



SUCCESS STORY

Seeding success in southern India: turning coconut dust into gold

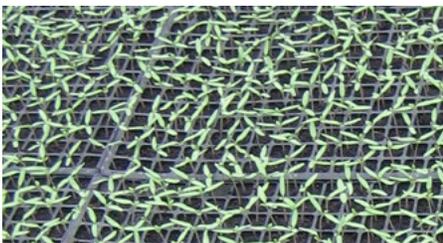
by Miriam Rich

“If a seedling is healthy, you can as much as double the yield.”

—Muni Muniappan, director, Integrated Pest Management Innovation Lab



Women in southern India plant seeds in seedling trays filled with coconut dust.



Seedlings grown in coconut dust are much healthier than those grown in soil in the ground.

Coconut dust may not be fairy dust, but in southern India, it seems to have similar qualities. Farmers are using the material, part of the husk of a coconut, as potting soil for seedlings. This is proving to be a boon, because seeds grown in soil are just not that reliable.

“Soil-grown seedlings are normally not very healthy, and almost 50 percents of them are lost to diseases,” says Muni Muniappan, director of the Integrated Pest Management Innovation Lab at Virginia Tech. Soil carries bacterial and fungal diseases, so plants grown in soil are susceptible to these threats. When a farmer doesn’t use healthy seeds, he or she will get a poor crop.

“They start to germinate, then get attacked by a fungus, and die off. On its own raised in soil, a seedling will likely only grow to 50 percent of its potential,” Muniappan says. “But if it’s healthy, you can as much as double the yield.”

Seed health is a particular challenge in developing countries, where the sale and transport of seeds from one country to another is not well regulated, and farmers’ knowledge is not sophisticated. Sound practices - like not taking seeds from diseased plants - often are ignored, and even seed companies may be unaware of best practices.

Another tricky thing - it’s not easy to ascertain seed health just by looking at one. Once a virus gets into a seed that is then planted in a field, an insect can easily pick it up and transmit it to another plant.

Seven years ago, the Integrated Pest Management Innovation Lab, working with universities in India, began disseminating the technique of using coconut powder in seedling trays to germinate seeds. Farmers were resistant at first, but once they saw the benefits, they were eager to adopt the practice. “What we find is that it’s important in each place to have an entrepreneur, an enthusiastic farmer, who will adopt and promote the new practice,” says Muniappan. This person serves as a catalyst for widespread adoption, showing that the practice is doable and beneficial.”

Coconut dust provides an ideal medium in which to grow young seedlings until they’re ready to be transplanted. Their lightweight cellulosic structure allows the roots of a seed to establish themselves and at the same time absorb just the right amount of water. Furthermore, when “coco-peat” is added to soil, it improves the soil’s texture and structure. Sandy soil becomes more compact, and clayey soil becomes more arable. And impor-



A woman presses coconut dust into seedling trays.



Women use seedling trays to grow healthier plants.

tantly, the medium is more likely to be free from bacteria and fungi.

The seedlings are kept in enclosures made from PVC pipe and netting. The Indian government has helped fund the cost of these materials, making them accessible to small-holder farmers. One advantage of growing seedlings in this closed environment is that it protects the plants from insects.

The technique has proven highly successful and has led to the growth of nurseries. “Where farmers used to grow their own seedlings, now they buy them from nurseries, a healthier option,” says S. Mohankumar, professor of entomology at Tamil Nadu Agricultural University, and a partner on the project. “In this way,” Muniappan explains, “we have helped spur private sector development at the same time that we are helping farmers produce better crops.”

The fact that coconut dust is now a useful commodity has proven to be a blessing in tropical countries, where coconut palms are abundant.

But this has not always been true. In times past, coconut dust was discarded by the side of the road where it often wound up causing inadvertent fires from tossed cigarettes. The decaying dust also provided the perfect breeding ground for the dramatic-looking rhinoceros beetle. This horned insect, a pest of coconut trees, loves to go out at night and mate in the decomposing material, where the female rhinoceros beetle will then lay her eggs.

Now, though, coconut dust is carefully harvested and husbanded. What used to be roadside debris is hard to find.

On top of all this, the business of creating the seedling trays - planting the seeds and keeping them watered - creates jobs. In many areas, women earn valuable extra income by creating and selling the flats.

Because of this IPM intervention, nurseries have grown as an industry in southern India. It used to be the custom that farmers raised their own seedlings. Now, for every 50 villages or so, there’s a nursery, according to Muniappan.

Currently, the IPM Innovation Lab has plans to expand the practice to northern India and beyond, into Bangladesh, Nepal, Indonesia, and African countries. Until then, in southern India anyway, coconut dust has achieved a rare sort of biological alchemy. “The waste material has become gold,” says Muniappan.

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