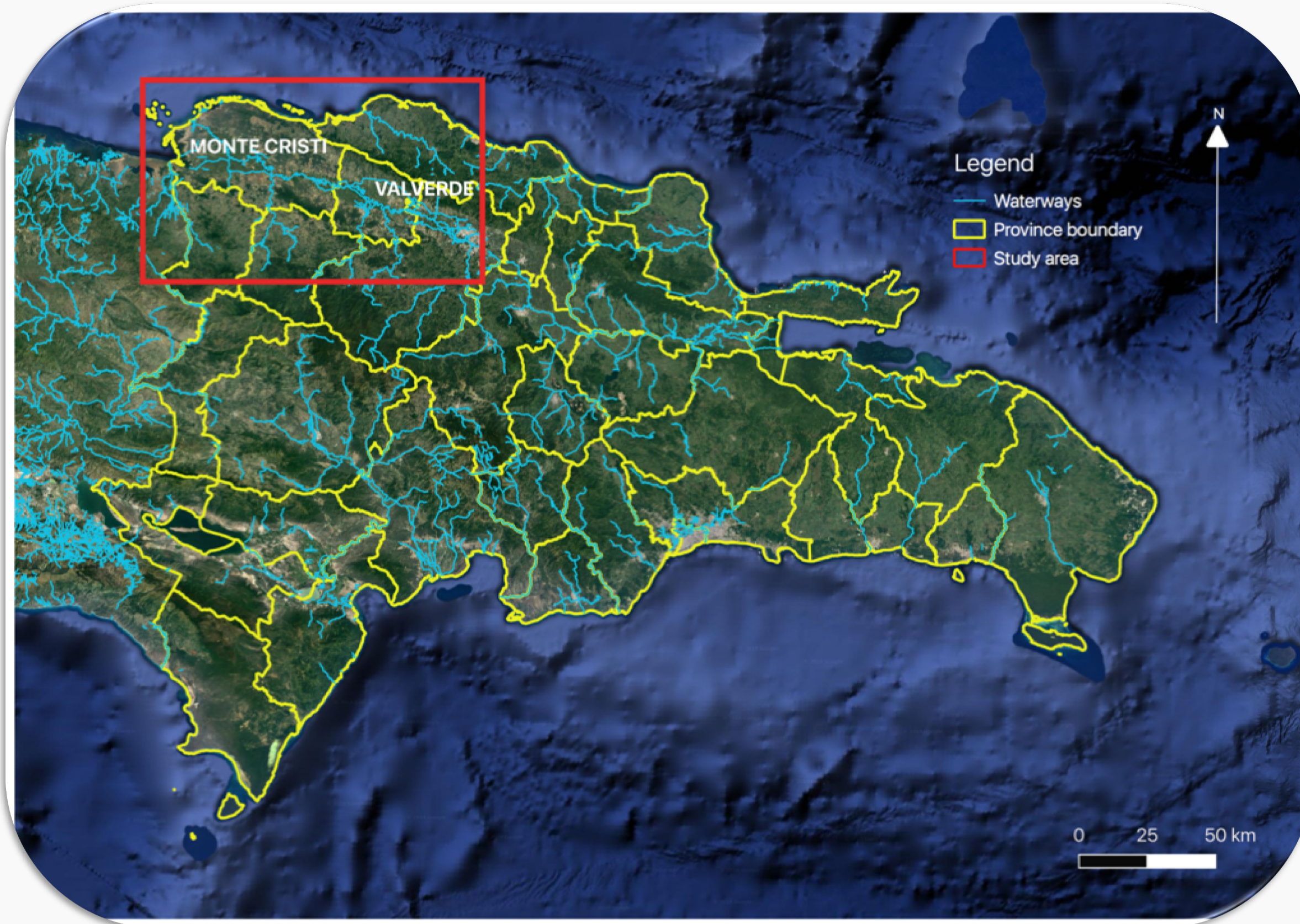


Racing to recover: What determines smallholder responses to extreme weather events?

