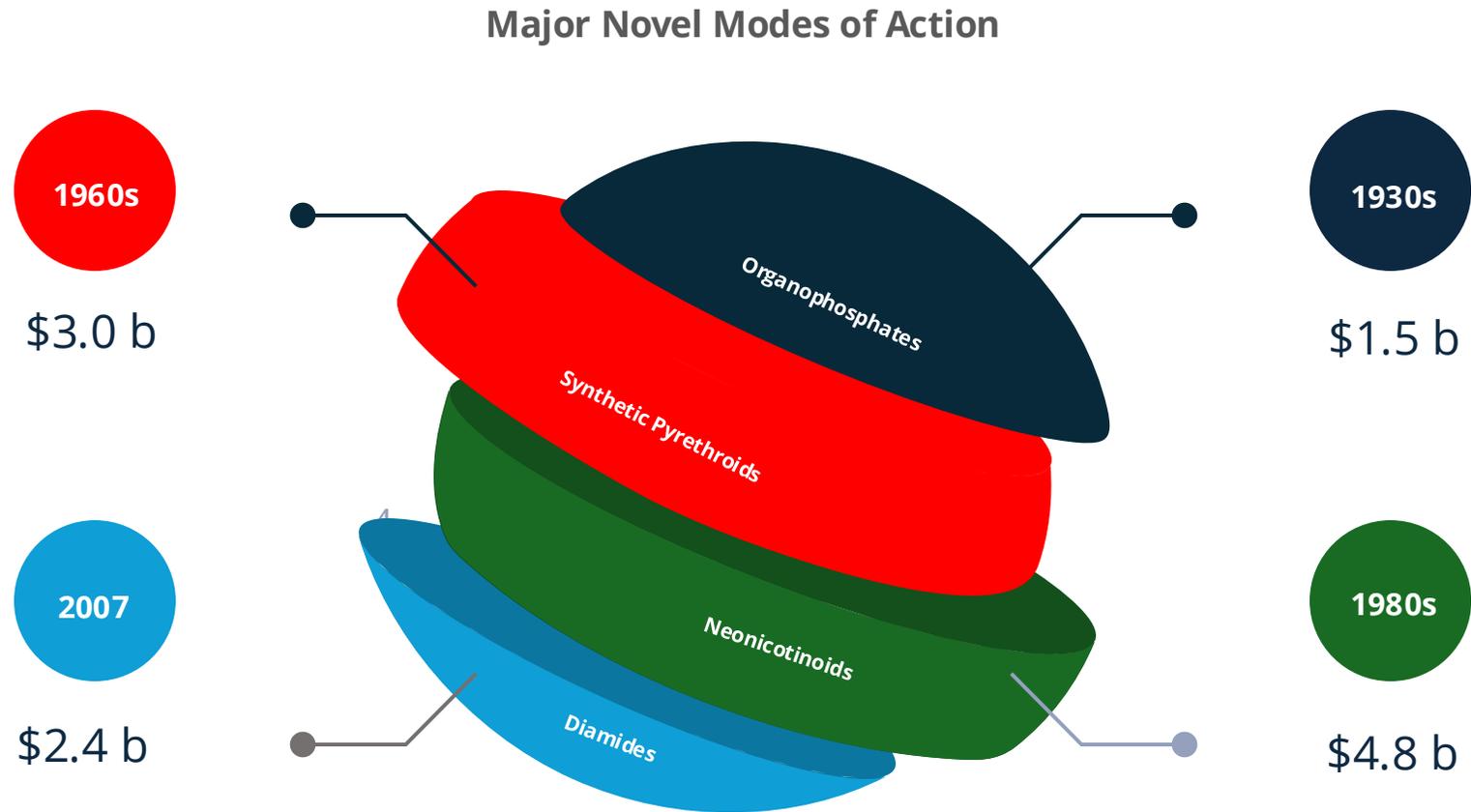


### Pesticides are critical to farming

- » 20-40% of global food production lost to pests - est. US\$2 trillion per year<sup>5</sup> and increasing - due to:
  - growing insect resistance to current insecticides
  - climate change
  - increased population pressures
- » The estimated annual losses for the six major Australian grain crops due to invertebrate pests is est. A\$360M<sup>6</sup>
- » CropLife’s US survey found that 72% of respondents “are planning to increase the number of biological products their companies sell to grower-customers during the coming year”

