



Investor Briefing November 2017

BIO-GENE SNAPSHOT



BIO-GENE TECHNOLOGY

BETA-TRIKETONES

Platform Technology

Key technology enabling the next generation of safe

insecticides to address the increasing problem of insecticide resistance

Data shows initial products **Flavocide™** & **Qcide™** can be highly effective for insect control management

Potentially suitable for commercialisation into multiple targeted insecticides

Collaborate with multinational AgChem partners to bring multiple insect indications to market

Targeting public health, animal health & crop protection verticals

technology and IP development company

An insecticide

EXECUTIVE SUMMARY



Novel insecticide platform leading to new potential products Strong test data Initial multinational partnership secured **Manufacturing** optimisation project underway with CSIRO **Established global** patents **Appointment of new**

board members

- Unique (new) mode of action identified alternative chemistry to current incumbent insecticides in a market seeking new products opening multiple market segments with multiple revenue sources
- Significant test results (and new tests underway with world leading institutions) demonstrate effectiveness of Flavocide™ at controlling resistant pests, as well as product safety
- Strategic testing partnership finalised with Virbac, a leading multinational animal health company with significant Virbac investment in product development supports Bio-Gene's partnership strategy
- To produce Flavocide™ at commercial rates and pricing
- Growing IP portfolio with additional applications filed
- Diverse skill set with significant industry experience

BOARD & MANAGEMENT





DON BRUMLEY *Non-Exec. Chairman*

- 25+ years as a senior partner and leader of Ernst & Young - Oceania
- Significant experience across IPOs, transactions, audit and advising growing entrepreneurial companies.
- Currently NED, Chairman of Audit and Risk Committee of Murray River Organics



RICHARD JAGGER

Exec. Director & CEO - Elect

- · 20+ years working in Agriculture Globally
- Most recently employed as Managing Director of Sinochem Australia
- Previously spent 15+ years at Monsanto in various management roles



ROBERT KLUPACS

Executive Director

- 30+ years corporate experience in international tech development
- Previously, MD and CEO of ASX-listed Circadian Technologies Ltd
- Previously, MD & CEO of ES Cell International Pte Ltd
- · Registered Australian patent attorney



PETER MAY

Non-Exec. Director

- 20+ years experience in crop protection market with companies Orica & Crop Care Aus. (now Nufarm)
- Founded Xavca, providing consulting services to companies such as Syngenta & Sorex (BASF)
- Former CEO of BioProspect



KEVIN RUMBLE

Non-Exec. Director

- · Founding Director of Bio-Gene
- 20+ years experience in new plant propagation, farming and live plant transport techniques
- Involved in the development of Qcide[™] & development of Flavesone as a first step in the commercialisation of Flavocide[™]



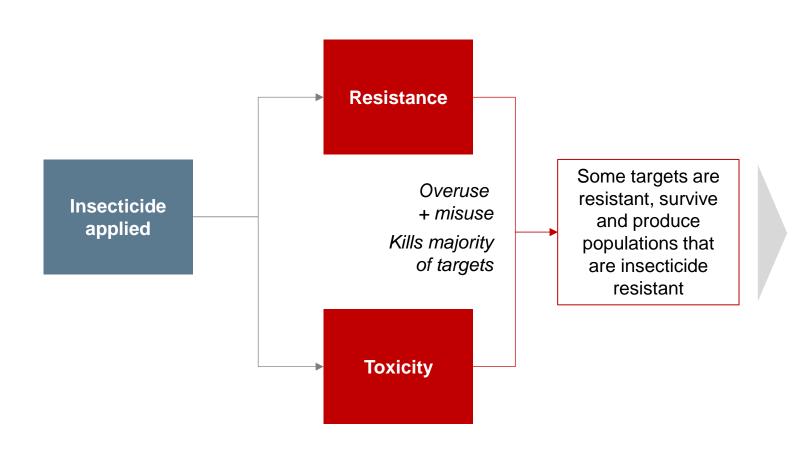
ROGER MCPHERSON

Chief Financial Officer & Company Secretary

- 15+ years experience as CFO and Company Secretary across both listed and unlisted companies
- Experience in the Pharma Manufacturing, Biotech, Biopharma industries
- Previously CFO and Co-Sec of TPI Enterprises (ASX:TPI)

