ASEAN FARMERS: SOIL HEALTH CHAMPIONS IN ASIA
Asian agriculture faces the double challenge of feeding a growing population while decreasing its environmental impact:

- Largest number of undernourished people - 520 million people.
- Most affected by land degradation with more than 1 billion people living in degrading agricultural areas.
- Characterized by intensive agriculture systems with high environmental impacts of food production.
The Green Revolution started in Southeast Asia at the 1960s and still shapes its agricultural sector today:

- Technological packages based on the intensive use of modern crop varieties, agrochemicals, mechanization and irrigation.
- Staple food production more than doubled in the ASEAN region with positive outcomes for national and regional food security.
- Impressive production gains of the last 50 years came with high environmental costs. Soils, in particular, were adversely affected. About 1 billion tons of top soil is lost annually.
Top Soil Loss and Consequent Costs and Yield Loss in ASEAN Countries.

Source: Tilahum et al. (2018)
SOILS:

- Fundamental to terrestrial ecosystems and provide the base for producing 95% of our food.
- A valuable ally in climate change mitigation as it represents the largest carbon sink on earth.
- Deliver critical ecosystem functions that are crucial for the provision of ecosystem services to society, particularly through the large biodiversity hosted within soils.
Reducing soil degradation and implementing sustainable soil management are, therefore, cross-cutting issues, critical for food security, ecosystem stability and climate change mitigation.
SOILS:

Policy instruments aimed at improving soil management should internalize the pivotal role of soils on ecosystem functioning and adopt effective strategies to translate an ecosystem-based approach to soil management into practice.
ASEAN INITIATIVE ON SOIL HEALTH

ASEAN Guidelines on Soil and Nutrient Management (ASEAN-GSNM)
Aim to achieve food security of the ASEAN region by promoting adaptive and resilient ‘climate-smart’ agricultural systems, while maintaining the functional capacity of the soil resource to provide essential ecosystem functions, including mitigation of emission of greenhouse gases.

Acknowledge the importance of soil health that needs to be understood as a holistic approach to enhance the provision of ecosystem services and propose a structured framework to implement site-specific nutrient and soil management practices.
Technology packages and decision support tools: Fertility Capability Classification (FCC) and Site/Soil Specific Nutrient Management (SSNM) methodologies focused on refining fertilizer recommendations that are tailored to specific conditions and delivered through the Soils Doctor Program and Integrated Communication Technologies (ICT).

Implementation framework identifies challenges and opportunities to promote a more holistic approach to soil management and upscale soil health in the region.
Call for the empowerment of ASEAN farmers as soil health champions, through capacity building efforts based on participatory and interactive learning processes, and active local testing towards the customization of technological packages.
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Soils are often viewed as a lifeless medium, or ‘sponge’, to be supplied with nutrients and water to produce crops.

Conversely, the concept of ‘soil health’ acknowledges the ecological role of soils and the contribution of biological processes to nutrient cycling and dynamics and is a suitable foundation on which to advance such a paradigm shift.
The Soil Food Web

Source: Orgiazzi et al. (2016)
Fostering soil health in agricultural soils means exploring and adapting practices that enhance ecological processes at both the field and landscape levels, such as nutrient cycling, degradation of pollutants and soil structure maintenance in local conditions and contexts.

These practices are much more knowledge-intensive than common soil management practices and require investments in knowledge transfer and farmers’ education.
Rural education programs should create spaces that allow farmers and researchers to use complimentary local and scientific knowledge to test farmers’ own context-specific solutions as their needs require, while improving their knowledge on soil functions and ecological processes.
Farmer Field Schools, or FFS, represent a unique opportunity for ASEAN farmers to apply more holistic approaches to sustainable soil management by shifting from a nutrient-centered to an ecosystem-based approach.

FFS programs can mainstream soil health into farmers’ common knowledge and consequently FFSs can be integrated into the implementation framework of the ASEAN-GSNM.
FFS will allow the adaptation and modification of farm management practices resulting from collective learning processes and experimentations that enable farmers to improve their knowledge on soil functions and ecological processes.

Farmers’ knowledge and skills acquired through discovery learning methodologies are crucial to tailor and upscale sustainable, knowledge-intensive farming practices.

Farmer-led experimentations build farmers’ problem-solving skills, integrate scientific knowledge into local knowledge systems and adapt practices to the specific socio-economic context.
Integrating FFSs into the Implementation Framework of the ASEAN-GSNM.

Up-scaling Soil Health across ASEAN: Philippine Experience
FAO piloted a FFS soil health program in the Philippines, Laos and Indonesia:

- Assessment of the current concepts and status of soil health work.
- FFS Curriculum, with studies and exercises on soil health, was designed with FFS farmers, facilitators and soil health experts.
- Experiences of the pilot FFSs helped evaluate and outline strategies for better integration and upscaling of soil health.
We did not inherit this world from our ancestors; we only borrowed it from our children. And as we make this world into a harmful place for ourselves with our irresponsible approach, we will leave an uninhabitable world to our children.

From Muhsin Tropak