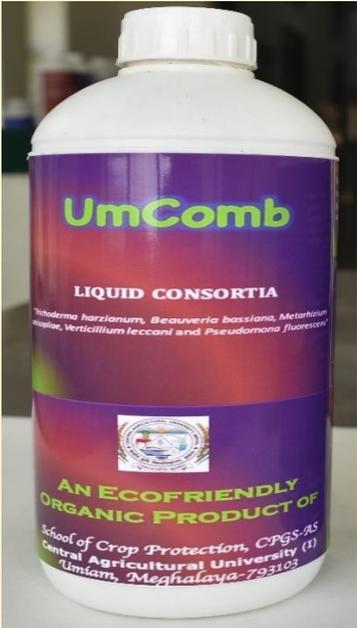




Technology Developed

Technology: 1

1	Name of discipline:	:	Plant Pathology
2	Name of technology	:	UmComb (A liquid consortia bio-formulation of <i>Trichoderma harzianum</i> , <i>Beauveria bassiana</i> , <i>Metarhizium anisopliae</i> , <i>Lecanicillium lecanii</i> and <i>Pseudomonas fluorescens</i>)
3	Year & Place of development and Patent Number	:	2022, CAU-CPGSAS, Umiam, Meghalaya
4	Researchable issues addressed	:	Organic management of pest and diseases of cereals, vegetables etc
5	Technology details	:	<p>UmComb is a liquid bioformulation developed from the microbial consortium of five major biocontrol agents consisting of one plant disease antagonist i.e., <i>Trichoderma harzianum</i>, three entomopathogenic fungus such as <i>Beauveria bassiana</i>, <i>Lecanicillium lecanii</i>, <i>Metarhizium anisopliae</i> and one plant growth promoting rhizobacteria i.e., <i>Pseudomonas fluorescens</i>. The shelf life of the bioformulation is up to 16 months at 23-25 °C. The colony forming unit count maintained in the 1% spray solution of the bioformulation is 1×10^8 spores per ml of water. The application rate of <i>UmComb</i> in crops include seed treatment with 10 ml in 1000 ml of water for 1 kg seeds, seedling root dip treatment with 10 ml in 1000 ml of water for 45 minutes for seedling ready for transplanting and foliar spray with 10 ml in 1000 ml of water 3-4 times at 15-21 days interval starting from active vegetative stage of the crop till flowering. The bioformulation can be applied to target diseases and pests such as Soil borne plant pathogens (<i>Phytophthora</i>, <i>Rhizoctonia</i>, <i>Fusarium</i>, <i>Verticillium</i>, <i>Armillaria</i>), vectors of viral diseases (Aphids, white flies, psyllids, that have piercing and sucking mouth parts in common), etc.</p>
			
6	Recommended ecosystem	:	Entire North Eastern Region
7	Yield advantage and economics (Factual)	:	C:B is 1:3

8	Way forward	:	The technology has the potentiality to lead the overall plant health management in organic ecosystem, reduce the pesticide use, increase the population of natural enemies and maintain soil health.
9	Spread/Impact/ Adoption (Factual)	:	The bioformulation has been validated in different crops such as turmeric, potato, brinjal, chili, pea, maize etc. in different states such as Assam, Meghalaya, Sikkim, Nagaland, Manipur, Mizoram, Tripura and Arunachal Pradesh and farmers are found to adopt the technology.
10	Name of the Scientist/Inventor	:	Prof. Pranab Dutta, Chairman- Crop Protection, CPGSAS, CAU (Imphal), Umiam, Meghalaya
