

# V-SCOPE

Vietnam toward Sustainability for COffee and PEpper



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# NEWSLETTER

## INCREASING THE SUSTAINABILITY, PRODUCTIVITY AND ECONOMIC VALUE OF COFFEE AND BLACK PEPPER FARMING SYSTEMS AND VALUE CHAINS IN THE CENTRAL HIGHLANDS REGION OF VIETNAM

The Project has a vision of improving livelihoods among smallholders and rural communities, while managing natural resources and producing food more sustainably, and fostering more inclusive agri-food market chains by working with the private sector and farmers.



In collaboration with:



*Dear Readers,*

Welcome to the 3<sup>rd</sup> Issue of V-SCOPE Project's Newsletter. In this Issue, we will provide you with latest updates from the Project between July 2022 and August 2023, including significant changes and key findings. This Issue will also bring to you a story on how irrigation trials may help, in the near future, enabling the provision of more precise recommendations regarding the minimum amount of water needed for irrigation of coffee, and an interview with the Senior Advisor from ACIAR on the Project's progress.

V-SCOPE Project Team hopes you will enjoy the reading!

# “

Dr. Howard Hall  
Special Advisor, Commercial  
Engagement and Adoption  
ACIAR



This project is one of several where we have a lot of engagement from industry. And in my new role as Commercial Engagement Advisor, I want to understand how successful a partnership with industry are, and what the people from industry have to say about being involved in the projects. This will also add to some deeper analysis that we are applying to looking at how we improve the ability of ACIAR's projects to engage with private businesses in projects.

# “

Dr. Estelle Biénabe  
V-SCOPE Project Leader  
CIRAD and ICRAF



A strong ambition that is steering our Project is how to fully harness the potential to work with the private sector in driving changes and achieving impacts at scale. As a result, a number of coffee and pepper companies are actual partners to our Project including through co-funding investment and through local co-designs and operations of innovative farming and value chain pilots.

## PROJECT'S UPDATES



Photo: V-SCOPE Project

Pepper plants in Central Highlands

### MOST SIGNIFICANT CHANGE

**A**fter having been conducting trials for three dry seasons, contrary to prior expectation, the current irrigation recommendations (400L/tree/round) appear suitable for monoculture coffee farms.

A different outcome in agroforestry trials has been observed: coffee trees cultivated under the shade of fruit trees exhibited 20%-30% lower water consumption compared to monoculture conditions as shade provided by fruit trees created cooler temperatures and maintained higher air humidity, reducing coffee tree transpiration. Consequently, irrigation requirements were reduced in these shaded conditions and helps reducing irrigation recommendations by at least 40% without any negative impact on coffee physiology or production.

### KEY FINDINGS

**S**ince enhancing soil properties for coffee and pepper is an important work component of the Project, the team has analysed data collected from the Project' sites regarding Soil Borne Pest and Diseases (SBPD). Preliminary results concerning the prevalence and severity of different SBPD show widespread Fusarium infestation and presence of Phytophthora in pepper plantations.

The team also completed task related to characterize soil health and found out that pH in soil under lime application was shown to be a little bit higher than under biochar application, while Potassium oxide (K<sub>2</sub>O) significantly increased under biochar application.

Results in terms of density of oomycetes and nematodes reveal that lime application by itself is not sufficient to significantly impact on SBPD reduction.

Investigation and data analysis on presence of nematodes and soil born fungi have given some

interesting results: (i) The causal agents that cause the root disease for black pepper have been identified, (ii) 3 species of phytophthora identified through morphology and DNA sequencing (including on young leaves black pepper seedlings). On the other hands, regarding fertilizer inputs, detailed NPK balance at plot reveals low NPK use efficiency.

**In term of co-designing good practices and integrated farming systems**, the team classified 5 climate change impact areas corresponding to different adaptation strategies: i) incremental adaptation, ii) systemic adaptation, iii) transformational adaptation, iv) opportunity areas and v) systemic resilience.

**On value-chain improvement**, the team have observed that overall farmers' lack proper understanding as well as lack of control on farm of essential quality requirements, which drastically affect their bargaining power with middlemen.

Meanwhile, significant differences in total labor demands is being observed in a study on assessing labor and economic performances of Coffee- and Pepper-based cropping system in Viet Nam, which conducted by the Project in order to provide valuable insights for optimizing agricultural practices and enhancing the efficiency and sustainability of smallholder coffee- and pepper-based farming systems.



Photo: V-SCOPE Project

A woman takes care of the pepper plants

**Regarding gender dynamics**, the Project found that as women always have to spend more time than men on housework and less time on leisure activities, Project's interventions must compensate for gendered social norms. This requires a holistic representation of women's needs, for women to be free to participate. If women's basic needs are not being met, it is unlikely and unreasonable to assume that offering services that do not accommodate women's responsibilities and time constraints will lead to widespread adoption./.