GLOBAL PROBLEM: RESISTANCE & TOXICITY





Global Problems

Humans contract vector-borne diseases – 700,000 lives claimed per year

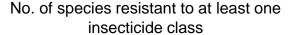
Zika virus has emerged and dengue fever has re-emerged

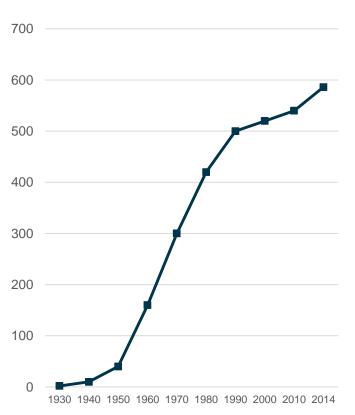
Reduced food production from vector-borne diseases in animals

Insects destroy an estimated 18-26 % of annual crop production worldwide

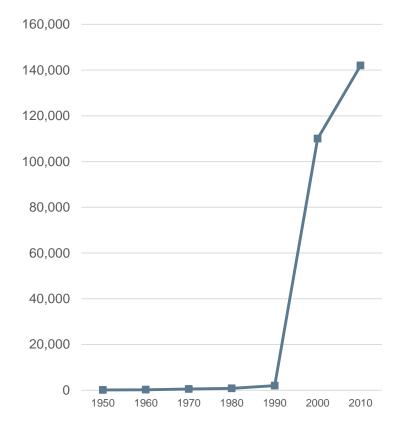
THE CHALLENGE FOR AGCHEM







No. of molecules that need to be screened to discover a new molecule for product use



586 insect species now resistant to at least one insecticide class

Hundreds of thousands of molecules need to be screened now to find a new product

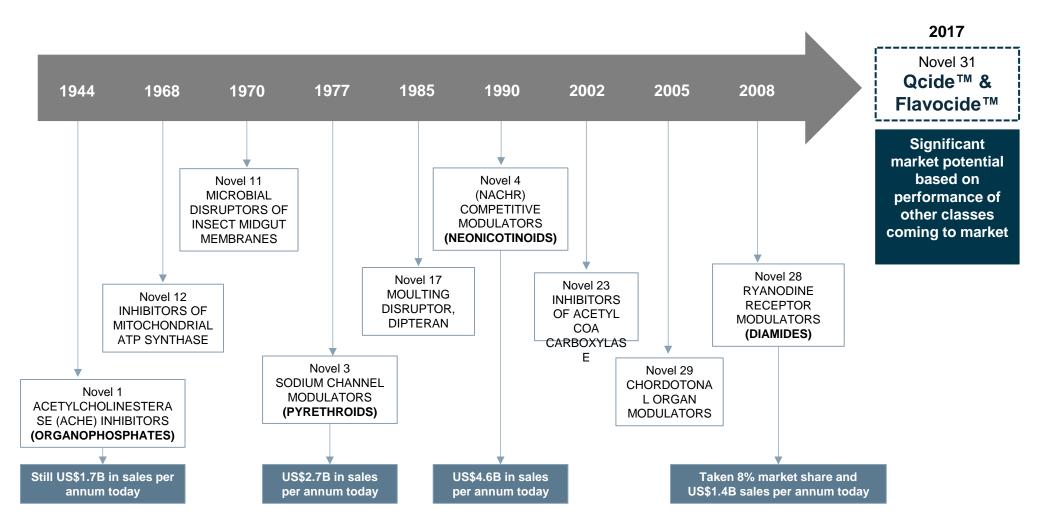
AgChem requires new chemistries but there is a challenge to finding new chemistries

Bio-Gene has a novel chemistry that it seeks to bring to market

Data: GT Brooks 1974, RL Metcalf 1980, W Klassen 1995, P McDougal 2003, CropLife 2011

NOVEL MODE OF ACTION (EXAMPLE CROP PROTECTION)

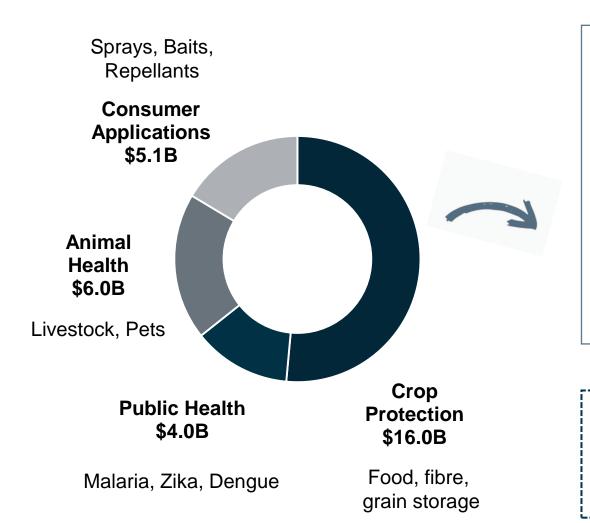




(Source: IRAC)