# Examples - Current Major Insecticide Classes

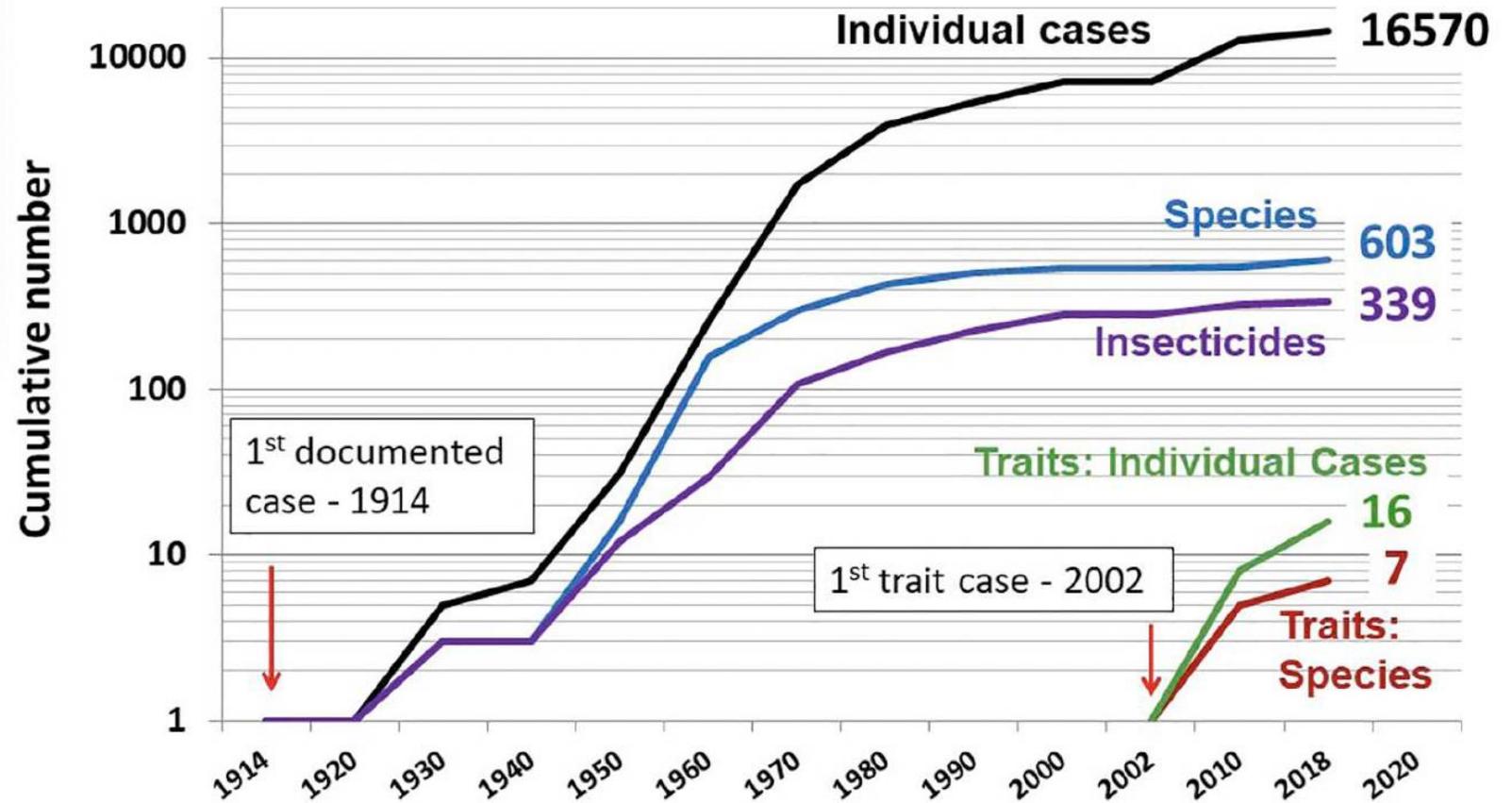
A long history of pest control reliance on key areas of synthetic chemistry



# The (Big) Problem of Resistance

Pests continue to develop resistance to almost all insecticides

- Between 20% to 40% of global crop production is lost to pests annually.
- Each year, invasive insects cost the global economy approx. \$290 billion. (FAO)



Source: Sparks et al 2020, *Insecticides, biologics and nematocides: Updates to IRAC's mode of action classification - a tool for resistance management. Pesticide Biochemistry and Physiology* 167

## The Global Challenges We Help Solve

Meeting the increasing market demands for safe and effective pest control solutions and new modes of action.



A *diminishing pool of available products* for farmers and public health officials:

- » Insects' resistance to insecticides
- » Loss of approved registrations for traditional chemistries



Bio-Gene is developing two active ingredients, Qcide and Flavocide, *derived from nature* that control insect pests using *a novel mode of action*.



Bio-Gene's two new active compounds have *proven synergy* with some key insecticide groups, meaning the overall efficacy and safety profile may be improved and the patent life of these current products may be extended when combined with Qcide and Flavocide.



# Our Unique Products Derived from Nature

01

## Qcide®

Qcide is an 100% natural oil extracted from the leaves of a specific cultivar of eucalypt (*Gypmie messmate*) currently farmed in northern Australia.

