

## **Commercial Production of Eco-friendly Wood ash based Biofertilizer**

Wood ash is the inorganic and organic residue remaining after combustion of wood or unbleached wood fiber. Hardwoods usually produce more ash than softwoods, and the bark and leaves generally produce more ash than the inner woody parts of the tree. On average, the burning of wood results in 6 to 10 percent ashes. When ash is produced in industrial combustion systems, the temperature of combustion, cleanliness of the fuel wood, the collection location, and the process can also have profound effects on the nature of the ash material. Ash is composed of many major and minor elements which trees need for growth. Ash is also a good source of potassium, phosphorus, and magnesium. In terms of commercial fertilizer, average wood ash would be about 0-1-3 (N-P-K). Calcium is the most abundant element in wood ash and gives ash properties similar to agricultural lime. Identified three main forms of wood ash used in different studies, fly ash or loos ash (unstabilized), self-hardened crush-ash (stabilized) and pelleted and agglomerated ash (stabilized). Wood ash is generated as a by-product of combustion in wood fired power plants, paper mills, and wood burning factories. Since wood is a potential source of energy and environmentally benign friendly material, there will be increased usage of wood in energy production in the future.

### **Wood ashin Agricultural Uses**

When plant material including wood is burnt, the inorganic residue left is ash, and ash is usually readily available in subsistence farming communities. Ash is considered a waste product, though it has the potential to be used in agriculture. Wood ash is a source of Ca, which can be used in resource-limited farming situations. In fact, wood ash has been found to be a good fertilizer, and can be used as a source of plant mineral nutrients when applied to forestry and agricultural soils. Wood ash has low fertilizing properties and it can be used as a substitute for lime and limestone. This could neutralize acidic soils through supplementing Ca, K, P, Mg, and also replace the microelements that would have been depleted from the soil during plant growth and harvesting. Liming with wood ash may reduce the toxic effects of Al and Mn on plants grown in acidic soils. An indirect benefit of using wood ash as a fertilizer would be the rise in the pH level of acidic soils that would increase the bioavailability of elements such as P, Mg, Mo, and Se in plants, which in turn would be beneficial to animals consuming those plants.

*Ectomycorrhizal* fungi are important for nutrient uptake of forest trees and recent studies suggest it may play vital role in the mobilization of nutrient in the wood ash. It is important among soil microorganisms, as they form symbiotic associations with tree roots and assist in the uptake of nutrients. Reduction of the amount of industrial waste generated and reduction of imports of different fertilizers for agriculture.

In this concept of Eco-friendly based wood ash biofertilizer in Agriculture land. I like to do Research work.

Under Guidance



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