

The CLIMATE SMART FARMING PROJECT

HEKS/Epper, SMARTAGRO SUSTAINABLE INNOVATINOS CO.,LTD

Thbong Khmum, Kratie, and Mondul Kiri

Background



- There is lack of technical supports on nature-based solution for soil fertility management but increased in reliability on the chemical inputs for fertilization and pest control.
- Application of improper techniques deplete soil health and emit GHG.
- Requirement for intensive farm labor challenges workforce, and profitability.

Project Objectives

- 1. Environmental benefits climate change mitigation:**
 - Reduce greenhouse gas (GHG) emissions
 - Increase carbon stocks in soils (C transformation)
- 2. Enhanced climate change resilience of farms:**
 - Drought resilience as water retention capacity is increased (soil structure maintenance)
 - Overall resilience of ecosystem to climate change shocks (nutrient cycling).
- 3. Improved farm performance through climate-smart crop production and cattle rearing**

Approaches and technology use

- Trial implementation and technical demonstration on association of cover crops into cashew farm, pepper farms and introducing controlled pasture for cattle raising.
- Promoting technical adoption via farmer field school program.
- Sharing knowledge through digital platforms and experience documentations to private and public actors.
- Strengthening of business model of SmartAgro through distribution system and cover crop seed production.



Results

- Given a short period of the cover-crop techniques testing on numbers of trial plots demonstrated/proved a promising improvement in soil quality i.e. increasing of NPK even at the time of end-line soil assessment haven't yet met the target indicator of 250 kg of C/ha/year.
- Improved farm performance through climate-smart crop production (pepper and cashew farm); there was significant change respectively in terms of a) increased yield from 15%-18%, b) decreased cost of labor inputs: from 41%-70%, c) decreased prod. cost: 16%-70%, lastly d) increased net income: from 10% - 92% of pepper and cashew farms respectively due to particularly the significant decrease of production cost (from using herbicide) of cashew production.
- 70%-80% of early adopters are satisfied with cover crop desirability, applicability, and affordability. Farmers participants realized that it was worth testing and investing in cover crops, both for soil health and wealth and economic returns, savings on watering, weeding, and labor costs.
- 80%-90% of 212 household farmers who attended farmer field school understood about the uses of cover crops to protect weeds, to reduce soil's heat from the sun, use as feeding sources, techniques of planting cover crops, and pruning ... etc.
- The dissemination through digital platforms of video documentation of farmer testimony and lesson learnt on testing of cover-crop techniques application on pepper-farm, cashew farm including Rotational Grazing for Cattle and have reached up to 60K views over the past years with Smart Agro, and Tonle Sap Facebook channels seen as the biggest viewers. These videos made a huge public interest on climate-smart farming issues.



Scale up plans

- Extension of the time interval for assessment of the impact of climate change mitigation; continue observation on C dynamics in the soil for proof of concepts. We suggest the measurement related to SOC changes should have minimum 3 to 5 years intervals.
- Upscaling of the cover crop adoption through reviewing the market price of the cover crop seed to meet an optimal demand, and viable to SmartAgro and its market actors. An in-depth review and analysis of the value change chain of cover-crop seed, market demand and particularly the inhibitors and promoters that prevent or support the adoption of cover crops including key entry points in the community (ACs, input suppliers etc..) that can assist with the promotion of cover crops or become enablers of adoption. That's included within the scale up plan.
- Redefine an effective distribution model for the cover crop seed business and consider providing incentives for early adopters. Assistance in enhancing the current business model of SmartAgro is recommended. It is reported that SmartAgro has not established a distribution channel with local retailers yet which is limited to product accessibility. There should be a review on their strategies and trigger their challenges in marketing the cover crop seed product.
- Dissemination of the results and lessons learned to a national platform. It is crucial that the evidence-based results from the CSF project be shared to potential networks and target audience especially, the actors within sustainable agriculture development. This can be done through the national conferences, and official publication.