✓ *12<sup>th</sup> harvest in QLD completed in 2024*

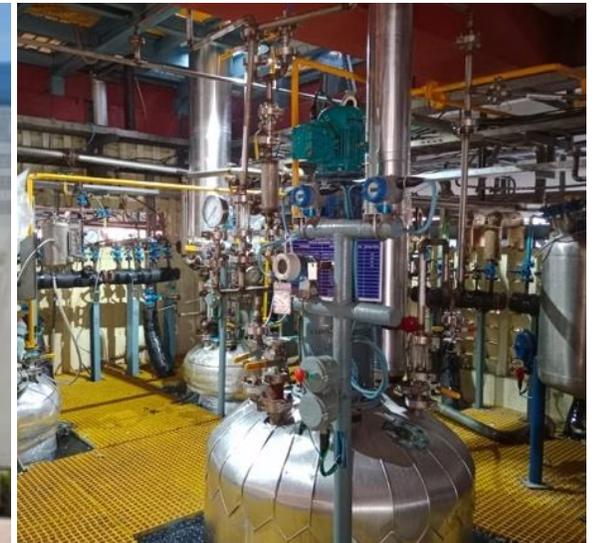


02

## Flavocide®

Flavocide is based on flavesone, a naturally occurring plant compound synthesised via a proprietary process that allows production in large volumes for global demand.

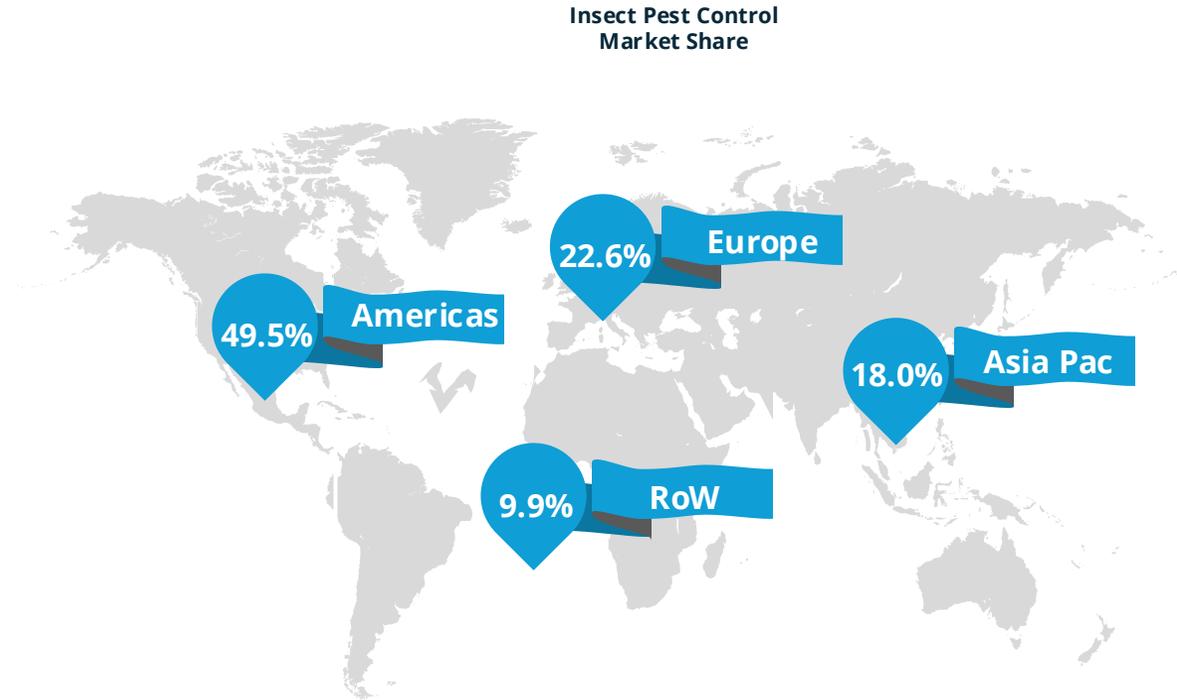
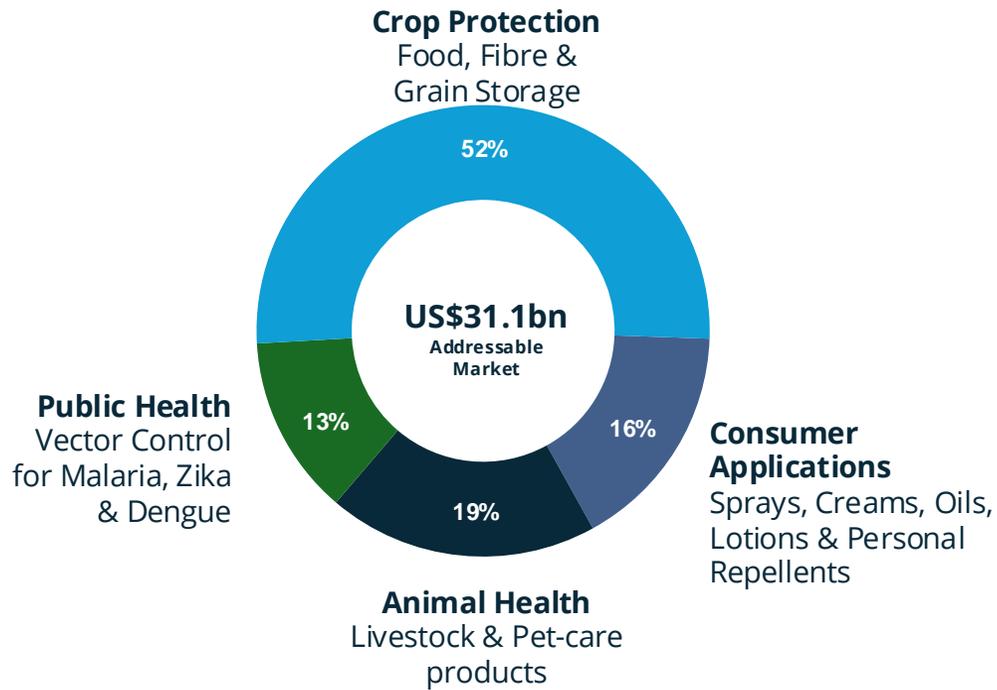
✓ *Pilot-scale production completed at Rallis India Ltd*



