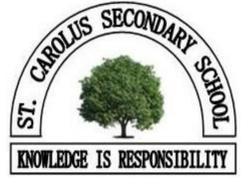


# Rice Husks as a Growing Medium To Minimize Water

St. Carolus Secondary School  
Getrude Mlay and Emmanuel Maghas



## Introduction

The aim of the project is to save water in gardening activities in semi-arid areas like Singida.

In Singida many people fail to have gardens at their homes due to lack of space and scarcity of water. Therefore we decided to come up with an idea of using Rice husks from the rice mills as a growing medium so as to save water and the type of garden, we construct needs small space.

This kind of garden can also save purpose for those who live in quarters because the houses are built close to one another and the space for having small garden is difficult to find.

## MATERIALS

4" PVC pipe, 1.5L used water bottles, rice husks, manure, 10Lts bucket fitted with tap.

## AIM

To help people living in town, quarters and village to grow vegetables at very minimum area and economizing water.



## Procedure

### PREPARATION OF MATERIALS

The 10 Liters bucket was fitted with a water tap, then we made a hole on its lid. This is the hole where the PVC pipe was fitted, This was the first set-up.

The second set-up Three bottles with 1.5L were fitted in plastic pipe.

The PVC pipe was filled with rice husks mixed with manure and soil at a ratio of 3:1:1( rice husks, soil and manure respectively).

also bottles were filled with rice husks and manure at a ratio of 3:1( rice husks, manure respectively).

### Transplanting

A nursery was prepared. The seeds were planted in plastic tubing, this is to help plants during transplantation so as to minimize shock.

So when the seedlings were ready, three plants were transferred to the PVC pipe, other three to the bottles and three to the garden in the ground as a control garden. We watered our garden for about three days before we started taking measurements.

### Measurements

The three plants in each set-up were measured every after one day, the average growth of plants in each set-up was kept. Later on the difference in growth were calculated and the graph of height against time was plotted

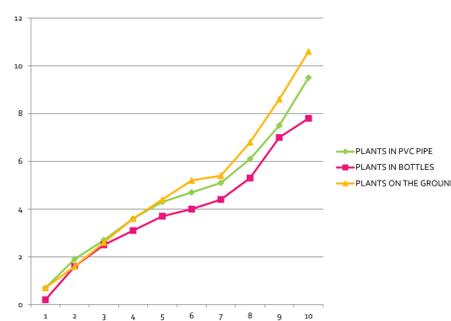
## Results

The amount of water used throughout our project was measured, and the result is as follows;

Every plant was watered with 0.5liter, so the three plants in each set-up use 1.5liter daily. But the plants in bottles and pvc use less amount since the excess water was collected and measured.

In each watering session the water remained in rice husk was only 0.25Liter, so every watering session only 0.25L was used and 1.25L was used to re-water the garden. So in 22 days of our project, the garden in PVC used 5.5L and Bottles used 5.5L while the garden on the ground used 33L.

The graph shows that the garden on the ground was doing good and the garden in the pvc was also doing good, the plants did not die and hence the practice can be used. The plants in the bottles were little bit slower in growing caused by absence of soil in the mixture. In the PVC plants were doing better since we mixed the rice husks with manure and soil. So this now is the best method to be used, especially in semi-arid area like Singida.



DATE	AVERAGE GROWTH (CM)			DAY	GROWTH HEIGHT (CM)		
	PLANTS IN PVC PIPE	PLANTS IN BOTTLES	PLANTS ON THE GROUND		PLANTS IN PVC PIPE	PLANTS IN BOTTLES	PLANTS ON THE GROUND
25.03.2019	3.8	3.5	3.9	1	0.7	0.2	0.7
27.03.2019	4.5	3.7	4.6	2	1.9	1.6	1.6
29.03.2019	5.7	5.1	5.5	3	2.7	2.5	2.6
01.04.2019	6.5	6	6.5	4	3.6	3.1	3.6
03.04.2019	7.4	6.6	7.5	5	4.3	3.7	4.4
05.04.2019	8.1	7.2	8.3	6	4.7	4	5.2
07.04.2019	8.5	7.5	9.1	7	5.1	4.4	5.4
09.04.2019	8.9	7.9	9.3	8	6.1	5.3	6.8
11.04.2019	9.9	8.8	10.7	9	7.5	7	8.6
13.04.2019	11.3	10.5	12.5	10	9.5	7.8	10.6
15.04.2019	13.3	11.3	14.5				

## Acknowledgments

We would like to thank the School Administration, for offering us a suitable site to conduct our project. We thank The Head of School for being ready to support us with ideas and financially when we needed to buy items for our project,

We also thank our mentor Mwalimu Bendera, Y.C. for his tireless time he spent with us both in the laboratory and in the field,

Last but not least, we would like to thank and appreciate our fellow students, who enriched us with ideas and encouragements.