Organic amendments and composting

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ORGANIC AMENDMENTS FOR SOIL HEALTH ENHANCEMENT

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Presentation Outline

• Introduction
• Benefits of compost in soil
• Composting process
• Impact of Agrifood project
• Potential innovations
Introduction

- Increased crop production and productivity has resulted in the phenomenon of nutrient mining.
- Inherent soil nutrients are diminishing, and sole application of mineral fertilizer has not augmented the imbalances.
- This is the situation of cocoa farming in Ghana.
- Cocoa is Ghana’s second largest export commodity and a major cash crop and foreign exchange earner.
- The production line with all the stakeholders are affected in economic terms by the nutrient imbalances in the soil.
- Use of Organic amendments is a potential option for a sustainable means of remediation of cocoa soils and agricultural soils in general.
Benefits of organic amendments

From an ongoing trial we will be assessing the impact of application of organic amendments ascertain the following

• Improves moisture holding capacity (*Farmers testifies to this*)
• Promotes soil aggregation
• Improves soil structure
• Fertility
• Increase microbial diversity and population
• Increase cation exchange capacity
• Yields
Composting

The general principles:

✓ Adequate organic matter in a heap
✓ Enough nutrient elements (poultry litter and *Gliricidia sepium*) for nitrogen.
✓ Aerobic conditions for microorganisms involved in decomposing cocoa pod husk.
✓ Moisture, not too much

For active composting, the conditions are optimized by managing aeration, water content, porosity, and composition of the organic material.
Farmer on-farm composting
Available source of biomass for composting

- Cocoa and oil palm farms dominate in the Southeastern side of Ghana
- These and many other crops are cultivated mainly by smallholder farmers
- The agricultural sector in Ghana is made up of over 70% of smallholder farmers
- Not much is done with waste after harvest
- The waste from harvested produce may either be burned or heaped on farms to rot.
- Nutrient recycling through processes like composting or vermicomposting is the way forward for sustainability

A simulated land use map for crop production in Ghana. (FAO 2004)
AGRIFOOD Funds for training & more

• Further to seeing some positive response of old cocoa farms to organic amendment application, Agrifood provided funding for cocoa pod husk compost optimisation and training of small holder farmers

• A composting guide and video recording (English and Twi) of the step-by-step procedures in compost preparation has been made.

Future studies (possibilities)

• Study for any synergistic effect of compost and biochar mixes with different feedstocks

• Repeated application of organic amendment on soil
THANK YOU