Patent families owned by Bio-Gene include: (1) Control of resistant pests.(2) Use in synergistic combinations, (3) Control of specific pests e.g., aphids, (4) Ovicidal activity against insect pests e.g., mites, bed bugs. Territories: Australia & New Zealand, USA/Europe, Latin America (Brazil), Asia (China), Africa (RSA)

# The Global Insect Control Market

Global pest control is a rapidly growing industry with chemical controls representing the largest category



# Flavocide & Qcide – Multiple Market Segments

Bio-Gene is targeting five large well-developed global markets

Sectors					
	Crop Protection	Grain Storage	Public Health	Consumer Applications	Animal Health
	Food & Fibre	Stored Grain	Vector Control for Malaria, Zika & Dengue	Urban Pest Management, Oils, Lotions & Personal Repellents	Livestock & Pet-care Products
Size (US\$) & % of \$31.1B	\$16.1B 52%	\$1.0B 3%	\$4.0B 13%	\$4.1B 13%	\$5.9B 19%
Current Products & Challenges	<p>EU import restrictions (e.g. Omethoate for red-legged earth mite in Canola)</p> <p>Secondary regulation imposed by food chain (Aldi)</p> <p>Consumer and regulatory pressures</p>	<p>Pyrethroids, phosphine, organophosphates, etc.</p> <p>High levels of resistance in lesser grain borer, flat grain beetle, rice weevil</p>	<p>e.g. Bifenthrin, deltamethrin, pyrethrins, etc.</p> <p>Mosquito control market projected to grow by 38% between 2021-26<sup>1</sup></p>	<p>Mineral oils, toxic synthetics (e.g. malathion), pyrethum based products etc.</p> <p>Home and garden uses, Shift towards safe (especially to children &amp; pets) and eco-friendly products to protect the environment</p>	<p>Japanese Encephalitis outbreaks</p> <p>Prevalence of ticks</p> <p>Consumer concerns for pet health</p>

1. Global Mosquito Control Professional Survey Report 2021, Forecast to 2026)

# Flavocide & Qcide – Multiple Market Segments

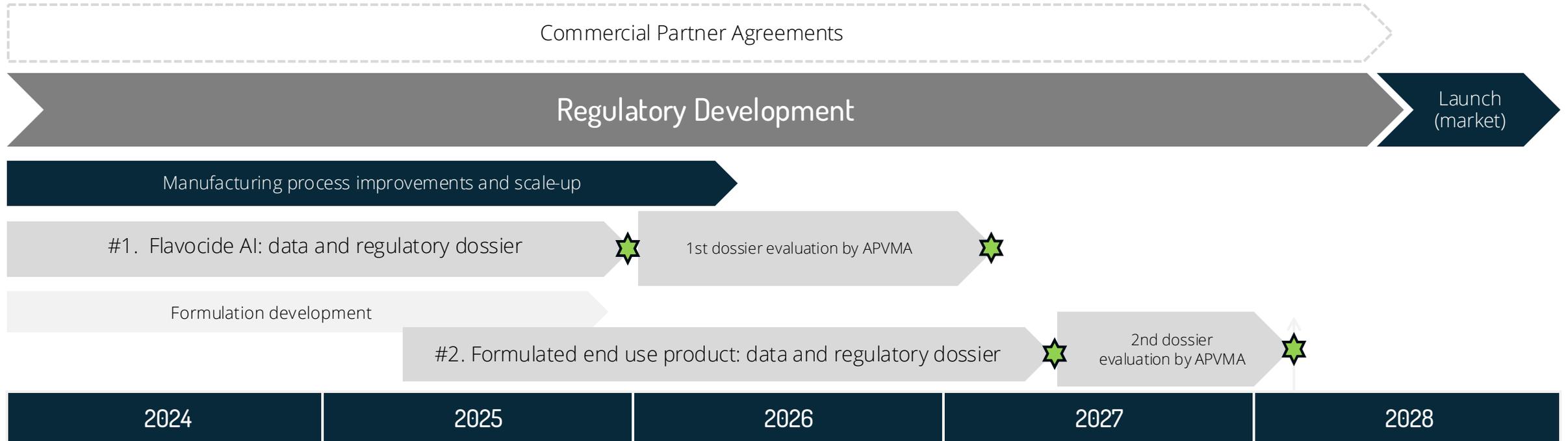
Bio-Gene is targeting five large well-developed global markets