LARGE GLOBAL, GROWING MARKETS





Stable industry dominated by multi-national AgChem companies













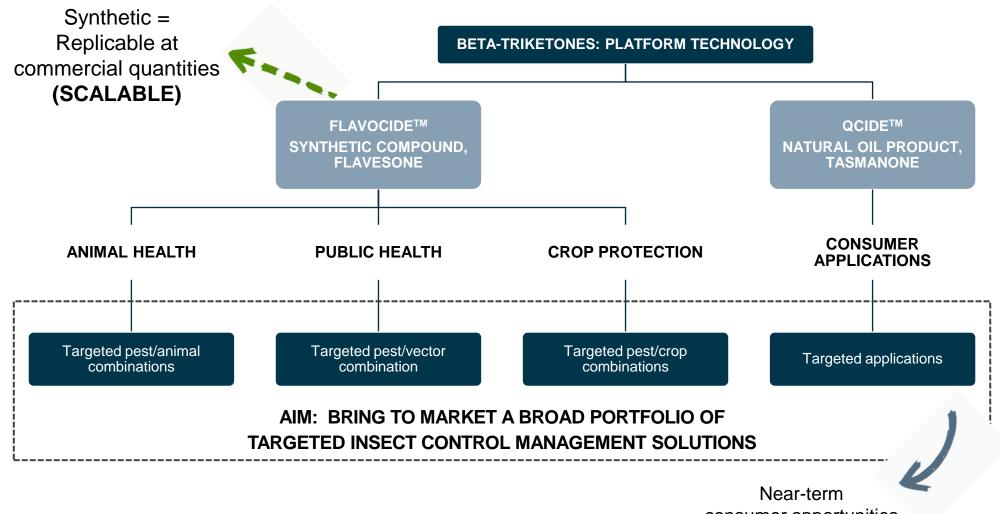
Seeking, Safe New Solutions to complement off-patent insecticides



AgTech with access to new technology platform leading to new insecticides

BIO-GENE TECHNOLOGY APPROACH



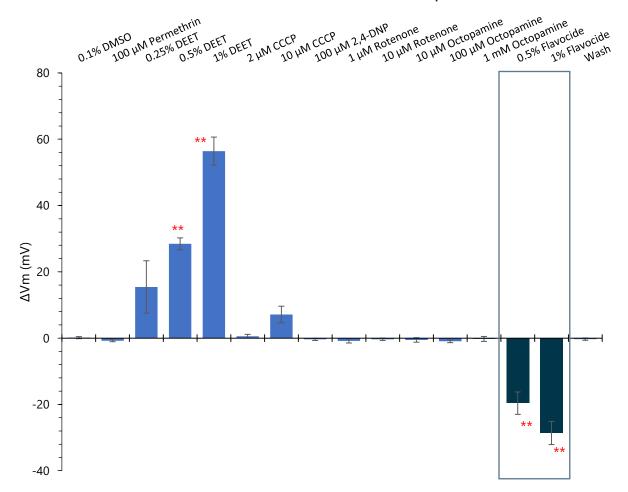


near-term consumer opportunities available with QCide™

FLAVOCIDE™: A UNIQUE MODE OF ACTION



Comparison of the effects of Flavocide with other known insecticides on rat DRG membrane potential



Our collaborators have elucidated Flavesone MOA IT DOES NOT act via mechanisms listed by IRAC

"Flavocide clearly exhibits a completely different profile compared to all other tested compounds in rat DRG neurones" – NeuroSolutions, August 2017