William Thompson¹, Pius Kruetli¹, Jonas Jörin¹, Birgit Kopainsky², Erik Chavez³, Solhanlle Bonilla-Duarte⁴, Johan Six¹
¹Environmental Sciences, ETH Zurich; ²Department of Geography, University of Bergen; ³Centre for Environmental Policy, Imperial College London; ⁴



Introduction and Methodology

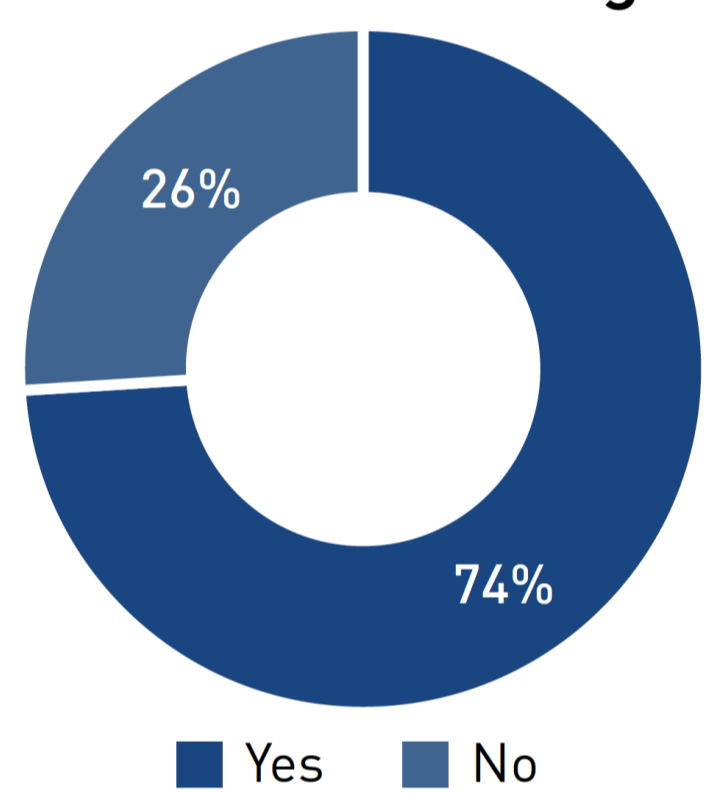
Extreme weather events such as hurricanes have severe impacts on our food system, particularly for vulnerable smallholder farmers. The ability of smallholder farmers to recover from such shocks is important not only for their own livelihoods but also for the functioning of the food system as a whole. Here we investigate how flooding induced by Hurricanes Maria and Irma in 2017 impacts Organic and conventional smallholder banana farmers in the Dominican Republic. We assess what determines their rate of recovery through a novel combination of on farm assessment-linked to regional scale remote sensing. We look to identify levers to enhance the resilience of this food system through an overall transdisciplinary approach.

160 farmers were interviewed in depth using a resilience assessment tool. The assessment focuses on three phases: **A) Preparations, B) Impacts and C) Recovery.**

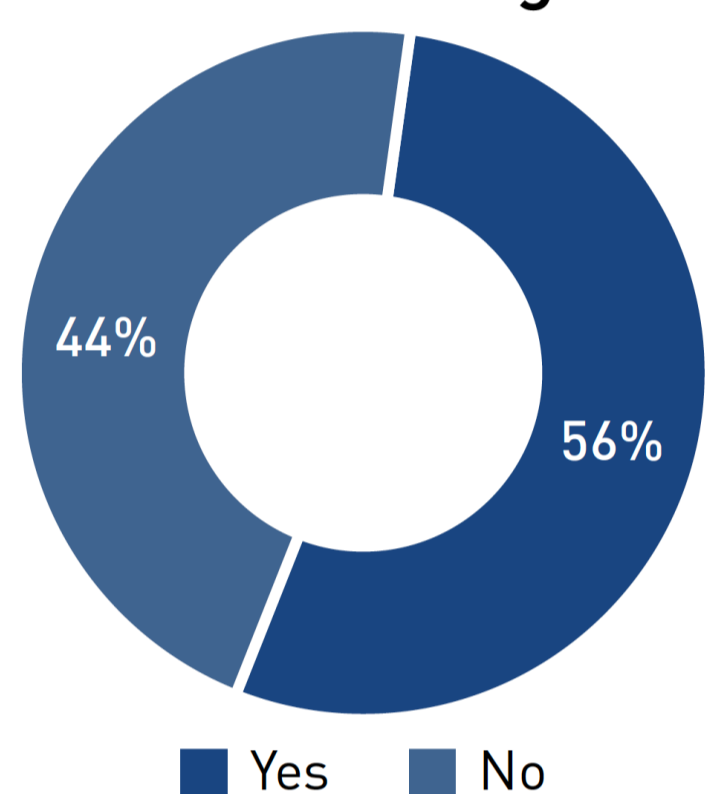
Preparation

Preparation for the event of hurricane induced flooding was generally limited to small scale measures that were not able to significantly reduce the damage to banana production. Other non-physical examples include:

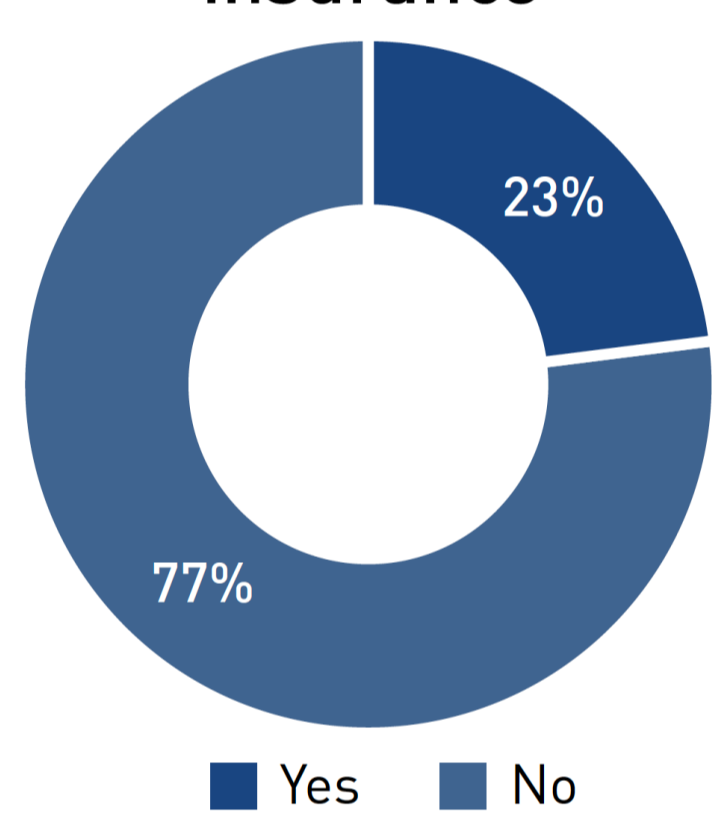
Training in recovery from flood damage



Training in reducing flood damage



Private insurance

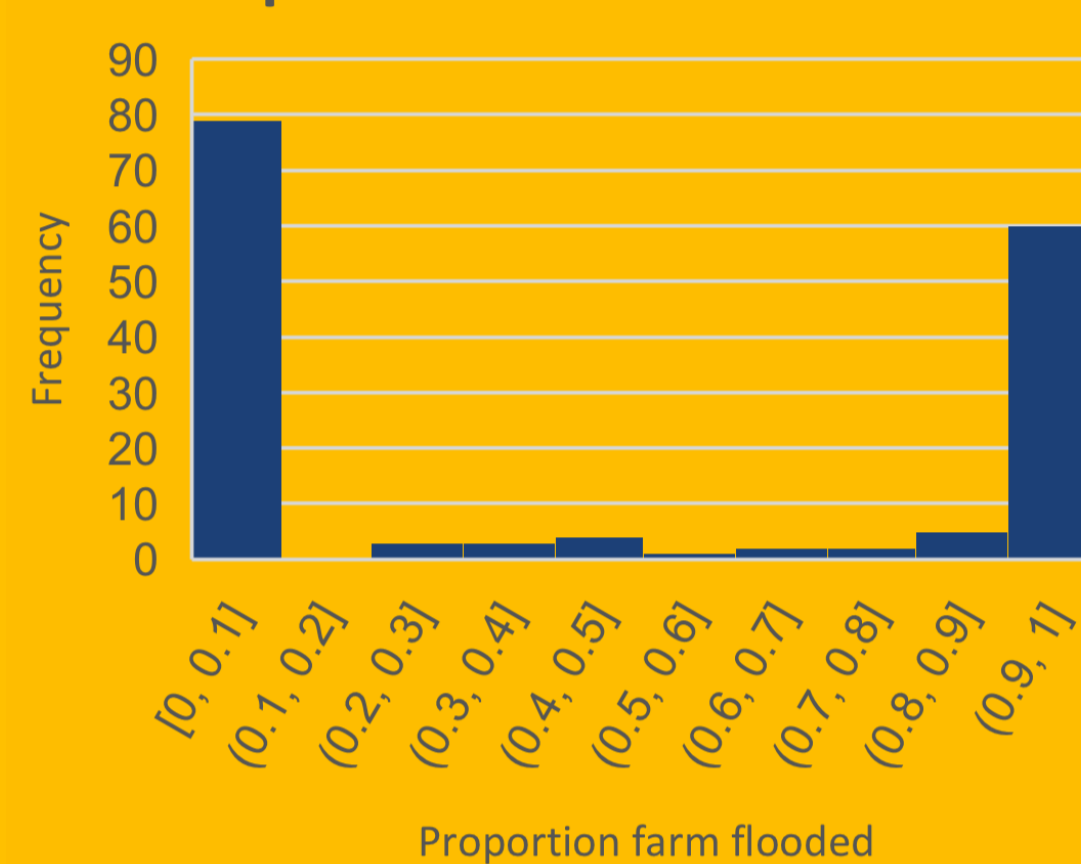


Impacts

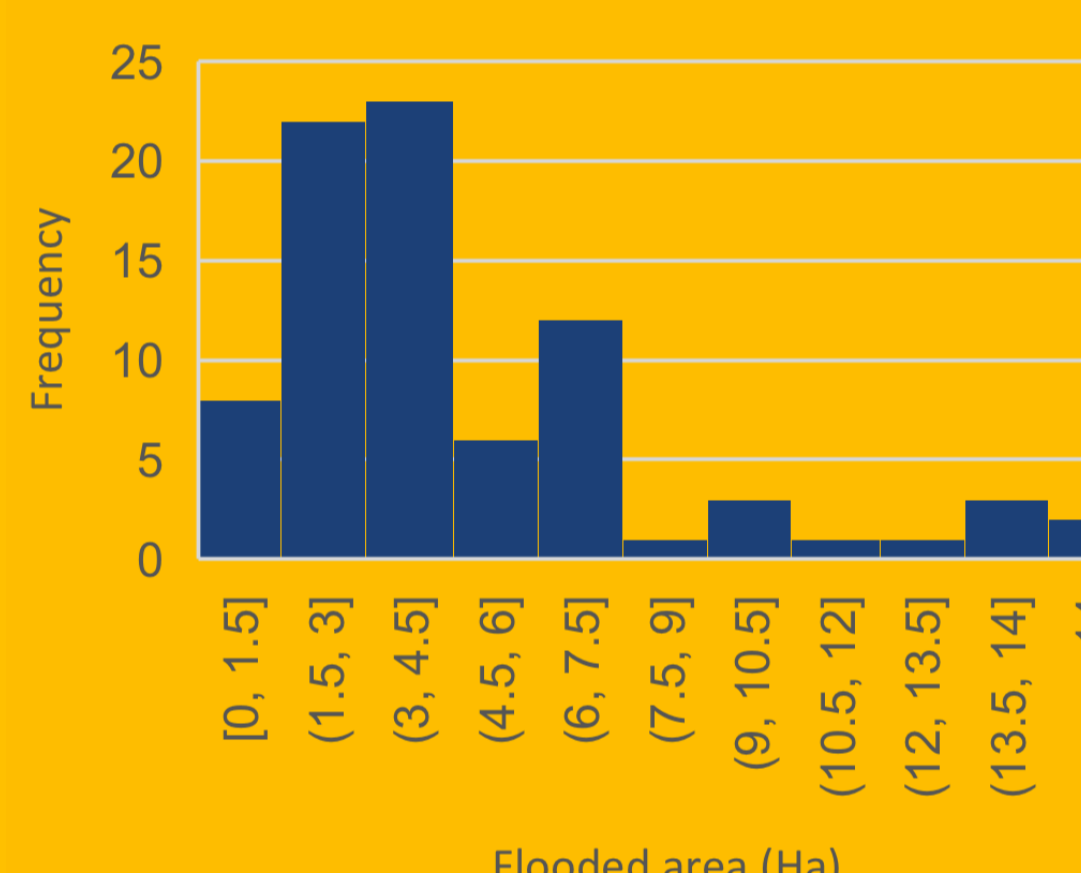
Of the sampled farmers 50% were impacted directly by flooding on their banana farms. Flooding was shown to be an “all or nothing event”, with those farmers that were flooded tending to have the majority of their farm submerged.