Active constituent	Description		Sectors	Target uses	Partners & Collaborators
<b>Flavocide</b>	1	Grain Protectant	Crop protection	Admixture to grain	
	2	Outdoor Space Spray	Public health	Flying insects	
	3	Indoor Barrier Spray	Public health	Flying & crawling insects	
	4	Outdoor Barrier Spray	Public health	Flying & crawling insects	
	5	Indoor Space Spray	Consumer	Flying insects	
<b>Qcide</b>	6	Indoor Space Spray	Consumer	Flying insects	
	7	Outdoor Barrier Spray	Consumer	Flying insects	
	8	Outdoor Garden Spray	Crop protection & Consumer	Fruit & vegetables, ornamentals	 

BGT is also investigating other potential use patterns, product extensions and combinations with other active ingredients.

# Flavocide Development Path

Regulatory approval of a formulated product is a two-step process.

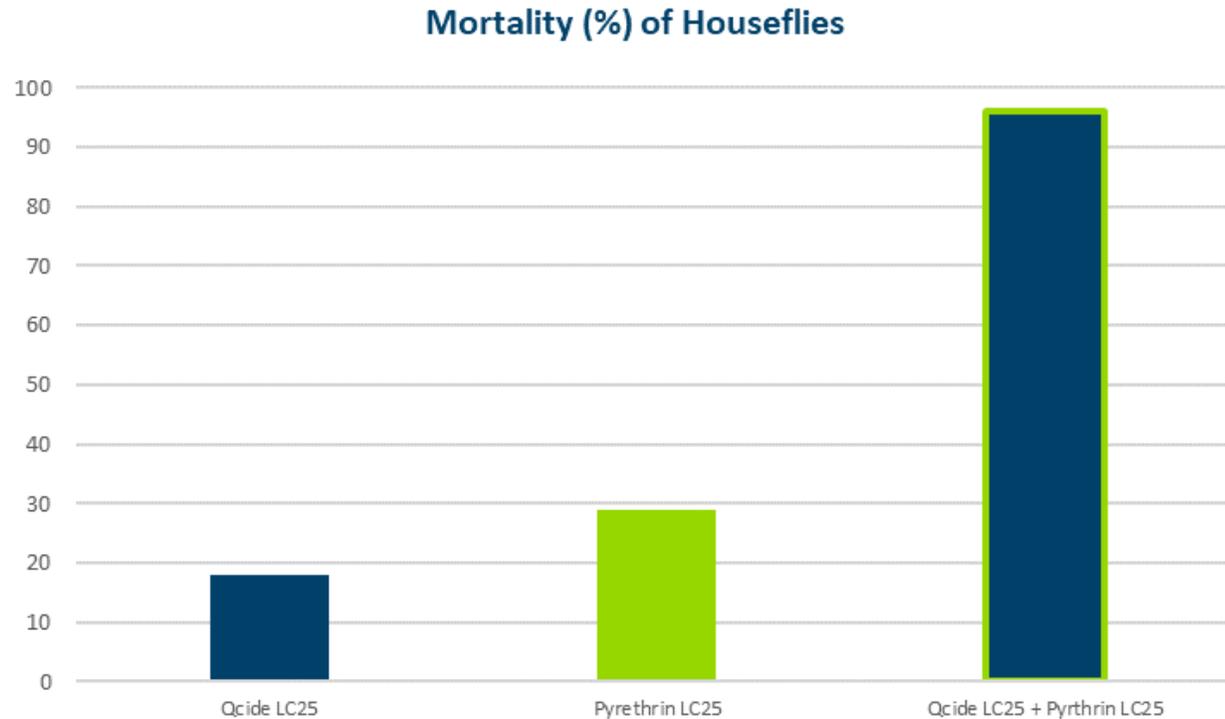


\* Timeline based on current estimates.

