



*Thaumatotibia batrachopa*

Reg. No.: L10319 Act No 36 of 1947.

**Ready-to-use male mating disruption:**

X-Mate™ M.N.B. is a ready-to-use, pheromone based, mating disruption product, which disorients male Macadamia nut borer (*Thaumatotibia batrachopa*) resulting in the failure of the male moths to locate the female moths and thus reducing mating. X-Mate™ M.N.B. is used in Macadamia orchards and is ideal where Integrated Pest Management programs are followed.

**Active Ingredient:**

Z-8-dodecenyl acetate (100 %)            1250 mg each

Each dispenser contains a minimum of 1250 mg active ingredients.

**Registration Holder:**

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**Manufactured and Distributed by:**

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**CAUTION**

**WARNINGS:**

- Handle with care.
- Keep away from children and uninformed persons and animals.
- Store away from direct sunlight and damp area, in a well-ventilated area away from food and feed.
- Prevent contamination of drinking water, food and animal feed.
- Store unopened below 20 ° C in a dry area.
- Any X-Mate™ M.N.B. that will be stored for longer than 14 days should be refrigerated below 5 °C.
- Avoid contamination of surface water.
- **Use within 12 months of manufacturing date.**

**Although this remedy has been extensively tested under a large variety of conditions, the registration holder does not guarantee that it will be effective under all conditions. The activity and effect thereof may be affected by factors such as abnormal climatic and storage conditions, and the occurrence of resistance of pests, as well as by the method, time and accuracy of application. The registration holder furthermore does not accept responsibility for damage to crops, vegetation, the environment or harm to man or animal, or for lack of performance of the remedy concerned due to failure by the user to follow the label instructions, or to the occurrence of conditions, which could not have been foreseen in terms of the registration. Consult the supplier in the event of any uncertainty.**

## PRECAUTIONS:

- Wear suitable protective clothing during handling – overalls and impermeable gloves.
- Avoid contact with skin, eyes or clothing. In the case of accidental contamination, wash the skin using a mild detergent.
- Do not eat, drink or smoke while handling the product and wash hands and face before and after doing so.
- After handling, change clothing and protective clothing and wash before re-use.
- Dispose of empty packaging material in a landfill site or incinerate.
- If incinerated, avoid inhalation of the smoke.
- Do not re-use empty packaging material for any other purpose.

## DIRECTIONS FOR USE: USE ONLY AS DIRECTED

### General use restrictions:

### FACTORS AFFECTING MATING DISRUPTION

**Block Size:** For optimal efficacy the treated area should NOT be smaller than 10 Ha, and preferable square blocks. Dispensers must be applied uniformly through out the treated area and will be more effective in blocks where trees are uniform compare to blocks where trees are missing. Avoid treatment of long and narrow areas where the width is less than 250 meters.

**Shelter:** Pheromone concentration will always be higher closer to the dispenser and is important to reduce wind speed and air movement. In some cases control can be compromised in windy or exposed situations and on slopes affected by air movement.

**Population Size:** X-Mate™ M.N.B. will be more effective if damage in the previous season was low. Supplementary insecticidal control measures should be considered if information on population density is unavailable.

**Isolation:** External sources of Macadamia nut borer can provide a significant source of mated immigrated females. Risk from such infested hosts within 50 m of the treated block should be managed by treating adjacent crops or host plants with a registered insecticide. The larger the area under mating disruption, the smaller the edge effect of mated immigrant females.

**Climate:** The wind has an effect identical to the border effect, preventing the pheromone cloud from maintaining the necessary concentration. The wind and temperature in the orchard influence the pheromone release rate, which influences the persistence of the pheromone. It is essential for the pheromone release period to cover the entire mating period.

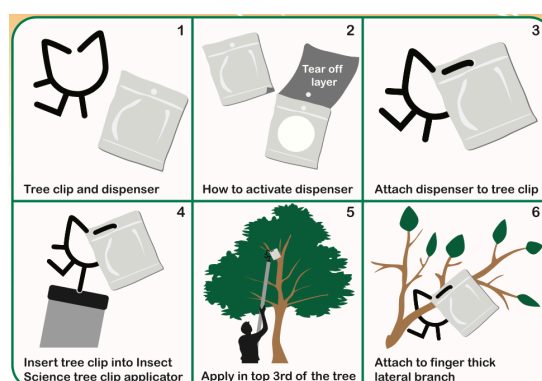
X-Mate™ M.N.B. is recommended for all susceptible cultivars.

