

# PUBLIC HEALTH MOSQUITO CONTROL PARTNERSHIP

Bio-Gene Technology Limited (ASX: BGT, "Bio-Gene" or "the Company"), an agtech development company enabling the next generation of novel insecticides to address insecticide resistance, today announced a partnership with Clarke Mosquito Control Inc, ("Clarke") to develop its novel insecticide technologies Flavocide<sup>TM</sup> and Qcide<sup>TM</sup>, for use in public health mosquito control in North, South and Central America.

- This represents the second evaluation partnership for Bio-Gene and is an important validation of Bio-Gene's technology in the public health market;
- Clarke, based in the US is the largest vertically integrated company serving the public health mosquito control market; and
- Partnership follows positive results from Clarke's internal findings of testing Flavocide and Qcide

In August 2019, Bio-Gene signed a Material Transfer Agreement (MTA) with Clarke to allow initial testing of Flavocide and Qcide on three significant mosquito species; Anopheles, Aedes and Culex. The trials assessed whether Flavocide and Qcide controlled these mosquito species as measured by knockdown and mortality. As a result of the initial findings, this new agreement will focus on evolving formulations for both Flavocide and Qcide, in combination with other active ingredients to determine a potential commercial formulation.

In 2017, the World Health Organisation (WHO) estimated the worldwide insecticide market in public health to be worth US\$4 billion (A\$6.3 billion).

Bio-Gene Chief Executive Officer and Managing Director, Richard Jagger said: "Today's announcement represents an important milestone in Bio-Gene's commercialisation strategy and a major advancement for our technology in the very significant public health vertical.

"This partnership represents the second for Bio-Gene, following the stored grain pest control partnership with BASF and GRDC. The market continues to have a significant and growing interest in the natural basis of our technology and the potential to deliver new solutions," he said.

"This agreement with Clarke has the opportunity to expand into other markets and is very valuable for our discussions with other stakeholders including for example NGOs and philanthropists to further develop commercialisation opportunities in the public health space," he said.

Bio-Gene has continued its engagement with several other international companies, many of which have received samples of Flavocide and Qcide, via MTA's, under which they will undertake their own testing. Bio-Gene, together with these international companies have agreed on specific testing protocols and target pests. In addition, Bio-Gene has ensured that it can access and discuss ongoing results with the various R&D divisions whilst protecting its Intellectual Property throughout the process. Bio-Gene's now has a total of seven MTAs in place across four key verticals of Crop Protection, Grain Storage, Public Health and Consumer Products.

#### **About Clarke**

Clarke is the largest vertically integrated company serving the public health mosquito control market. With an expertise in product development, registration, manufacturing and sales and service, Clarke is working to advance the science of mosquito control through the lens of sustainability and innovation.



Founded in 1946, Clarke is a third generation, family owned business, with 16 offices in the U.S., along with locations in Mexico, Brazil, the United Arab Emirates, India and Australia. With 184 full-time employees, Clarke is leading its industry in mosquito control research and solutions for battling nuisance and disease vectoring mosquitoes.

Expertise in service as well as products has earned Clarke a front line role in nearly every major U.S.-based mosquito-borne disease outbreak since the introduction of West Nile Virus in New York City in 1999. Most recently, Clarke aided the U.S. states of Massachusetts, Rhode Island and Michigan with aerial response programs to combat the outbreak of Eastern Equine Encephalitis (EEE) in 2019. And in 2016 when the U.S. experienced its first ever outbreak of Zika (Miami-Dade County), Clarke lead at ground zero, mobilising ground and aerial response programs to effectively control disease vectors.

#### **Background on Bio-Gene in Public Health**

In December 2019, Bio-Gene announced a globally significant breakthrough with trial results that confirmed Flavocide can control the *Anopheles gambiae* mosquito species which carries Malaria and is increasingly resistant to commonly used insecticides.

These laboratory trial results demonstrate that Flavocide is active against resistant strains of the *Anopheles gambiae* mosquito. Combined with previous trial work, the company has now demonstrated Flavocide activity against resistant populations of the major mosquito species that carry diseases of such global importance as Malaria, Zika virus, and Dengue fever.

### **Background on vector-borne diseases**

The World Health Organisation (WHO) reports that currently more than half of the world's population is at risk from vector borne diseases, while globally there are more than 200 million cases of malaria and over 400,000 people die from the disease every year, most of them children under the age of five. Zika virus has been declared a global health emergency and death due to Dengue Fever has increased 30 fold in the last 50 years<sup>1</sup>.

In 2017 the WHO reported that collectively mosquito-borne diseases such as Malaria, Dengue, Zika claim over 700,000 deaths every year. In addition, these diseases are known to exacerbate poverty and prevent economic development. Unfortunately, the effectiveness of currently used insecticides is diminishing due to resistance.

¹ https://mosquitoreviews.com/learn/disease-death-statistics

Approved for release by the Chairman of the Board.

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

Bio-Gene is an Australian agtech development company enabling the next generation of novel insecticides to address the global problems of insecticide resistance and toxicity. Its novel platform technology is based on a naturally occurring class of chemicals known as beta-triketones.

Beta-triketone compounds have demonstrated insecticidal activity (e.g. kill or knock down insects) via a novel mode of action in testing performed to date. This platform may provide multiple potential new solutions for insecticide manufacturers in applications across Crop Protection, Grain Storage, Public Health and Consumer Products. The Company's aim is to develop and commercialise a broad portfolio of targeted insect control and pest management solutions.

**Flavocide<sup>™</sup> and Qcide<sup>™</sup>** are trademarks of Bio-Gene Technology Limited.