RESULTS TO DATE



				FLAVESONE		COMMON INCUMBENT		FLAVESONE + CI COMBINATION	
Insect	Testing Entity	Market	Problem	Speed	Efficacy	Speed	Efficacy	Speed	Efficacy
Aedes Mosquito	UTS	Public Health	Zika, Dengue Fever	✓	\checkmark	✓	\checkmark	√ √	$\checkmark\checkmark$
Anopheles Mosquito (Resistant Strain)	Major Ag	Public Health	Malaria	√	\checkmark	×	×	In progress	In progress
Culex Mosquito	UTS	Public Health	Ross River Fever, West Nile	✓	\checkmark	✓	✓	√ √	√ ✓
Domestic House Fly	UTS	Consumer	Salmonella, Gastroenteritis	✓	\checkmark	✓	×	$\checkmark\checkmark$	$\checkmark\checkmark$
Cattle tick (Resistant Strain)	Virbac	Animal Health	Transmits tick fever to range of animals	✓	\checkmark	×	×	In progress	In progress
Buffalo Fly	Virbac	Animal Health	Attacks cattle resulting in weight loss etc	√	✓	✓	✓	n/a	n/a
Flea	UTS	Animal Health	Skin infections, typhus & plague to people	✓	✓	✓	\checkmark	n/a	n/a
Lesser Grain Borer (Resistant Strain)	QDAF	Grain Storage	Affect whole cereals (wheat, barley, rice & sorghum)	✓	✓	×	×	In progress	In progress

Speed and Efficacy shown across a range of insecticide resistant pests

LAB EFFICACY EXPERIMENTS (IN PROGRESS / AGREED)



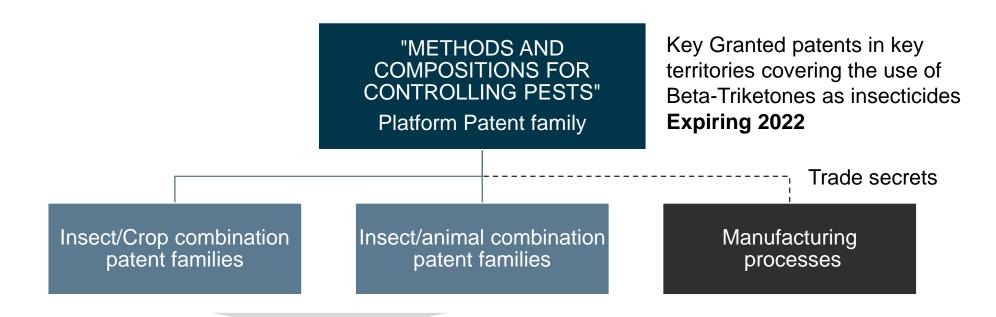
In Progress

Agreed

Insect	Testing Entity	Market	Problem
Mites (Susceptible & Resistant)	Australian CRO	Crop Protection	Leaf desiccation, leaf drop, yield loss
Beneficials	Australian CRO	General	Positive for crops etc. Control other pests, pollination etc.
Aedes Mosquito (Resistant Strain)	Purdue	Public Health	Zika, Dengue Fever
Buffalo Fly (Resistant Strain)	Virbac	Animal Health	Attacks cattle resulting in weight loss etc
Ticks (Resistant Strains)	Purdue	Animal / Human	Transmission of various diseases (eg. Lyme)
Other Grain Storage Pests (Resistant Strains)	QDAF	Grain Storage	Affect whole cereals (wheat, barley, rice & sorghum)
Aphids (Susceptible & Resistant)	Australian CRO	Crop protection	Crop damage at high infestation levels
Diamond Backed Moth	Australian CRO	Brassica crops	Damage to plant heads, contamination of produce
Helicoverpa armigera	Australian CRO	Field Crops	Crop damage
Brown Plant hopper	International CRO	Cereals	Feeding damage and viral transmission
Silverleaf whitefly	International CRO	Horticulture	Feeding damage and disease transmission
Culex Mosquito (Resistant Strain)	UTS	Public Health	Ross River Fever, West Nile
Domestic House Fly (Resistant Strain)	UTS	Consumer	Salmonella, Gastroenteritis
Cockroach (Susceptible & Resistant)	Purdue	Consumer	Pathogen transmission, allergic reactions
Flea (Resistant Strain)	UTS	Animal Health	Skin infections, typhus & plague to people

GROWING INTELLECTUAL PROPERTY





Recent provisional patent filings which, when granted, extend patent life to **2038**

Further filings over next 6-24 months covering specific combinations, specific resistant pest control, new formulations, dose ranges etc

ADDING VALUE BY IMPROVING MANUFACTURING



Existing process shows Flavocide is Highly Scalable

2,5,10 & 20kg batches produced for collaborators and partners Keys areas for Process Improvement (Cost reduction & efficiency):

Ingredients/
Intermediates

Time

Manufacturing Method



CSIRO Collaboration

- · Provides unique internal knowhow
- Experts in process improvement
- Collaboration commenced March 2017 – supported by CSIRO with \$50k "kick-start grant"

Results to Date...

