

Effect of Crop Residue Incorporation and Potassium Releasing Bacteria (KRB) on Potassium Fractions and Yield of Maize (*Zea Mays L.*)

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ABSTRACT

A field experiment was carried out at Agricultural College Farm, Bapatla during *rabi* 2021-22 to study the impact of crop residue incorporation and potassium releasing bacteria (KRB) on the potassium fractions and yield of maize (*Zea mays L.*). The experiment was laid out in a Randomized Block Design with ten treatments replicated thrice. The treatments comprised of T1: Control, T2: KRB alone, T3: 50% RDK+KRB, T4: 75% RDK+KRB, T5: 100% RDK alone, T6: 100% RDK+ KRB, T7: 50% RDK+50% K through rice straw incorporation, T8: 75% RDK + 25% K through rice straw incorporation, T9: 50% RDK + 50% K through rice straw incorporation + decompo A & B and T10:75% RDK + 25% K through rice straw incorporation+ decompo A & B. The results revealed that among K fractions, water-soluble K and exchangeable K were significantly influenced by incorporation of crop residue and application of KRB in both the stages (flowering and harvest stages) of the crop growth. The water-soluble K and exchangeable K were found highest with the application of 100% RDK+ KRB which was on par with the application of 75% RDK + 25% K through rice straw incorporation+ decompo A & B and the lowest water-soluble K and exchangeable K were found in control. There was no significant effect of crop residue incorporation and application of KRB on non-exchangeable K and fixed K. From the study, it was revealed that application of 100% RDK along with KRB recorded the highest grain and stover yield and it was on par with 75% RDK + 25% K through rice straw along with decomposers.

Keywords: *Rice straw, Incorporation of crop residues, KRB, Decomposers (A & B), Water-soluble K, Exchangeable K non-exchangeable K, Fixed K, Grain yield and Stover Yield.*