Mite Bee Gone

Novel Biopesticide for Control of Varroa Mites in Honeybee Colonies

Mite Bee Gone LLC
IR-4 Industry Technology Session (2-20-25)

Treatment Options

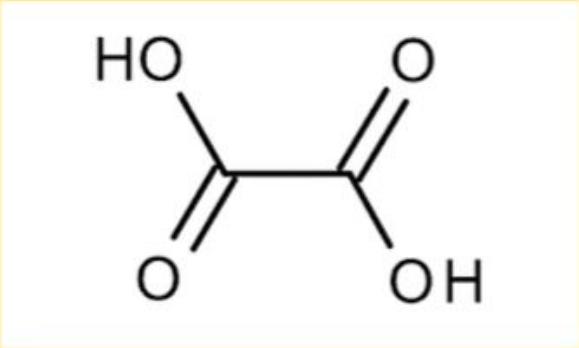
- Synthetic pesticides now in third generation have not slowed die-off
- 'Organic acid' methods have limited treatment periods while still causing stress to bee health
- Most effective 'organic acid' treatment require specialized application equipment cumbersome for small to medium beekeeping operations
- IPM methods are excellent tools to supplement Varroa mite treatment but treatment free beekeeping is impractical

MBG-2X5G Metabolic Biopesticide

- 100% natural and sustainable substrate is impregnated with Amino acid bio miticide suspended between brood frames where Varroa mite tend to congregate.
- intrusion of ‘bee space’ motivates bees to focus on removal of strip exposing mites on exoskeleton to miticide
- Does not require special equipment, easy installation and isolated delivery makes product desirable for more frequent treatment pattern

Chemical Comparison

Oxalic Acid



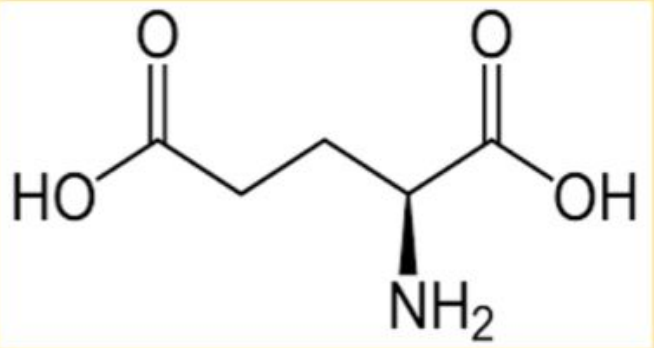
pKa = 1.27

found in honey 1 to 800 mg/Kg

poisonous organic by-product

Sublimates and water soluble

MBG Metabolic Biopesticide



pKa = 2.19

found in all honey 400 to 1600 mg/Kg

essential nutrient for life

limited water solubility

Background and Results

2016-18 Basic delivery method established using Oxalic Acid followed by preliminary testing of two amino acid options with similar results compared to Oxalic acid

2019-20 narrowed to single AA candidate (EPA motivated) Treatment protocols mimicked commercial products. Positive results continue with outliers observed as testing expanded

2021-22 Covid reduced study size. Friable nature of initial substrate material identified as likely source of outliers. More frequent and continuous treatment protocols evaluated

2023-present EPA licensing initiated with formulation locked and Biopesticide classification allowing broader usage protocols

MBG2X5G Product Status

- EPA Preliminary application accepted as a Biopesticide
- Biopesticide classification and methodology will allow for no timing or frequency restrictions on treatment
- Current protocol utilizes continuous 6 weeks intervals through entire season

Potential IR-4 Involvement

- Improved laboratory efficacy testing and larger field studies with continuous monitoring including untreated control colonies to enhance efficacy data
- Expand and document IPM principles including focused treatments around drone brood trapping frames
- Comparative studies with established ‘organic’ treatment methods including combining treatments
- Comparative testing of alternative metabolites in similar formulation and protocols

Short Term Challenge

- Final EPA approval is tied to support data to update PRIA designation of active ingredient
- Risk assessment group is requiring additional replication data of laboratory efficacy study to approve labeling amendment


Give bees and beekeepers a chance!
THANK YOU
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