

Abaca and Tissue Culture

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The surge of interests in natural fibers has provoked the reactivation of the moribund Abaca Industry. The academe, DOST and private investors want a piece of the action.

Several people have approached me to teach them how to do tissue culture of abaca. I always ask why they think Tissue Culture is going to save the Abaca Industry. The investors' answer is always that since it is a banana, it should work the same way as commercial banana production. The volume of plants required by the government is by hundreds of thousands.

There are misconceptions about aseptic culture. It is not just a novel technology but is a tool of science. The Bananas are tissue cultured to free the plants from pathogens and viruses. Since the edible bananas are triploids and do not propagate from seeds, they needed to be cloned through tissue culture.

The problem with this type of agriculture is that only one genetic material is grown in the field in big numbers. If one plant in the group gets sick, the whole field gets sick. This is the greatest threat to the Banana industry in the world level: a single virulent pathogen is all that is needed to wipe out the population of a given variety of banana from the face of the earth. The problem lies in the absence of biodiversity.

In nature, plants growing in the wild have variable genetic make up. Some individuals may be more vulnerable and others resistant to attacks of a particular pest or pathogen. It is this diversity in the genetic make up that saves the particular species from morbidity and death. Currently, the biggest threat to the Banana Industry in Mindanao is Fusarium. If the threat moves to a monocultured Banana, Abaca included, it can easily wipe out a particular clone of abaca like wildfire.

The government is funding researches for tissue culture of Abaca when the cloning protocols for Musas (Bananas) were established more than 3 decades ago and it is not the proper step to secure the biodiversity of Abaca. This is a waste of people's money when the solution to the problem is simple: grow the needed abaca plants from seed.

An abaca fruit bunch can give estimated 4000 to up to 8000 seeds. It takes a few months to germinate and to grow to planting size. Tissue culture needs 2 years to generate the volume needed. Cost efficiency is not comparable with the laboratory grown plants being more costly of course. All that is needed is to collect different bunches of fruits from Aparri to Jolo and you get the biodiversity that is needed.

Tissue Culture is a viable tool for plant production, but not for Abaca where biodiversity is essential for its survival.