

# Effects Of Industrial Fertilizers and the Solution Offered by Wood Ash



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## Introduction

Consumer society, in order to meet the growing need for food, agricultural land per unit area required to achieve maximum efficiency and highest quality product. It is known that the nutrition of the plant is the one of the most important factors to control agricultural productivity and quality. Rates of nutrients in the soil affect the quality of yield. In the permanent agricultural land, the soil will be very poor in nutrients, as a result, inefficient. Therefore, producers, fertilize the soil, combat pests, irrigation and process of agricultural activities to make more efficient to soil. Fertilization among these activities remains a priority at all times.

In recent research it has been shown that chemical fertilizer causes soil acidity, heavy metal accumulation, water eutrophication and accumulation of nitrate, to consider in terms of air pollution in the air of gases containing nitrogen and sulfur, giving and can lead to problems such as the greenhouse effect. This project, aims to reveal environmental and health problems caused by industrial fertilizer, provides recommendation toward solving these problems that is the use of wood ashes that contain several nutrients required for plant growth. As they neither cause environmental effects nor harm human health.

## Method

A number of surveys that involved interviews were made at Mzumbe locality to examine if farmers knew the hazards of applying industrial fertilizer to their lives and it was observed that many of them were not aware. This influenced us to conduct a research to check out the effects of industrial fertilizer and that was confirmed to be harmful to humans.

The surveys made us come up with questions like what are the effects of industrial fertilizer? Do the effects stay in long time? Can wood ashes play part as fertilizer effectively? Through several experiments we came up with the conclusion that showed negative effects of industrial fertilizer and great solution offered by ashes.

## Procedure

The experiments were conducted in order to check out the validity of the hypothesis made during survey were as follows.

The first experiment was done in the school farm the effectiveness on uses of wood ashes to plants as the substitute from chemical fertilizer.

The second experiments were made to investigate the harmful effects of use of industrial fertilizer and whether they leach easily or not. It was practically done in the laboratory and its samples were taken from the farm.

Lastly the third experiment was done in two phases to check the preferences, effectiveness and condition at which wood ashes will be used as a substitute and willingness of farmers. In order to have high accuracy in the experiment made many of them were repeated several times.

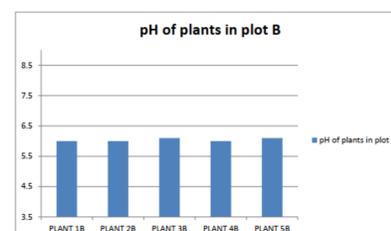
## Results

From the graph it was observed that the acidic content of nitrogenous fertilizer affect the yields chemically, as the crops in plot A showed greater variation from the pH of the beans that is 6.1 while the beans in plot B did not, this show ashes maintain nutrition value of plants and provide safe food to consumers.

From the graph it was observed that it takes very long time for acidity of the industrial fertilizer to be leached off, as it takes long time to attain the ph of beans that is 6.1. This shows that the harmful effects can harm human when crops are harvested in some period after the industrial fertilizer have been applied.

This insecure the life of the consumers of crops that give yield within short period of time and this is due to high stability of the organic compounds making up the fertilizer..

THE GRAPH SHOWING pH VALUES OF PLANTS FROM PLOT B



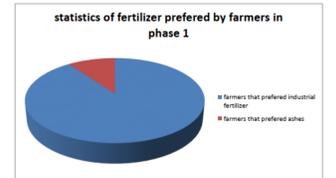
### PHASE 1

In control phase most of the farmers showed to prefer industrial fertilizer due to the following reasons:

- > Industrial fertilizer was effective and could provide nutrients with high accuracy.
- > It is not bulky hence can be moved easily
- > Lastly, it was stated that only small amount of fertilizer could be used for large piece of land.

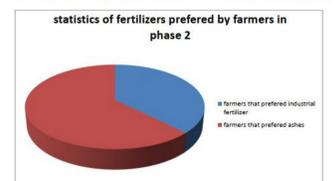
Although there were some farmers who preferred ashes saying that they were not cost full and easily applied to small piece of land.

The statistics of farmers who were interviewed in phase 1 was presented on pie chart as follows.



In second phase the farmers were educated on the harmful effects of chemical fertilizer and then they were asked the same question asked on phase 1. on this phase most of farmers preferred ashes due to harmful effects caused by industrial fertilizer to the environment and their health.

The statistics of farmers who were interviewed in phase 2 was presented on pie chart as follows.



This shows that if farmers were provided with education on harmful effects of industrial fertilizer could switch to new mode.

## Conclusions

From the survey, investigation and results it has been shown that industrial fertilizer have several negative impacts to human and environment at large as follows.

Consequences of high nitrates in water and vegetables for human health. A number of medical specialists have expressed concern about the undesirable effects of a high nitrate intake on human health and in particular on the health of babies up to about .1 months of age. The cause of the concern is due to the effects of nitrite on health, for nitrate may become reduced to nitrite in the intestinal tract, which is then absorbed into the blood stream. Babies below a certain age may be unable to detoxify this nitrite. Which combines with hemoglobin to give methaemoglobin, and this reduces the capacity of the blood to transport oxygen. Some medical specialists have also claimed that, even for adults, a high nitrate intake is undesirable because some of the nitrite produced may be converted CO nilrosamnracs, Which could, in turn, cause some hazards to health.

Effect on the composition of river water: Eutrophication, A number of environmental scientists have claimed that the use of fertilizers on farm land has seriously increased the liability of inland water to become eutrophic, causing pollution and reservoirs both high the algal pigments becoming distributed in the water and by creating anaerobic conditions in the subsurface waters. Effects of chemical fertilizers on soil pollution. According to the researches and studies the on effects of chemical fertilizer over the time, it states that emerged from the pollution, deterioration of soil fertility, soil degradation reactions occurring in the soil leads to deterioration of the balance of the current element. In addition, toxic substances accumulate within the vegetables and causing negative effects in humans and animals are fed. It also destroy the soil structure which is an indicator of soil fertility.

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