- Yield improvement of >50%
- Indicative cost reduction of >50%
- · Unique process developed
- Further expected improvement over next 6-12 months

REVENUE GENERATION THROUGH MULTIPLE PARTNERING ARRANGEMENTS



Pre-Marketing

Generate data against key pests

Research fee

Collaborative Projects

Enter into stage gated partnership agreements on a segment by segment basis

Small up-front fee & purchase of active for further testing (\$50-250K) – Day 0

R&D Support for Bio-gene activities (tox, manufacture, etc) (\$500K-1M)

Licence Fees payable at development stage (\$500K-\$5M)

> Royalty on Sales (3-6%) 48-60 months then ongoing

Ongoing Sales

Supply active material for partner formulation & sale

Each milestone has a news and value inflection point

VIRBAC – FIRST KEY AGREEMENT



Pre-Marketing

Collaborative Projects

Ongoing Sales

Data Generated ✓

Research on cattle tick and buffalo fly in animal health

Signed agreement with Virbac ✓

Small up-front fee & purchase

of active for further testing
(in progress)



R&D Support for Bio-gene activities (tox, manufacture, etc) (post–listing)

Licence Fees payable at development stage

Royalty on Sales to be agreed

Supply active material into US\$400M+ market

Process duplicated for each collaboration project

UPCOMING MILESTONES



		H1 2018	H2 2018	H1 2019	H2 2019	H1 2020	H2 2020
Virbac	Progress Virbac Agreement to next stages						
	Initial mammalian toxicology studies						
	Product testing and toxicity data generation to support the AVPMA regulatory process						
	Sign Virbac License						
	First field trials						
	Registration Enabling Data						
	Registration Filed						
	Results from research partner in activity in						
Additional activities	resistant mosquitoes, ticks and cockroaches						
	Initiation of expanded efficacy studies						
	Pursue near-term product opportunities with QCide™						
	Pursue further strategic partnerships						
	Secure supply chain & production						
	MoA Peer reviewed publication						
	File additional patents as appropriate						
	R&D to generate further data to support approaches to potential evaluation partners						

USE OF IPO PROCEEDS



A\$(000s)	Year 1	Year 2	Total
Source of Funds			
Cash at bank	1,850	3,841	1,850
Capital raising	7,100	-	7,100
R&D Tax Incentive	100	400	500
Interest Income	120	60	180
Subtotal	9,170	4,301	9,630
Uses of Funds			
Costs of the Offer	913	-	913
Flavocide™	2,450	1,930	4,380
Qcide™	240	190	430
Intellectual Property	100	100	200
Intellectual Property – Medibio	226	-	226
Management & Administration	1,400	1,450	2,850
Subtotal	5,329	3,670	8,999
Working capital at end	3,841	631	631

CAPITAL STRUCTURE



Capital Structure						
Category	Shares	% Total Shares				
Existing shares	91,224,471	72.0%				
\$7.1m capital raised in IPO at \$0.20 offer price	35,500,000	28.0%				
Total	126,724,471	100%				
Market capitalisation at listing	\$25.3 million					

- One loyalty option for every five shares held will be issued to eligible shareholders at a record date approximately three months post-listing on the ASX. These listed options will have an exercise price of \$0.20 and an expiry date approximately November 2018
- 17.3m shares subject to voluntary escrow (six months) & 22.3m shares subject to mandatory escrow (up to 24 months)

INVESTMENT OVERVIEW





New insecticide platform chemistry, beta-triketones demonstrating a novel mode of action



Enables products Flavocide™ & Qcide™ shown to be effective against insecticide resistant pests



Applications across multiple market segments including Public Health, Animal Health, Consumer Products and Crop Protection / Grain Storage



Significant opportunity for ongoing development through partnerships with major AgChem companies. First already signed with Virbac.



Collaborative approach per application can be duplicated across projects providing many product opportunities



Established global patents and intellectual property with additional applications filed



Appointment of new board members with diverse skill set with significant industry experience

CONTACT DETAILS



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