World Academy of Science, Engineering and Technology
International Journal of Biological and Ecological Engineering
Vol:16, No:09, 2022

Participatory Testing of Precision Fertilizer Management Technologies in Mid-Hills of Nepal

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Abstract : Crop fertilizer recommendations are outdated as these are based on the response trails conducted over half a century ago. Further, these recommendations were based on the response trials conducted over large geographical area ignoring the large spatial variability in indigenous nutrient supplying capacity of soils typical of most smallholder systems. Application of fertilizer following such blanket recommendation in fields with varying native nutrient supply capacity leads to under application in some places and over application in others leading to reduced nutrient-use-efficiency (NUE), loss of profitability, and increased environmental risks associated with loss of unutilized nutrient through emissions or leaching. Opportunities exist to further increase yield and profitability through a significant gain in fertilizer use efficiency with commercialization of affordable and precise application technologies. We conducted participatory trails in Maize (Zea Mays), Cauliflower (Brassica oleracea var. botrytis) and Tomato (Solanum lycopersicum) in Mid Hills of Nepal to evaluate the efficacy of Urea Deep Placement (UDP and Polymer Coated Urea (PCU);. UDP contains 46% of N having individual briquette size 2.7 gm each and PCU contains 44% of N . Both PCU and urea briquette applied at reduced amount (100 kg N/ha) during planting produced similar yields ($p>0.05$) compared with regular urea (200 Kg N/ha). . These fertilizers also reduced N fertilizer by 35 - 50% over government blanket recommendations. Further, PCU and urea briquette increased farmer's net income by USD 60 to 80.

Keywords : high efficiency fertilizers, urea deep placement, briquette polymer coated urea, zea mays, brassica, lycopersicum, Nepal
Conference Title : ICAACS 2022 : International Conference on Agronomy, Agricultural and Crop Science
Conference Location : San Francisco, United States
Conference Dates : September 27-28, 2022