ISOMATE® GRB Z

Mating Disruption Pheromone

BIOLOGY

GRAPE ROOT BORER *Vitacea polistiformis (Harris*), a is major lepidopterous pest present in nearly all Mid-Atlantic, Midwest and Southeastern Grape vineyards. Larvae feed unperceived on vine roots, causing a slow decline in vine vigor, reducing vine productivity and leading to eventual vine death. Grape Root Borer adults are wasp-like in appearance with dark brown bodies, with bands of orange and yellow on their abdomens. Wings are transparent with brown scales on forewings, and clear hind wings. Adults emerge from pupae cases near the soil surface at the base of vines in mid-June to the end of July. Adult moths fly during the daytime, with females ovipositing up to 300-eggs on foliage, canes and interrow plants. Neonate larvae migrate to the root zone near the trunk and begin feeding on roots during a two-year life cycle. Symptoms typically appear on older vines with initial symptoms noted by smaller leaves, reduced shoot growth, and fewer, smaller fruit often confused with other pathogenic conditions.

Male Grape Root Borer
University of Georgia

Female Grape Root Borer
Ohio State University

ECONOMIC IMPACT

GRAPE ROOT BORER, first recorded by Harris (1854) is widely present in over twenty states which represent over 53k Acres of vineyards. Dutcher and All (1979) confirmed that a single GRB larva can girdle 6% of a mature Concord grapevine, resulting in an estimated 47% reduction in total yield per vine. A field survey of fifty VA vineyards by Rijal and Bergh (2012) confirmed the presence of GRB in 94% of vineyards with 76% of vineyards exceeding the damage threshold of 30-larvae per Acre. Rijal and Bergh further used pupal cases per vine as an indirect method to estimate damage to GRAPE roots and found 32% of VA vineyards would be classified as moderately to heavily infested with GRB. Assuming a 47% loss in productivity in moderately to severely infested vines, with a production of 2.30 tons per Acre and price $2,728 per ton, results in a loss of $2,949 per Acre of Grapes per year in these invested vineyards.

VINEYARD REPLACEMENT due to GRAPE ROOT BORER

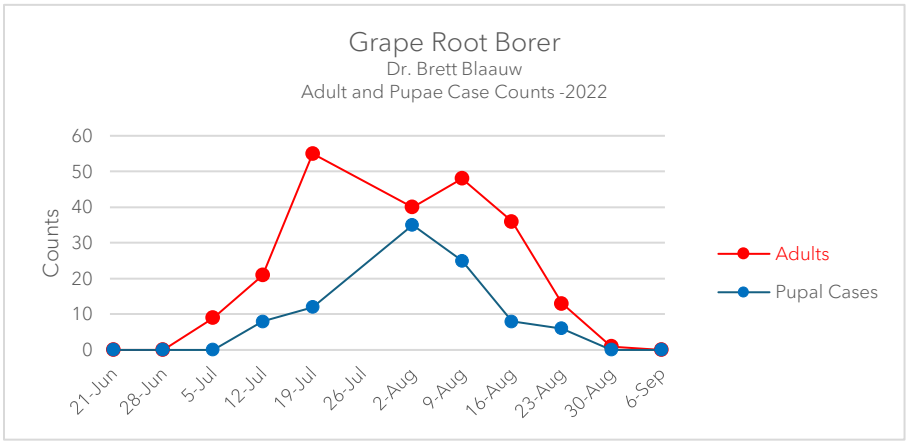
GRB root damage leads stepwise to slow vine decline and eventual vine death requiring removal and replant of vines and/or entire blocks. Cornell University recently estimated the establishment for a *Vitis vinifera* vineyard in the Finger Lakes region of New York at $21,393/acre over a 3-year period (Davis et al. 2019) until the vineyard is again productive. Lost fruit sales over this three-year period results in $18,823 of lost income with the effective vineyard losses total $40,216/Acre. Protecting vineyards from the hidden damage of Grape Root Borer makes total economic sense.

