

Soil Fertility Project (SFP) - Working with an NGO in Southern India

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Objective

This project aims to provide sustainable technologies to rural farmers in Tamil Nadu, Southern India, that will increase the quality and fertility of their soils using primarily agricultural and market waste.

Method

We are working in close collaboration with SCAD (Social Change and Development - www.scad.org.in), a large NGO/charity, which works with over 500,000 rural poor including 20,000 land-owning marginal farmers. SCAD also has technical colleges and an organic farming research facility that provides invaluable knowledge appropriate to the location. We have consulted a number of university faculties in the UK with particular help from Swansea and Bristol.

We believe that biochar, conditioned with fertiliser from anaerobic digestion, would improve the quality and productivity of the local soils whilst, at the same time, reducing the need for inorganic NPK. Feedstock surveys have been carried out to assess the amount of agricultural waste not used for composting, as well as wet vegetable waste from local markets. These surveys indicate that there need be no conflict with traditional agricultural practice, and the use of wet waste would help solve serious pollution problems in the towns.

Funding is already in place, and biochar production will start in December using a continuous updraft gasifier designed and manufactured in Australia by Black is Green Pty. A novel form of continuous and batch biodigester system, to provide nutrients and microbes, is being installed by Biotech a company in the neighboring state of Kerala. SCAD is entering a joint development agreement for the application of these units.

We are aware that the benefits of applying biochar to soil are not fully understood and a major part of the project will be to run extensive field trails in various locations throughout the region using the conditioned biochar. These trials will also be used to compare results with traditional composting techniques. However, we

have become aware that scientific studies, however rigorous, are of little value if new practices conflict with the cultural and economic conditions of the villagers involved. This is where our two-year involvement with SCAD, on this project, has been of paramount importance.

History

In December 2007, after showing us his new pyrolysing 'Anila' cooking stove, we introduced Dr Ravi Kumar to SCAD, and subsequently over 100 stoves were manufactured and distributed among women's groups for evaluation. We soon discovered that it was not going to work as planned and we began to look for larger and more controllable pyrolysis units.

Over the next year many designs were tried and, alongside this work, we encouraged SCAD to begin field trials using charcoal from a local rice mill that was freely available at the time. In so doing we discovered that for the previous four years a local banana farmer had been using similarly sourced fine-grained charcoal around his banana seedlings obtaining spectacular results. He claims that yields have increased by up to 30%, the need for watering halved and his use of NPK cut by a third. Neighboring farmers have already started to adopt his practice.

Conclusions

The success of this project will not be achieved by statistics and graphs alone but by the farmers' and villagers perception that conditioned biochar increases the yield and quality of their crops. They will then spread the word.

Maybe, just maybe, some banana farmers in India can't be wrong!

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Farmer's assessment of his own rice-husk charcoal application on banana plants
 Author: Mr Pattu Murugesan