### Application Instructions:

**Do not cut dispenser bag open, use tear tag (see illustration below).**

Attach the dispensers to the tree-clip (supplied) and apply the tree-clip with dispenser to a lateral branch (finger thickness) in the top 1/3 of tree in such a way that it is not exposed to direct sunlight. Do not place the dispenser too deep into the canopy, as free airflow is required to distribute the pheromone for optimal disruption.

Use Insect Science tree-clip applicator or any suitable applicator such as a telescopic aluminum pole for bigger trees to ensure that the dispenser is placed in top 1/3 of tree, (see illustration below).



## Application Rate:

Use 25 X-Mate™ M.N.B. dispensers in total per hectare per production season irrespective of tree density. Use the following table as a **guideline** to determine your correct placement within the orchard. Always ensure 1 dispenser is placed per 400 m<sup>2</sup>. Hang dispensers evenly and uniformly throughout the orchard.

## Macadamia orchard placement guideline

Row spacing (m)	Tree spacing (m)	Trees per ha	Dispenser per Ha	Instruction (1 dispenser per 400 m <sup>2</sup> )
5	5	400	25	Start application in 2 <sup>nd</sup> row tree no 2 there after in every 4 <sup>th</sup> tree in the row. Repeat application in every 4 <sup>th</sup> row.
6	3	555	25	Start application in 2 <sup>nd</sup> row tree no 2 there after in every 6 <sup>th</sup> tree in the row. Repeat application in every 4 <sup>th</sup> row.
6	4	416	25	Start application in 2 <sup>nd</sup> row tree no 2 there after in every 5 <sup>th</sup> tree in the row. Repeat application in every 3 <sup>rd</sup> row.
7	3,5	408	25	Start application in 2 <sup>nd</sup> row tree no 2 there after in every 6 <sup>th</sup> tree in the row. Repeat application in every 3 <sup>rd</sup> row.
7	4	357	25	Start application in 2 <sup>nd</sup> row tree no 3 there after in every 5 <sup>th</sup> tree in the row. Repeat application in every 3 <sup>rd</sup> row.
8	3	416	25	Start application in 2 <sup>nd</sup> row tree no 2 there after in every 6 <sup>th</sup> tree in the row. Repeat application in every 3 <sup>rd</sup> row.
8	4	312	25	Start application in 2 <sup>nd</sup> row tree no 3 there after in every 4 <sup>th</sup> tree in the row. Repeat application in every 3 <sup>rd</sup> row.
9	4	278	25	Start application in 2 <sup>nd</sup> row tree no 3 there after in every 4 <sup>th</sup> tree in the row. Repeat application in every 3 <sup>rd</sup> row.
10	5	200	25	Start application in 2 <sup>nd</sup> row tree no 2 there after in every 4 <sup>th</sup> tree in the row. Repeat application in every 2 <sup>nd</sup> row.

## Timing:

Hang X-Mate™ M.N.B. dispensers out from mid to end August, before first Macadamia nut borer emergence. Hang 25 X-Mate™ M.N.B. dispensers in all relevant orchards once per season.

## Monitoring of Male Moths:

Use Macadamia nut borer pheromone traps (1 trap / 5 ha) to monitor male moth flights. It is recommended that traps are used and placed in the top 1/3 of the tree to determine the Macadamia nut borer emergence patterns.

Place Macadamia nut borer monitoring traps in the orchard by the beginning of July and inspect weekly until the end of harvest period. Replace lures and traps as recommended by the label. After X-Mate™ M.N.B. has been applied no male moths, if any, should be caught in traps. Should moths be caught in treated orchards, consult with your local agent.

## Additional control methods:

Mating disruption is always more effective in orchard where the Macadamia nut borer pressure is lower. If moderate to high moth populations are present, spray a registered insecticide, according to the label, additional to the mating disruption program. During the period before harvest often coincides with increased moth activities and nut damage. It is of critical importance to apply a registered insecticide weeks before harvest to control any larva infestation in combination with a weekly orchard sanitation programs, destroy damage nuts as per protocol and maintain sanitation until harvest.

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