MONITORING GRAPE ROOT BORER

GRAPE ROOT BORER male moths are monitored with a pheromone-baited bucket trap which triggers application of ISOMATE GRB Z when the first moth is found in a trap. Traps are placed in the vineyard about two weeks prior to anticipated first flight with traps monitored weekly for male moth presence. At the first moth captured, ISOMATE GRB Z dispensers should be installed in the vineyard. To estimate the population of GRAPE ROOT BORER in the vineyard, pupae case counts should be conducted at the base of vines within a 36-inch diameter circle to determine the level of infestation.

Grape Root Borer pupal case
University of Georgia

Grape Root Borer Monitoring Trap
University of Georgia

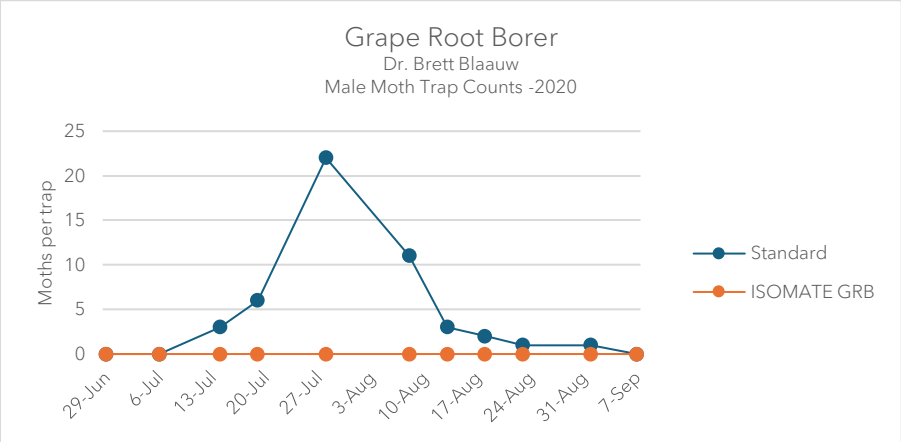


Credit - Bugs: Monitoring and Managing Grape Root Borer
December 5, 2023; Dr. Brett Blaauw

ISOMATE GRB Z Mating Disruption Pheromone

ISOMATE GRB Z disrupts the male GRAPE ROOT BORER flight in search fertile female GRB, thus reducing the potential for mating by slowly release two pheromones, (E,Z)-2,13-octadecadien-1-yl acetate and (E,Z)-3,13-octadecadien-1-yl acetate. Both of these pheromones are identical to the naturally produced pheromones of GRB females used to attract males. ISOMATE GRB Z dispensers generate a plume of pheromones in the vineyard, which is thousands of times higher than that produced by female GRB, overwhelming the search ability of male moths. ISOMATE GRB Z pheromones are selective to GRAPE ROOT BORER, safe for beneficial and pollinator insects. ISOMATE GRB Z is exempt from tolerance, zero residue, zero PHI and qualified under the USDA Natural Organic Program for use on organic GRAPES. Specific use instructions are found on the ISOMATE GRB Z label.

UNIVERSITY OF GEORGIA - FIELD TRIAL



Credit - Bugs: Monitoring and Managing Grape Root Borer
December 5, 2023; Dr. Brett Blaauw

To learn more about ISOMATE GRB Z, visit www.cbc-agro.com for more information on protecting your vineyards or contact your local ISOMATE distributor or retailer. You can also reach our sales department: loakes@cbcamerica.com

About CBC America

CBC AMERICA provides the highest quality mating disruption products from SHIN-ETSU with thirty years of experience distributing ISOMATE® mating disruption pheromones in the US, Canada, and globally. CBC-Agro sells through national and regional distributor partners and directly into individual markets. CBC-Agro also collaborates with global and regional business partners to bring the latest leading technologies to meet the demands for safer, more effective solutions for growers, packers, shippers, and retailers.