

# Countering arable land degradation: The waste that woke the soil

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Soil is a natural resource that we often overlook and abuse just because of its supposed abundance. Some call it "dirt" and many times we attribute to stains and things we should rid ourselves of in the name of

cleanliness. I choose to call it a "wonder" because on it we grow our food; it even covers up the dead. Just because it doesn't scream in pain when we step on it doesn't mean it isn't alive.

Soil is subject to alteration and can be either degraded or wisely managed. Soil degradation being the inability of the [soil](#) to support the growth of crops is a very common issue in Southwestern Nigeria. Soils of the tropics die easily making them unproductive; therefore, they need amendments especially those of organic nature to keep them alive to function. Organic manure is a natural material that has rotten or decayed, for example, the waste from a [poultry](#) farm. Poultry manure is the organic waste material from poultry consisting of animal feces and urine. This has in time been used to help the soil get better by increasing crop yield. However, in Nigeria especially the southwestern region, there is little information on exactly what happens to some soil physical properties. The physical properties of soil are those characteristics that can be seen with the eye or felt. Sustainable use of soil resources, therefore, requires a thorough understanding of the properties and processes that govern soil quality to satisfactorily perform its functions of value to humans. So, an experiment was carried out to know the exact amount of poultry waste that will improve the soil properties, while increasing the yield of maize.

Before planting, poultry waste was added to the soil, to settle well into the soil. The same procedure was repeated at four weeks after the first application and also at eight weeks. The land was sectioned and a different amount of this poultry waste was applied. To a section, no poultry waste was applied, to another 2, 4, 6, 8 and 10 tonnes per hectare (t/ha). A tonne is like 1000kg which is about two-thirds of the curb weight of a Ferrari 458 and 1 hectare is like 10,000 m<sup>2</sup>, which is also about double the size of a soccer field.

At the end of the experiment, it was discovered that the more the poultry

waste applied, the more the soil got physically healthier and the healthier the soil, the more the yield of the maize. The organic material helped the soil increase its ability to hold on to water and nutrients for the plant's use. Furthermore, the soil became less heavy. It is bad for the soil to be too heavy; this attribute will not allow the roots of the plant to move around to reach nutrients in the soil. Also, it was realized that after the experiment the soil still had good qualities necessary for the growth of another plant. Isn't that cool?

The best thing about using natural waste is that it comes at almost no cost compared to the widely known chemical fertilizers. High demand for white meat products has led to the expansion in the poultry industry and has come with its combined effect of waste accumulation. The frequent cleanout of many poultry operations makes poultry waste available in sufficient quantities and on a timely basis to supply most fertilizer needs. Therefore, there is a tendency for increased dependence on the use of organic waste such as farmyard manure, crop residues, and poultry waste.

Most people do not even know that these chemical fertilizers are very bad for the soil. Yes! They have been known to improve crop yield but they worsen the health of the soil in the process. I will assume many are aware that acids are not so good compared to juices, in fact, they kill. These chemical fertilizers make the soils more acidic and kill the worms which live the soil naturally.

Putting [waste](#) that is natural into the soil helps keep the soil alive; it would even wake a dead soil. The difficulty of the soil to hold on to organic matter under tropical conditions such as abundant rainfall and warm environment is appreciated, hence there is need to sustain high [organic matter](#) content in the soil to keep the soil sustained for its uses. The major use of soil is to produce food and fiber, to feed and clothe the world's population respectively.

Be nice to the soil, keep it awake, at some point we return to it!

**More information:** Adebayo. J. Adeyemo et al. Effects of poultry manure on soil infiltration, organic matter contents and maize performance on two contrasting degraded alfisols in southwestern Nigeria, *International Journal of Recycling of Organic Waste in Agriculture* (2019). [DOI: 10.1007/s40093-019-0273-7](https://doi.org/10.1007/s40093-019-0273-7)

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