

Flavocide® contact efficacy and residual activity data against deer ticks published in peer-reviewed journal *Ticks and Tick-borne Diseases*

Highlights

- Results of a study conducted by researchers at Purdue University's Department of Entomology have been published in peer-reviewed journal *Ticks and Tick-borne Diseases*
- The study evaluated the efficacy of Flavocide® and two other current commercial products sold in the United States against *Ixodes scapularis*, also known as deer tick – a major vector of Lyme disease
- This preliminary assessment of Flavocide in an oil-in-water formulation demonstrated potential for tick control, resulting in >90% mortality of *Ixodes scapularis* nymphs at 24 hrs post-exposure in contact assays and robust residual efficacy (greater than 70% mortality up to four weeks) under laboratory conditions
- This data justifies further studies to evaluate formulation performance at lower Flavocide concentrations under laboratory conditions and in the field

Bio-Gene Technology Limited (ASX: BGT, Bio-Gene or the Company), an Australian company developing the next generation of novel insecticides derived from nature, is pleased to announce that results from a study evaluating the efficacy of Flavocide® in a prototype formulation against *Ixodes scapularis*¹ (also known as deer tick or blacklegged tick) have been published in the peer-reviewed journal: *Ticks and Tick-borne Diseases*² [Efficacy of Flavocide™ against Ixodes scapularis \(Acari: Ixodidae\) nymphs in an adaptable phenocosm test arena - ScienceDirect](#). *Ixodes scapularis* transmits seven of the 19 tick-borne pathogens recognised in the US and is a major vector of Lyme disease.

Publication of this data follows the presentation of earlier study data in September 2025 by researchers from Purdue University at the *17th International Conference on Lyme Borreliosis and Other Tick-Borne Diseases* in Chicago, USA³.

¹ *Ixodes* is a genus of hard-bodied ticks (family *Ixodidae*). It includes important disease vectors of animals and humans (tick-borne disease), and some species (notably *Ixodes holocyclus*) that inject toxins that can cause paralysis. *Ixodes scapularis* is widely distributed across the eastern and midwestern regions of North America. It transmits seven of the 19 tick-borne pathogens recognised in the US, namely *Borrelia burgdorferi* and *B. mayonii* (causative agents of Lyme disease), *B. miyamotoi* (hard tick relapsing fever), *Anaplasma phagocytophilum* (anaplasmosis), *Babesia microti* (babesiosis), *Ehrlichia muris euclairensis* (ehrlichiosis), and Powassan virus (Powassan virus disease).

² Maria V. Murgia, Phurchhoki Sherpa, Brianna Gast, Kayla Bliven, Catherine Hill, "Efficacy of Flavocide™ against *Ixodes scapularis* (Acari: Ixodidae) nymphs in an adaptable phenocosm test arena," *Ticks and Tick-borne Diseases*, Volume 17, Issue 6 (2026): Article 102710, November 2026, <https://www.sciencedirect.com/science/article/pii/S1877959X26001019>

³ See [BGT announcement](#).

Study Overview: This study was a preliminary assessment of the contact efficacy and residual activity of a novel oil-in-water formulation of Flavocide (**FLC-EW**) in comparison with the following two commercially available products tested at their labelled field application rates:

- Talstar-P⁴, a synthetic pyrethroid product, at 0.062% AI⁵; and
- EcoTreat Outdoor Pest Control (**OPC**, now known as Wondercide Outdoor Pest Control⁶), a natural product comprising cedarwood oil as the primary active ingredient (AI) at 0.16% AI (tested only in contact assays).

The FLC-EW represented a first-generation formulation and was used undiluted (50% AI) to determine its baseline efficacy against ticks.

The purpose of this study was to benchmark the acaricidal activity⁷ of Flavocide, a novel nature-identical AI in a preliminary formulation, in comparison to commercial formulations under standardised laboratory conditions, rather than to evaluate relative potency at equivalent concentrations.

