



Participatory development of locally adapted technologies together with organic farmers in Kenya: Identification of the most beneficial use of biomass (BB trials)

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BACKGROUND

As an additional component to the long-term farming systems comparison trials in Kenya, participatory development of locally adapted technologies for organic farmers was started in January 2009 to identify and address problems encountered by organic farmers.

Introduction to Best Use of Biomass

Organic carbon plays an essential role in soil fertility conservation. Increased organic matter content in soil increases soil water holding capacity, creates beneficial soil structure that fosters plant growth, stimulates soil microbial activity, and acts as a nutrient reservoir. Inherent soil fertility, and thus organic matter in the soil, is particularly important in organic agriculture.

Sources of organic carbon that farmers can use are crop residues and biomass from wild plants. They can either be applied as mulch or composted together with farmyard manure before application. As competition for different uses (livestock feed, fuel, soil fertility management) of biomass is high in the project area, the scarce material should be used in the most beneficial way.

Objectives

The present trial aims to quantify the beneficial effects of: (a) biomass used as mulch; and (b) biomass used in composting.

MATERIALS AND METHODS

Experimental Design

To gain evidence that the use of biomass has a beneficial value, the biomass treatments (mulch and composts) are compared to farmers' present practices, which is use of Boma or Masai manure. The same amounts (in terms of dry weight basis) and qualities of both manure types are used in all treatments.

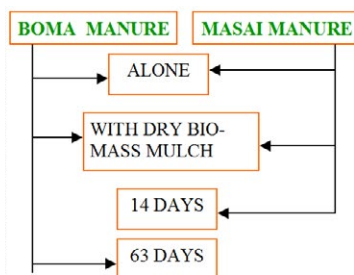


Fig 1: Treatments



Fig 2: Kales with dry grass as mulch



Fig 3: Carrots planted with Masai manure composted for 14 days

RESULTS

Best use of biomass on-site

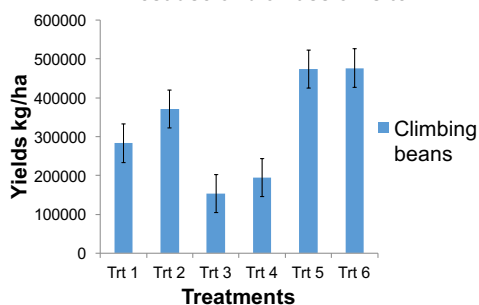


Fig 4: Bean yields under different treatments during long rains season in 2012.

Best use of biomass on-site

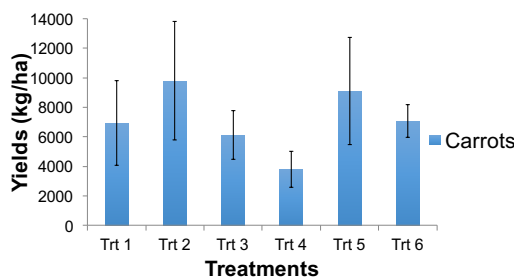


Fig 5: Carrot yields under different treatments during short rains season in 2012.

Key

- Tr1 – Boma manure + mulch
- Tr2 – Boma manure + mulch composted 63-days
- Tr3 – Boma manure
- Tr4 – Masai manure + mulch
- Tr5 – Masai manure + mulch composted 14-days
- Tr6 – Masai manure

CONCLUSIONS

- Boma composted for 63 days is still superior to Boma alone and Boma manure + biomass manure composted for 14 days.
- Masai manure performed better when used alone while Boma manure composted for 63 days worked better.

Donors



Partners