★ Key inflection milestones that will generate increased revenue and interest from commercial partners

# Studies Confirm Synergy

Synergy confirmed with QCIDE / Pyrethryn combination<sup>1</sup>



- Novel Mode of Action allows for this synergistic effect
- Cost effective solutions at lower rates
- Addresses resistance development

*Statistically valid results confirmed synergy in this combination*

<sup>1</sup>In spray/topical applications, Qcide with pyrethrins against houseflies (*M. domestica*).

## Multiple Commercial Partnerships in Place

Bio-Gene has established commercial partnerships with global partners, with additional commercial partners in progress.



Applies advanced botanical science to the development & commercialisation of natural crop protection for growers worldwide

Develop, register and commercialise Qcide for crop protection

### Revenue Model

- » Active ingredient supply to STK
- » On-going royalties on end-use product sales with other commercial partners



Clarke is the largest vertically integrated company in public health mosquito control in the US

Develop, register and commercialise Flavocide for public health and residential mosquito control in US and Cayman Islands

### Revenue Model

- » Up-front license fee
- » Milestone payments prior to registration
- » On-going royalties on end-use product sales
- » Commercial supply of Flavocide active ingredient to Clarke
- » Formulated product development costs borne by Clarke



Evergreen is a market leader in consumer products across Europe and in Australia/New Zealand

Develops and registers products for consumer applications across Europe, UK, Australia and NZ

### Revenue Model

- » Up-front license fee
- » Milestone payments prior to registration
- » On-going royalties on end-use product sales
- » Commercial supply of Flavocide active ingredient
- » Formulated product development costs borne by Evergreen

# Key Collaborations Snapshot

R&D partnerships advance development and registration of Qcide and Flavocide.



Envu was founded in 2022 from Bayer’s environmental science division. Envu’s product pipeline focuses on novel, safe and environmentally-friendly insecticides

- » Evaluating Flavocide as a commercial insecticide for use in mosquito control products



Runs an internationally recognised research program focused on new, human safe insecticides for control of insects and ticks

- » Flavocide included in major US CDC US\$10m funded program on tick-borne diseases.



An Australian Government statutory authority investing in research development and extension for grain growers

- » Supports Bio-Gene to develop and register Flavocide for use in grain storage.



Australia’s national science agency

- » Assisting to develop and optimise the method of producing Flavocide.



# Recent News - Bio-Gene Awarded U.S. Department of Defense Grants Totalling A\$3.0m

Deployed Warfighter Protection (DWFP) program - new product opportunities in defense

The DWFP program is a U.S. Department of Defense program administered by the U.S. Armed Forces Pest Management Board that supports development of novel technologies to protect U.S. military personnel from threats posed by disease-carrying insect pests.



## Flavocide® in a wearable emanator device

- » A wearable product containing Flavocide to control mosquitoes and other insect vectors of disease (Dengue, Malaria, etc)
- » Controlled Release Device developed by GearJump Technologies
- » A\$1.6M (US\$972,449) over three years, (A\$64,000 to BGT)
- » Collaborators:
  - U.S. Army Combat Capabilities Development Command, Maryland
  - Center for Medical, Agricultural and Veterinary Entomology, Agricultural Research Service, Florida
  - Walter Reed Army Institute of Research, Bangkok



## Qcide® to provide residual control of bed bugs & crawling insects

- » A sprayable formulation of Qcide® to provide residual control of bed bug infestations, flies and other crawling insects
- » A\$1.4M (US\$892,492) over three years, (A\$159,000 to BGT)
- » Collaborators:
  - Walter Reed Army Institute of Research, Maryland,
  - Center for Medical, Agricultural and Veterinary Entomology, Florida

*These grants are a strong validation of Bio-Gene's technology and will enable development of two innovative products containing Flavocide® and Qcide® for commercialisation in both the military and civilian markets.*

# Recent Milestones & News flow

8 August 2024

Study plans for Flavocide on track following APVMA feedback

ASX ANNOUNCEMENT  
8 August 2024

**BIO-GENE**  
TECHNOLOGY  
LTD

**Bio-Gene's registration plans for Flavocide® on track following APVMA feedback**

**Highlights**

- Studies planned for the Flavocide® insect control active ingredient regulatory dossier are confirmed following feedback received from the Australian Pesticides and Veterinary Medicines Authority (APVMA)
- APVMA provides assistance on the regulatory requirements to facilitate registration of new active ingredients
- Flavocide is a novel insecticidal active ingredient derived from nature being developed by Bio-Gene for use in public health, agriculture and by consumers



