

Soil, Water, Humus and Micro-Organism Analysis in Piloting Agro-EcoFarming System

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I. Background

Philosophy of Nurturing Nature through eco-farming has been practiced at HEPA's pilot models located in different villages (Mr. Hoang Huu Phuoc's garden, An Linh Son farm, Cultural and Ecological village of Violak and HEPA Huyen Vi farm) based on 5 steps of landscape observation, 7 principles of landscape designing and 9 behavioral norms in landscape nurturing in order to nurture 3 fundamental values of the Ecological Home, namely: 1) Uniqueness; 2) Diversity; 3) Local knowledge. This philosophy has been initiated since 90s of the 20th century, which has proven numerous positive indicators in soil restoration and nutrient improvement, contributing to enriching the micro-organisms in soil at those farms.

In order to obtain the convincing indicators to prove that eco-farming is a sustainable cultivation method to contribute to healing the soil that has been abused and exploited under the pressure of the free market economy, the Community Entrepreneur Development Institute (CENDI), with the assistance of Hanna Hankel - an intern from the Technology University of Berlin, has initiated a program to synthesize soil samples collected from HEPA's farms to analyze the important indicators that decide the functions, features and textures of the soil. The outputs of this program will be used as the inputs of a comparative recommendation of eco-farming vs. commercial and exploiting mono-cropping which has caused the global warming and climate change facing the whole planet, so that to help policy makers understand and consider eco-farming as an alternative solution to agriculture.

II. Content of Analysis

1. Soil absorption capacity analysis/Phân tích dung tích hấp thu của đất;
2. Total and easyization/easy digesting NPK/Tổng số và dễ tiêu
3. Total Humus/Mùn tổng số
4. PH;
5. Biological indicators: a. Micro-organism synthesis; b. Aerobic micro-organisms; c. Anaerobic micro-organisms/Chỉ tiêu sinh học: Vi sinh vật tổng hợp, háo khí và yếm khí;
6. Density of soil/Dung trọng và tỉ trọng đất;
7. Mechanical composition (Grain level: clay, flesh land, sand..)/Thành phần cơ giới đất (Cấp hạt)

III. Steps

Step 1: Selecting method

Samples representing for post-war poor land areas: The selected samples are from a land area of the very poor soil quality, directly affected by America bombing and Agent Orange in the Phong Nha -Ke Bang - the garden of Mr. Phuoc, who has been the key farmer of MECO-ECOTRA¹ 1995-2015. His farm land has been restored according to the Philosophy of Nurturing Nature, and by

¹ MECO-ECOTRA = Mekong Community Networking for Ecological Trading, 1995-2015
Soil, Water, Humus, Micro-Organism Analysis in Agro-EcoFarming System
Tran thi Lanh- facilitator

following the system planning and details designing written in the CHESH eco-farming curriculum (3 samples).

Samples representing for economy market areas: The selected samples are from a regenerated natural forest area in the buffer zone of the protection forests located in the Central Vietnam that has been aggressively transformed from the natural forest into the commercial plantation of acacia imported from Australia since 1990 – the An Linh Son farm of Mr. Tran Quang Dung, a YIELDS-AGREE² member in Lien Trach commune, Bo Trach district, Quang Binh province (3 samples)

Samples representing for post – forest exploitation areas: The selected samples are from a crucial watershed area located at the Cau Treo international border gate that was depleted due to the post-American war (1975) forest exploitation policy, but has later been restored by HEPA of CHESH (5 samples).

Samples representing for traditional ecological livelihood areas that haven't been affected by mono-culture yet: The selected samples are from an area where the farming system has been practiced based on the law of nature without brutal intervention and abuse of the ecosystem, which is located in Violak village, Kon Plong district, Kon Tum province. Indigenous wisdom, belief in the spiritual ecosystem, rituals, ceremonies and offerings dedicated to all the living things in the ecosystem have formed the foundation for the farming culture of the indigenous people (3 samples).

Step 2: Tools, technique and profile of the soil samples

1. Hoes and shovels;
2. A set of papers describing in details the status and vegetation where the soil samples are dig;
3. Standard gauge and compass to identify the direction of the samples based on the sun's brightness.
4. GPS for height and slope measurement;
5. Pens;
6. A0-sized papers to draw the status and transect to describe the sites of samples;
7. Soil sample containers made of cotton;
8. Bags containing comprehensive profile of each sample, from the field to the processing room for sun-drying, pounding, etc. before sending to the laboratory;
9. Contacting laboratory for the analysis contract.

Step 3: Profile of the horizons

Filling the history of the horizon, from establishment, operation to management of the farm based on the 10 fundamental characteristics of the harvested products over the last 10 – 20 year;

Describe in details the changes in policy, farming process of the farm's owners, their habit of using seeds, fertilizers (chemical, organic, biological), pesticides, and herbicides.

Step 4: Processing samples: sun-drying, cutting, pounding, packing, encoding location and details, and sending to the professional agency for soil analysis (or signing the package contract with the laboratory)

Step 5: Processing and explaining the result in details

² YIELDS-AGREE = Young Indigenous Ethnic Leadership Development Strategy for Agro-Ecological Enterprising
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Step 6: Feedback to the farm's owners

IV. SWTO analysis: Initial assessment of the climate change adaptability of the models.

V. Organization of a workshop between model owners, YIELDS-AGREE and Hana for further recommendations