Effect of a Non-native Biofilmed Biofertilizer for Rice in the Eastern Province of Sri Lanka

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Rice is the staple food crop of Sri Lanka and the eastern province alone contributes to more than 21% of the total production of the country. Excessive amounts of chemical fertilizers are used to obtain a higher yield which has been noted to contribute to deteriorate soil microbial community. This leads to poor quality soil resulting in poor crop growth. Use of microbial biofertilizers for rice has gained momentum as a measure of replenishing the depleted soil microbiome, and to restore the beneficial processes. Amongst microbial biofertilizers, biofilmed biofertilizers (BFBFs) have been found to act as microbial ameliorators in deteriorated soil, contributing to better plant growth and higher yield. A field trial using a BFBF (comprising of non-native microorganisms) and rice variety BG 357 was conducted in 2011 Yala season (May — August) at Sammanthurai Agriculture Research Station to assess the potential of the BFBF for rice in the Eastern province. The use of BFBF increased seed germination by ca. 16% ($P<0.005$) and heading by 8.34%. However, there was no observable effect on yield although the same BFBF showed significant plant growth promoting effect and yield potential at the field trials conducted at Rice Research and Development Institute, Batalagoda (the location of the strains of the BFBF) in 2010 Yala season. Poor plant growth and no heading in BFBF alone indicate the poor competitive ability of the strains of BFBF which are non-native to the region. A BFBF developed from strains native to the region may be effective. Further research is needed in this regard.

Key words: Biofilmed biofertilizer, Rice, Eastern province