**Australian Government**  
**Australian Pesticides and Veterinary Medicines Authority**

14 August 2024

Envu collaboration to evaluate Flavocide for mosquito management



ANNOUNCEMENT  
14 August 2024

**Bio-Gene and Envu collaborate to evaluate Flavocide™ for use in public and private sector mosquito management**

**Highlights**

- Joint collaboration evaluating Flavocide™ for mosquito management across a range of professional applications
- Flavocide complements the product pipeline of forward-thinking effective chemistries Envu offers for the global professional non-crop market
- Flavocide shown to effectively control mosquitoes

2 September 2024

Flavocide production successful at pre-commercial scale



ASX ANNOUNCEMENT  
2 September 2024

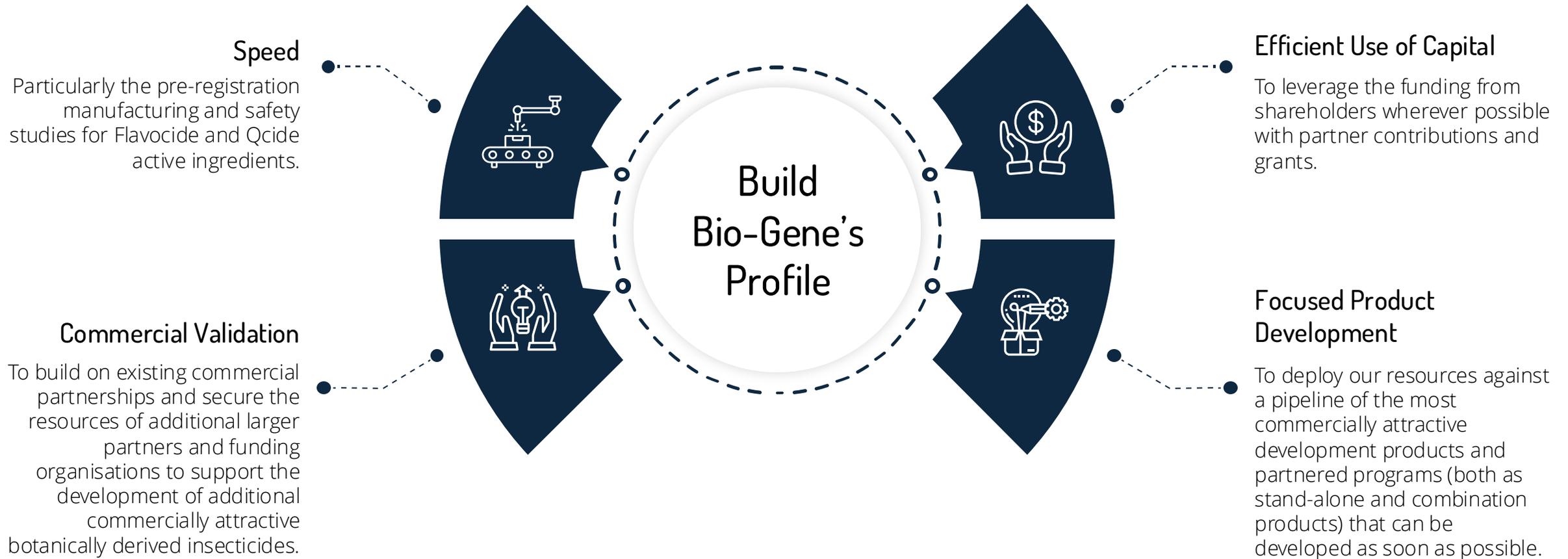
**Bio-Gene and Rallis India Limited achieve key Flavocide® production milestone**

**Highlights**

- Successful pilot-scale production of Flavocide® conducted by Rallis India Limited, one of India's leading Agri-sciences companies and a subsidiary of Tata Chemicals Limited
- Demonstration that Flavocide® can be produced at a consistent quality and yield at precommercial scale
- Flavocide® produced by Rallis India Limited to be used in planned testing activities to advance the registration process for Flavocide®
- Capacity to produce Flavocide® in sufficient quantities for future supply to Bio-Gene's commercial licensees

# Bio-Gene's Strategic Priorities

Strategy is focused on efficient development and approval of Flavocide and Qcide, with more commercial partnerships.



# Experienced Board of Directors & Management Team

A team with strong experience in product development, partnering and commercialisation.




**Alex Ding**  
Chairman

Previously partner at two law firms and expert in M&A, capital markets, and general corporate law.




**Andrew Guthrie**  
Non-Executive Director

32 years' experience in agriculture globally, formerly a member of Syngenta's leadership team.




**Tim Grogan**  
MD & CEO

30 years' experience growing companies in the agtech, food and human health sectors.




**Edmond Tern**  
CFO & Company Secretary

30 years' experience as CFO and across both listed and unlisted companies.




**Chris Ramsey**  
Non-Executive Director

Over 30 years' experience in agriculture business start up, development, marketing & agronomy.




**Peter May**  
Executive Director R&D

Over 30 years' experience in crop protection market.




