

## CLIMATE CHANGE MITIGATION AND ADAPTATION

# CURED MANURE (BOKASHI) AS A CLIMATE RESILIENCE STRATEGY IN GUTU DISTRICT, ZIMBABWE

### BACKGROUND

Inorganic fertilisers contribute to emissions of greenhouse gases in the atmosphere and can destroy the soil structure. Landuse assessments supported by the Climate Adaption and Rural Livelihoods (CARL) project in Gutu in 2019 (a project funded by SIDA through Oxfam and partners) showed that farmers lack sustainable fertility management options. The inherently infertile soils have not been able to sustain high crop productivity. In an endeavour to minimise use of inorganic fertilisers, foster sustainable crop production and contribute to the reduction of greenhouse gas (GHG) emissions in the atmosphere, Bokashi manure was utilised to fertilise leaf vegetables (rape) and peas in four nutritional gardens (Mazare ward 24, Mutendeure ward 28, Tapudzai ward 11 and Mukuro in ward 22) of Gutu district in Zimbabwe.

### DESCRIPTION

The quasi experimental approach consisted of two treatments for cured and non-cured manure and the control (natural soil). In total 285 farmers (157 women/53 men and 85 youths) participated in key processes like manure curing, planting and harvesting. Joint monitoring visits with key stakeholders, observation checklists and qualitative questionnaires were utilised to follow up on the experiment and for analysing the results. The addition of Bokashi manure led to improved crop performance and an increase in the yield. Moreover, the Bokashi manure led to higher nutrient diversity and availability compared to the use of cattle manure and natural soil and therefore improved the healthy crop production. Cured manure can be used to amend acidic soils by farmers.

Table 1. Extract Soil Tests Results for one nutritional garden (macro and micro nutrients in ppm)

Mukuro garden	pH	N	P	K	Ca	Mg	Cu	Zn	Mn	Fe
Bokashi manure	7.7	118	179	0.95	13.04	8	3	22	460	130
Cattle manure	7.5	34	147	0.31	11.5	6.25	3	11	400	90
Natural Soil	6.4	40	18	0.04	3.24	1.72	1	1	90	32



Figure 1. Example from one experimental site. Photo by Auxilia Gombera

### IMPACT

Ninetyfive percent of the participants indicated that Bokashi manure contributed to high crop yields and improved their inherently poor fertile soils. Agroecology not only can foster climate change adaptation and increase resilience but also contribute to a low-emission pathway. This supports the claim by most researchers that agroecology should be acknowledged as a powerful approach to transform agricultural production systems for a more sustainable and climate-resilient future.

### LESSONS LEARNED

- Farmers can utilise any form of animal manure, not just cattle for the Bokashi
- Full adoption of the technology needs at least 5 years
- Farmers should also be encouraged to carry out tests on soil fertility as well as crop quality. Farmer producer groups can help mobilise funds to meet the required costs
- Further tests can be done to determine crop quality
- The results can be utilised to influence existing government initiatives to improve crop production

**Country:** Zimbabwe

**Sector:** Agriculture

**Key words:** Agroecology, Bokashi, Applied climate adaptation,

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