## PROJECT' STORY

IRRIGATION TRIALS MAY HELP CENTRAL HIGHLANDS  
IN CLIMATE CHANGE ADAPTATION*with information provided by Dr. Clément Rigal*

Dr. Howard Hall and ACIAR Viet Nam's Assistant Country Manager, Tran Nam Anh, visited V-SCOPE Project' SAP-FLOW trials in July 2023

Improved water management in agriculture is more critical than ever, especially as we are facing challenges posed by climate change, and since weather and climate impact strongly the coffee and pepper industries.

Coffee and Black Pepper are the two premier commodities and contribute a large part to economic growth at the national level, with US\$ 3.94 bn and US\$ 970.6m in 2022, respectively (according to the General Department of Customs). In the context of the shortage of water for irrigation during dry season with strong impact of climate change, an efficient irrigation system is crucial for agricultural development. To that end, an accurate field data inquiry as what V-SCOPE Project is applying for pilot, SAP-FLOW, can eventually allow for a proper control of the field's irrigation.

So far, we are most advanced with irrigation practices since the SAP-FLOW trials were the first to be implemented. Results for 2023 will be completed after the harvesting season. The Project Team will spend the year 2024 verifying these results. This will inform us of the minimum amount of water needed for irrigation of coffee.

Dr. Clément Rigal  
Coffee Agroforestry Scientist  
CIRAD and ICRAF

*SAP-FLOW measurements is a technique in which sensors are introduced in the plot to measure temperature differences and transpiration flow which can be used as an indicator of plant water status.*

To date, the Project has successfully established 2 irrigation trials in Buon Ma Thuot (since January 2021) and Krông Năng (January 2023). After conducting trials for three dry seasons, the team has started to gain a good understanding of the water challenges faced by coffee farmers. Data are being collected on all these trials in 2023 and will contribute to feeding the discussions during the participatory processes and refine the definition of good farming practices.

For monoculture coffee farms, results show that the current irrigation recommendations appear suitable. Although current irrigation practices result in water overuse during short dry seasons, this excess becomes necessary when the dry season is prolonged, which otherwise negatively affects coffee trees.

Recognizing that cultivation under shaded agroforestry or intercropped systems are among the agricultural practices able to mitigate impacts posed by climate change, the Project has observed that shaded coffee requires less water, while other crops do not necessarily require extra irrigation. Therefore, intercropping or agroforestry can result in substantial reductions of irrigation without any consequences, even in dry years. However, this early result still requires to be confirmed and validated over time.

With all the advances recorded recently, hopefully the establishment of irrigation trials will help, in the near future, enabling the provision of more precise recommendations regarding the minimum amount of water needed for irrigation of coffee. Final results may serve for precise information for managing natural resources and producing food more sustainably./.

## PROJECT'S INTERVIEW

### SHARING FROM DR. HOWARD HALL (ACIAR) ON V-SCOPE PROJECT'S PROGRESS

Can you share with V-SCOPE Project audiences on the expectation after having witnessed the progresses that the Project has made so far?

During the tour, I can see that we are making some good progress in work package 3<sup>1</sup> and that is where all the private engagement is probably more obvious. In addition, with the new Commercial Engagement Fund (CEF) project, we can really focus on some key issues with companies. What is really positive about that is that the companies in the CEF module are local Vietnamese ones.

And how about the contribution of partners?

We have 7 companies engage and collaborate in this project. With that engagement, we are making a good case study for the fact that companies can work together without the feeling that they are in competition. This project is a really good example of how to engage people from competing companies.

The other thing I am really pleased is the confirmation of a lesson that we have learned at ACIAR: if we want to successfully engage private companies in projects, we must engage them before the project is approved,

1. Work Package 3: Co-designing local value-chain improvements and enhancing national public-private dialogue

in the proposal writing stage and get them to feel like part of the process and part of the communication, and part of the planning.

The one big lesson for the project teams is to treat the private companies like part of the team and include them. There is quite a few examples in various places where this is not happening well enough, and in the V-SCOPE Project, we are clearly doing that.

Thank you very much for sharing, and we wish you success in your new role as Special Advisor for Commercial Engagement and Adoption at ACIAR, in a year that the Center is celebrating its 30<sup>th</sup> anniversary of operation in Viet Nam./.



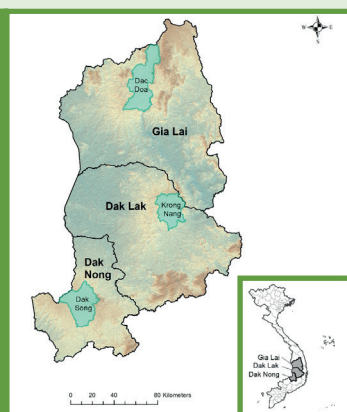
Photo: V-SCOPE Project

Dr. Howard Hall on the field during his visit to V-SCOPE sites in July



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