Date: November 16, 2021

DOST-MIMAROPA
Regional Technical Evaluation Committee (RTEC) Evaluation Minutes

3	GIA: Various Levels of Liquid Metarhizium *anisoplae* Against Army Worm in Onion in Selected Barangays at San Jose, Occidental Mindoro /OMSC / BRBJ Amount Requested: 374,000	• Provide specification of the equipment requested and its intended use. • Spell out the R&D process in detail. Determine how long is the fermentation and how many levels will be tested. • Fermentation must be done ahead of time because it takes a long period; and it can be replicated (for commercial purposes). • Determine the number of trials for the fermentation; Know if it is ready to use after fermentation; • Determine the efficacy of the treatment and provide the projection of the effect on the harvest. • Include/mention the findings of the previously conducted study. • Include the project's sustainability plan/model as well as a chart showing the current application. • How will it be distributed if it is commercialized? Who would be the ideal person or group to assist in commercializing the product so that the project may continue? • Specify what form of compensation will be given to the parties involved in the project (salary/honoraria). • Provide experimental design which shows the effectivity, efficiency, and the cost. • Take importance on the timing of the application. • Standardize the production. • Revise proposal defining the changes done based on the given comments and provide detailed budget.	Recommended for approval subject to revisions.	**DDGF** **TSP** **RAN** **CRR** **JMA**

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RESPONSE TO RTEC COMMENTS

SETUP CORE☐ LOCAL GIA☒

Project Title:	**Efficacy Trial of Various Levels of Liquid *Metarhizium anisoplae* Against Army Worm in Onion in Selected Barangays of San Jose, Occidental Mindoro**
Beneficiary/Proponent:	Occidental Mindoro State College
Province:	Occidental Mindoro
Amount Requested:	**PhP 531,485.00**
Date of Evaluation:	November 16, 2021

RTEC Comments	Response
Provide specification of the equipment requested and its intended use	The following equipment are necessary for the objectives of the project: 1) Autoclave/ 17 liters capacity. Autoclave is used to sterilize equipment, instruments, and infectious waste. 2) Fermentation tanks/1000 liters, stainless steel, glass window, dispensing faucet. This is where the liquid Meta will be fermented for 8 months. 3) Heavy Duty Osteorizer/blender 220V, 1 liter capacity. Osteorizer will be used in the blending pure culture media for meta. 4) Inoculation Chamber/glass type/2ft x 3ft x 3 ft. Inoculation chamber this is where pure culture of meta will be transferred to mass production media. 5) Stainless Table/200 cm x 100 cm. Stainless table will be used as working table during packaging of liquid *Metarhizium*. 6) Unit Disintegrator, 25000 rpm, 220 V 2500 kg capacity. Disintegrator will be used to powderize the mass produced meta.
Spell out the R&D process in detail. Determine how long is the fermentation and how many levels will be tested.	*Metarhizium* will be fermented in the fermentation tanks for at least eight (8) months. After 8 months of fermentation, this will be dispensed to 1.5 liters capacity plastic bottle and be closed tight. This is now ready for the efficacy trial. Application of liquid *Metarhizium anisopliae* will be done on plants with pest infestations. Each plant will receive 20 mL of diluted liquid *Metarhizium anisopliae of various concentrations.* Application will be done once, in all treatments. One teaspoon of detergent