Summary of results: The journal article reports that in this preliminary assessment, the undiluted FLC-EW formulation (50% AI) demonstrated potential for tick control, resulting in:

- >90% mortality of *I. scapularis* nymphs at 24 hrs post-exposure in contact assays and robust residual efficacy (greater than 70% mortality up to four weeks) under laboratory conditions; and
- Modest knock-down⁸ (**KD**) (~50% KD at 1 hr) and robust mortality of ticks at later time points (>90% at 24 and 48 hrs). Talstar-P exposure was associated with 90% KD at 1hr, and 70% and >80% mortality at 24 and 48 hrs, respectively, while OPC exposure was associated with repellency but no toxicity.

The journal article notes that: *“These findings indicate that FLC-EW retains activity for multiple weeks under laboratory conditions, suggesting potential for extended tick control in field applications. This justifies further studies to evaluate formulation performance at lower AI concentration under laboratory conditions first, then, if confirmed, in the field.”*

⁴ Talstar P (also known as Talstar Professional or Talstar One) is a liquid concentrate broad-spectrum insecticide containing 7.9% bifenthrin as its active ingredient and is part of the Envu Professional Pest Management product portfolio. It controls over 75 different pests including ants, cockroaches, spiders, fleas, mosquitoes, termites, and chinch bugs and for outdoor use it is used as a perimeter barrier around foundations, doors, windows, eaves, and as a lawn or ornamentals broadcast spray.

⁵ AI or ‘Active Ingredient’ refers to the biologically active chemical compound in an insecticidal product that produces the intended functional effect on the target insect.

⁶ Wondercide Outdoor Pest Control is a plant-powered, eco-friendly alternative to conventional chemical pesticides. It uses natural essential oils—primarily cedarwood oil—to kill and repel nuisance pests.

⁷ Acaricidal activity refers to the capacity of a substance to kill, paralyse, or inhibit the reproduction of members of the arachnid subclass Acari, which primarily includes ticks and mites. Unlike broad-spectrum insecticides that target six-legged insects, acaricides are specifically designed or evaluated for their effectiveness against eight-legged acarine pests. This activity is a critical focal point in both veterinary medicine and agriculture.

⁸ The ‘knock down’ or KD effect of an insecticide is a measure of the paralysis or immobilisation of the target insect after coming into contact with a biologically active agent.

These results have been generated under a vector control program funded by the US Centers for Disease Control and Prevention (CDC) co-ordinated by the Midwest Center of Excellence for Vector Borne Disease and research conducted by Purdue University.

Commenting on the publication, Catherine Hill, Professor of Entomology at Purdue University said: *“The US is currently experiencing a rapid increase in reports of tick-borne disease and Ixodes scapularis is of particular concern due to its ability to transmit multiple pathogens to humans and animals. In addition, the continuing development of resistance to current synthetic pesticides approved for control of vectors of disease means that new management options are needed to provide better control of tick populations.”*

Peter May, Bio-Gene Technology’s Executive Director R&D said: *“Publication of this data in a peer-reviewed journal is an important milestone in Bio-Gene’s development of Flavocide as a novel bioactive ingredient for pest management, derived from nature. Ticks represent an important, and growing, target pest for our development program and this study undertaken by researchers from the Department of Entomology at Purdue University has strong relevance for the public health, companion animal, and livestock sectors.*

“This initial evaluation of Flavocide in a prototype formulation has demonstrated promising residual efficacy and highlights its potential as a valuable new tool in integrated tick management strategies.”

Approved for release on ASX by Bio-Gene Board of Directors.

- ENDS -

For further information, please contact:

Bio-Gene Technology Limited:
E: bgt.info@bio-gene.com.au

Matthew Wright
NWR Communications
E: matt@nwrcommunications.com.au
M: 0451 896 420

About Bio-Gene Technology Limited

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

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

Flavocide® and Qcide® are registered trademarks of Bio-Gene Technology Limited.

To subscribe to Bio-Gene's announcements and other forms of email communication, please visit [this page](#) of our website.

www.bio-gene.com.au
