BIO-GENE TECHNOLOGY LIMITED

ENABLING THE NEXT GENERATION OF NOVEL INSECTICIDES

JULY 2021 AUSTRALIASIAN AGFOOD CONFERENCE

PRESENTED BY

Richard Jagger Chief executive Officer & Managing Director BIO-GENE

ADDRESSING SIGNIFICANT GLOBAL CHALLENGES

The effectiveness of current insecticides is diminishing due to resistance & concerns relating to safety profiles



"Without Crop Protection, crop losses would double each year" CropLife



"No new public health insecticides have been developed for mainstream vector control for 30 years"

CDC⁴

Food Security & Public Health

Growing Population	Current global population is 7.7 billion, growing at 70 million p.a. It is anticipated that global population will reach nearly 10 billion by 2050 ¹ .
Challenges Of Climate Change	Climbing average temperatures and other weather events impact food production per hectare, increase the habitable environment for mosquitoes
Financial Impact	
Production	Currently 20-40% of food produced globally is lost to pests, valued at around US 2000 billion p.a. ^{2,3} .
Cost/Benefit	Direct costs due to Malaria infections valued at US\$12 billion p.a., with economic impact many times that $^{\rm 4}$
Social Impact	
Vector Borne Disease	More than half the world is at risk ^{5;} account for 25% of infectious diseases and exacerbate poverty & economic hardship. Mosquito borne diseases account for over 700,000 deaths every year and there are over 200 million cases of Malaria globally
Less Arable Land	Increased population puts pressure on available land and resources to produce food for today and tomorrow

- 4. CDC: Malaria's impact worldwide
- 5. WHO report, 2015

^{1.} United Nations, "World Population Prospects 2019"

^{2.} Oerke EC, Crop Losses to pest J. Agri Sci 144: 31-43 (2005)

^{3.} Pimentel D Pesticides and Pest controls. In: Peshin R, Dhawan AK. (eds). Integrated pest management: innovation-development process, 1:83-87. Springer Science (2009)

OUR TECHNOLOGY ADDRESSES THESE CHALLENGES AND TARGETS GROWING GLOBAL MARKETS



Bio-Gene's insecticide platform has potential application in large, global market segments estimated to represent a total addressable market valued at over US\$31.1 billion



OUR TECHNOLOGY PLATFORM

We are developing two products that allow entry into five key market segments

Ocide™

Natural Compound

An extract of a specific cultivar of eucalypt, the Gypmie Messmate

Trees are farmed in concentration by sub-contractors in QLD

The leaves contain oil expressing high levels of Tasmanone, a natural compound that has shown evidence of insecticide efficacy



Flavocide[™]

Nature Identical Compound

BGT has developed a proprietary chemical process with CSIRO to to deliver another Beta-Triketone; a nature identical compound that is able to be produced at commercial scale



Both of our products have potential application in all five of our target market segments

OUR PROPRIETARY CHEMISTRY REPRESENTS A STEP-CHANGE FOR RESISTANT PEST CONTROL



Naturally Derived Chemistry

Qcide[™] is a natural compound and Flavocide[™] is a 'nature identical mimic' of a natural compound that can be mass produced

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Scalability

Production processes are refined, scale-up in progress

Safe Chemistry

Excellent safety profile based on data generated to date. Low toxicity to bees & beneficial insects (5000 times less toxic to bees than neonicotinoids)



Synergies & Combinations

Proven synergy in combinations with synthetic pyrethroids – the most commonly used mosquito insecticides



Efficacy

Testing to date confirms potential for controlling resistant pests across multiple markets



Control of Multiple Generations

Potential to impact pest populations by controlling adults and offspring



Novel Mode of Action

Operates via a novel Mode of Action, potentially addressing resistance to other classes of chemistry

CREATING MULTIPLE PRODUCT DEVELOPMENT OPPORTUNITIES

Bio-Gene can generate income and incremental company value as agreements are signed with commercial partners Multiple Material Transfer Agreements provide the opportunity for agreements to be developed across various market segments with numerous commercial partners



Income & Incremental Value 🛛 🕨 👘

US\$31.1billion Addressable Market

CURRENT PARTNER PROGRAMS

Stored Grain pest Evaluation

Substantial market opportunity, with estimated losses of up to **70%** of grain in storage attributed to pests across global markets. Global grain protectant market currently valued at approx. A\$1 billion p.a. and growing*.

GRDC

RAINS RESEARCH

Stage 3 (field) testing has commenced to assess residual efficacy, with results anticipated end of year

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Significant market opportunities across distinct segments, demonstrating the flexibility of Bio-Gene's technology.

Other evaluation programs are underway via Material Transfer Agreements



OUR

PARTNERS

Mosquito Control Evaluation

Evaluating Flavocide and Qcide for use in public health mosquito control in North, South and Central America Expect to test lead formulations on target species in field environments very soon

The US market for chemical control of mosquitos is currently valued at approximately US\$200 million

OUR PARTNERS



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We create chemistry





A CLEAR ROAD MAP CY21 Q4 FOR ADDING VALUE CY21 Q3 Confirmation of SHORT TERM yield improvements CY21 Q2 via extraction process at Ocide Flavocide 5-batch harvest manufacturing BASF / GRDC stage analysis (for CY21 Q1 3 results registration) Flavocide Ocide Tree planting Conversion of MTAs manufacturing scale up into additional validation Anticipate formal evaluation Registration acceptance of trials Board review and enabling safety data additional patents appointments Agreements with A number of key Registration data BASF / GRDC phase commercial M.o.A. study milestones and valuereview with advisors 3 field work partners adding activities & planning next results completed with lab Additional efficacy continue to improve steps studies to be Eco Tox Data data the overall value of developed BASF stage 3 interim/ Discussions re Clarke program BGT technology results potential stage 2 feedback & Additional MTAs commercial next steps relationships with Additional efficacy both existing and data - mosquitoes, new collaboration crop pests, animal partners pests

Incremental Value

A CLEAR ROAD MAP FOR GENERATING VALUE – MEDIUM TERM 2022-2024



- Proof of principle efficacy testing
- Preliminary safety data
- Product formulation concepts
- Testing with 3rd parties



2021-2022

 Efficacy data in multiple settings

2020-2021

- Advancing safety and tox testing
- Confirming novel Mode of Action claims
- Development agreements and additional MTAs

- Manufacturing scaleup
- Building regulatory data package
- Securing initial agreements with commercial partners
- Converting additional MTAs into collaborative development agreements

- Additional application testing internal and with partners
- Applying for formal recognition of novel Mode of Action
- Completing data package for final submission

- 2024-2026
- First regulatory approval and commercial sales
- Additional registration submissions
- Potential new product development program

POTENTIAL UPFRONT AND MILESTONE PAYMENTS, LICENSING FEES



FUNDING POSITION



Shares on issue 153,633,357

Market capitalisation \$25.3 million¹

As at June 30, 2021, Cash on hand A\$3.9 million

Provides working capital needs on budgeted activities until

June 2022

1. @16.5 cents per share

Sources of future funding:

Development Government and commercial grants partnerships

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Industry organisations ((\$))

Capital markets



Philanthropic organisations focused on public health solutions

KEY INVESTMENT HIGHLIGHTS

Proprietary insecticide technology Naturally derived chemistry, with novel mode of action



Expanding efficacy, toxicity and manufacturing data to support international regulatory submissions – Excellent safety profile



Large addressable markets where insecticide resistance is a growing problem



Commercial partnership strategy provides multiple opportunities to demonstrate and generate near-term value, with several partnerships already in place



Experienced and motivated management team



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CONTACT

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