	powder per liter will be added to various concentrations of liquid *Metarhizium anisopliae* to provide stickiness to larvae cuticle.
Fermentation must be done ahead of time because it takes a long period; and it can be replicated (for commercial purposes)	Production of liquid *Metarhizium* will be done by OMSC at least eight (8) months before each cropping season.
Determine the number of trials for the fermentation; know if it is ready to use after fermentation	Eighteen (18) plots measuring 1 meter x 1 meter planted with onion and randomly arranged in the experimental layout.
Include/mention the findings of the previously conducted study	*Metarhizium anisopliae* is a fungus that infects insects, primarily adult rice bugs. It has been approved as a microbial insecticide active ingredient for non-food use in greenhouses and nurseries, and at limited outdoor sites near bodies of water. Many strains of *Metarhizium anisopliae* have been isolated worldwide from insects, nematodes, soil, river sediments, and decomposing organic material. No harm is expected to humans or the environment when pesticide products containing *Metarhizium anisopliae* are used according to label instructions. No harms are expected to humans from exposure to *Metarhizium anisopliae* by ingesting, inhaling, or touching products containing this active ingredient. No toxicity or adverse effects were seen when the active ingredient was tested in laboratory animals. Environmental risk assessment was performed and determined that the proposed uses of *Metarhizium anisopliae* as an insecticide will have no adverse effects on birds, mammals, or terrestrial and aquatic plant species (Environmental Protection Agency, 2003).
Include the project's sustainability plan/model as well as a chart showing the current application	For sustainability of *Metarhizium production*, the following shall be undertaken: 1. The developer of the technology on Liquid *Metarhizium* after obtaining its patent or utility model shall transfer the technology to any interested individual, group or organization who is willing to commercialize the product. 2. A licensing agreement shall be forged between and among OMSC, DOST and the licensee (possibly a farmer cooperative engage in onion production) for the purpose. 3. A production laboratory shall be established as part of the commercialization plan. Initial training in the production of liquid *Metarhizium* shall be conducted by the developer/maker to start the commercialization. 4. During this stage, monthly monitoring in the

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<tr><td></td><td>production and distribution of the product shall be done in order to ensure the quality and efficacy of the product.
5. The licensee together with the licensor shall also conduct seminars on the use and benefits of the product. The product shall also be promoted in social media and in local and national trade fairs and exhibits.</td></tr>
<tr><td>How will it be distributed if it is commercialized? Who would be the ideal person or group to assist in commercializing the product so that the project may continue?</td><td>The Occidental Mindoro State College claims the right in the ownership of the Intellectual Property of liquid Metarhizium. This will be filed with IPOPhil to protect the ownership of the technology. Transfer of technology will be initiated by OMSC, LGU San Jose and OMSC to any individual, cooperative, and business organization who signify its intention in the production and distribution of the product following the protocols stipulated in the Technology Transfer Act under R.A. 10055 and IP Code of the Philippines. The product shall also be registered with Bureau of Agriculture and Fishery Standards following as organic pesticide.</td></tr>
<tr><td>Specify what form of compensation will be given to the parties involved in the project (salary/honoraria)</td><td>Compensation will be in the form of Honoraria (please refer to LIB).</td></tr>
<tr><td>Provide experimental design which shows the effectivity, efficiency, and the cost,</td><td>
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<tr><td>T_5R_2</td><td>T_1R_3</td><td>T_3R_2</td></tr>
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<tr><td>T_3R_3</td><td>T_0R_1</td><td>T_4R_3</td></tr>
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<tr><td>T_1R_2</td><td>T_3R_1</td><td>T_0R_3</td></tr>
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This study will use the experimental method of research using the layout in Complete Randomized Design (CRD). There will be 18 plots measuring 1 m x 1 m planted with onion and randomly arranged in the experimental layout as shown below. (T= Trial, R= Replication)
Application of liquid Metarhizium anisopliae will be done on plants with pest infestations. Each plant will receive 20 mL of diluted liquid Metarhizium anisopliae of various concentrations. Application will be done once, in all treatments. One teaspoon of detergent powder per liter will be added to various concentrations of liquid Metarhizium anisopliae to provide stickiness to larvae cuticle.</td></tr>
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Take importance on the timing of the application	Efficacy trial will be conducted during production season for onion. It shall be conducted for two (2) consecutive cropping seasons. Initial samples of liquid *Metarhizium* will be provided by OMSC which were prepared eight (8) months before the start of the experiment.
Standardize the production	Noted.
Revise proposal defining the changes done based on the given comments and provide detailed budget.	Noted.

Prepared by:

BENEDICTO R. BATILES, Jr
Proponent