THE POTENTIAL OF EFFECTIVE MICRO-ORGANISMS TO AMMEND SOILS IN THE KARAMOJA REGION OF UGANDA (A RESPONSE TO CLIMATE CHANGE AND ITS IMPACTS)

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INTRODUCTION AND PROBLEM AT HAND

Climate change is leading to more occurrences of extreme events such as droughts which have a negative impact on agricultural production. Plants require an optimum soil-water-air environment in the root zone to maintain physiological response to growth, photosynthetic functions, and productive vegetative capacity for high yield response, and animals also require efficient water supply and feeds whose availability is highly affected by climate change. Soil quality in Karamoja has been highly affected by variability in climate whereby both the microbial and nutrient content have been negatively impacted. Small scale farmers have been advised to use synthetic amendments which have on a long run proved to be expensive, this has brought about a low adoption level as poverty hits. A changing climate is also affecting other aspects of agriculture production such as animal husbandry whereby in most situations, feed production and water availability is being negatively affected. However, Agriculture is estimated to contribute approximately 20-25% of total greenhouse gas (GHG) emissions. In terms of on-farm production, most of these emissions are due to methane releases from intensive livestock and use of inorganic soil amendments. This calls for a need to create intervention that reduces emissions level in the agricultural production sector yet economically affordable. One of the mentioned above intervention include use of Effective microorganisms (EM) which consist of a mixture of live cultures of microorganisms. The rationale behind EM is based on the concept of inoculating mixed cultures of beneficial microorganisms into the crop and animal ecosystems to create an environment that is more favourable for the growth and health of plants and animals.

NEED FOR EEFECTIVE MICRO-ORGANISM TECHNOLOGY

History of EM technology was first developed in the 1970's(Higa, 2012). However the production technology has been more complicated, time consuming and not user friendly to users. Umuntu movement a Non Government Organization in Uganda designed a prototype of EM processing unit for simple and quick of EM. The unit is user friendly, less power consuming with well a well prepared user guide, consisting of inputs, procedures and end production application guide. This well enhance production of EM and potential extension of it to farmers at low prices and or skill farmers to generate EM on their own. EM Improves soil quality, plant growth and yields (Han et al, 2006). Fix nitrogen in the soil and enhance nutrient uptake thus reducing use of synthetic fertilizers which reduces production costs. (Daniel et al, 1992). Suppresses existing pathogens in the soil. Decomposes organic materials and is also suitable for removal of heavy metals from soil solutions (Beveridge and Murray, 1976). In Live stock production, EM reduces offensive odor resulting from build up of ammonia, adding EM to animal feeds and water improves microbial environment of the whole barn, reduces use of vaccines and anti-bio tics thus supporting safer production.

WAY FORWARD/METHODOLOGY

- Establishment of EM production plant.
- Establishment of a demonstration farm.
- Rolling out of the processed EM to users.
- Training farmers on the use of EM and its benefits.
- Publishing EM use results through media

CONCLUSION

The article has attempted to briefly put out the potential of Effective Micro-organism technology in mitigation of extreme climate change impacts in Karamoja region of Uganda. Considering the shared literature, we conclude that modifying the system to suite the local use will increase practicability and applicability of the system in Karamoja and thus harnessing its potential to amend the low quality soils of Karamoja.

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