**Dr James Wade**  
Program Manager

PhD with 10+ years experience in research in a broad range of agricultural verticals.




**Richard Jagger**  
Commercial Advisor (Business Development)

25+ years in agriculture.

# Global Agriculture Biological Sector – Major licensing/collaboration deals in recent years

<i>Multinational Giants seeking all-round collaborations to maximize resources &amp; portfolio offerings</i>					
Licensee	Licensors	Activity	Uses	Timing	
	<ul style="list-style-type: none"> <li>Biotalys</li> <li>Provivi</li> <li>Lavie Bio</li> </ul>	<ul style="list-style-type: none"> <li>Joint development of biosolutions</li> <li>Eco granules &amp; dispenser</li> <li>New biological insecticides</li> </ul>	<ul style="list-style-type: none"> <li>Crop Protection</li> <li>Fall Armyworm &amp; Yellow Stem Borer</li> <li>Crop Protection</li> </ul>	<ul style="list-style-type: none"> <li>April 2023</li> <li>September 2024</li> <li>February 2024</li> </ul>	
		<ul style="list-style-type: none"> <li>AlphaBioControl</li> </ul>	<ul style="list-style-type: none"> <li>Biological insecticide</li> </ul>	<ul style="list-style-type: none"> <li>Oilseed rape &amp; cereals</li> </ul>	<ul style="list-style-type: none"> <li>April 2024</li> </ul>
		<ul style="list-style-type: none"> <li>Agrospheres</li> </ul>	<ul style="list-style-type: none"> <li>Biological insecticide</li> </ul>	<ul style="list-style-type: none"> <li>Lepitoteran pests</li> </ul>	<ul style="list-style-type: none"> <li>October 2024</li> </ul>
		<ul style="list-style-type: none"> <li>Bioceres</li> </ul>	<ul style="list-style-type: none"> <li>Distribution</li> </ul>	<ul style="list-style-type: none"> <li>Seed application</li> </ul>	<ul style="list-style-type: none"> <li>July 2023</li> </ul>
		<ul style="list-style-type: none"> <li>AgBiTech</li> <li>Biome Makers</li> </ul>	<ul style="list-style-type: none"> <li>Distribution</li> <li>Tech devel</li> </ul>	<ul style="list-style-type: none"> <li>Crop Protection</li> <li>Soil health</li> </ul>	<ul style="list-style-type: none"> <li>February 2023</li> <li>May 2023</li> </ul>
	<ul style="list-style-type: none"> <li>Novozymes</li> </ul>	<ul style="list-style-type: none"> <li>Enzyme based biocontrols</li> </ul>	<ul style="list-style-type: none"> <li>Crop &amp; Prof Pests</li> </ul>	<ul style="list-style-type: none"> <li>Feb 2021</li> </ul>	
	<ul style="list-style-type: none"> <li>Ginkgo Bioworks</li> </ul>	<ul style="list-style-type: none"> <li>Product development &amp; manufacturing</li> </ul>	<ul style="list-style-type: none"> <li>Multiple Ag uses</li> </ul>	<ul style="list-style-type: none"> <li>July 2023</li> </ul>	

## Global Agriculture Biological Sector - Major acquisition deals in recent years

	Year	Acquiring Company	Target Company	Est. Transaction size	Major components
	2021	Nutrien	Actagro	Not disclosed	Specialty plant nutrients & soil health products
	2022	BASF	Ag Solutions Division (partial listing)	Public offering	Crop Protection chemistry, digital farming
	2024	Sumitomo	Philagro	Not disclosed	Crop Protection products
	2024	Sumitomo	Kenogard	Not disclosed	Crop Protection products
	2025	Syngenta	Novartis natural compounds	Not disclosed	Biological Crop Protection products

# Key Forward Milestones & News Flow

Bio-Gene has many catalysts to drive value over the next 18 months, with a strong pipeline of near-term news flow.

01

## Flavocide & Qcide development

- ✓ Flavocide regulatory studies (multiple)
- ✓ Submission of Flavocide regulatory dossier in Australia
- ✓ Flavocide scale-up milestones
- ✓ Qcide regulatory development milestones
- ✓ Qcide scale-up and harvest/processing progress
- ✓ Regulatory milestones

02

## Partnering & commercial

- ✓ New commercial partnerships
  - Crop & grain storage
  - Vector control
  - Consumer uses
- ✓ Expansion of current licenses
- ✓ Receipt of milestone payments
- ✓ Patents granted

03

## Funding & other support

- ✓ Grant funding successes
- ✓ Synergistic program/product opportunities
- ✓ International funding support & validation

# Investment highlights

Bio-Gene is targeting five large well-developed global markets



# Contact

Tim Grogan  
Managing Director & CEO  
[timg@bio-gene.com.au](mailto:timg@bio-gene.com.au)