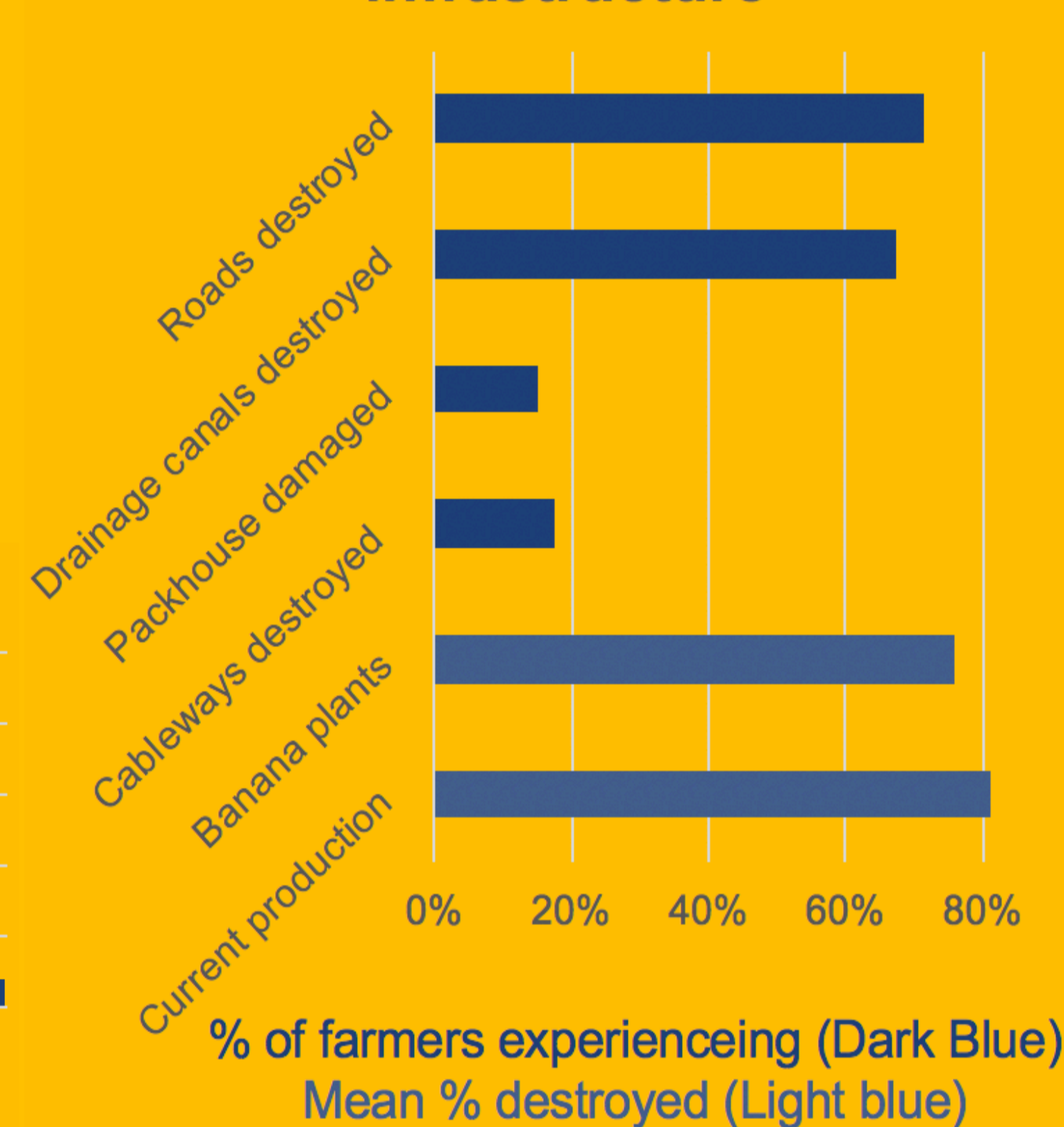
Proportion of farm flooded



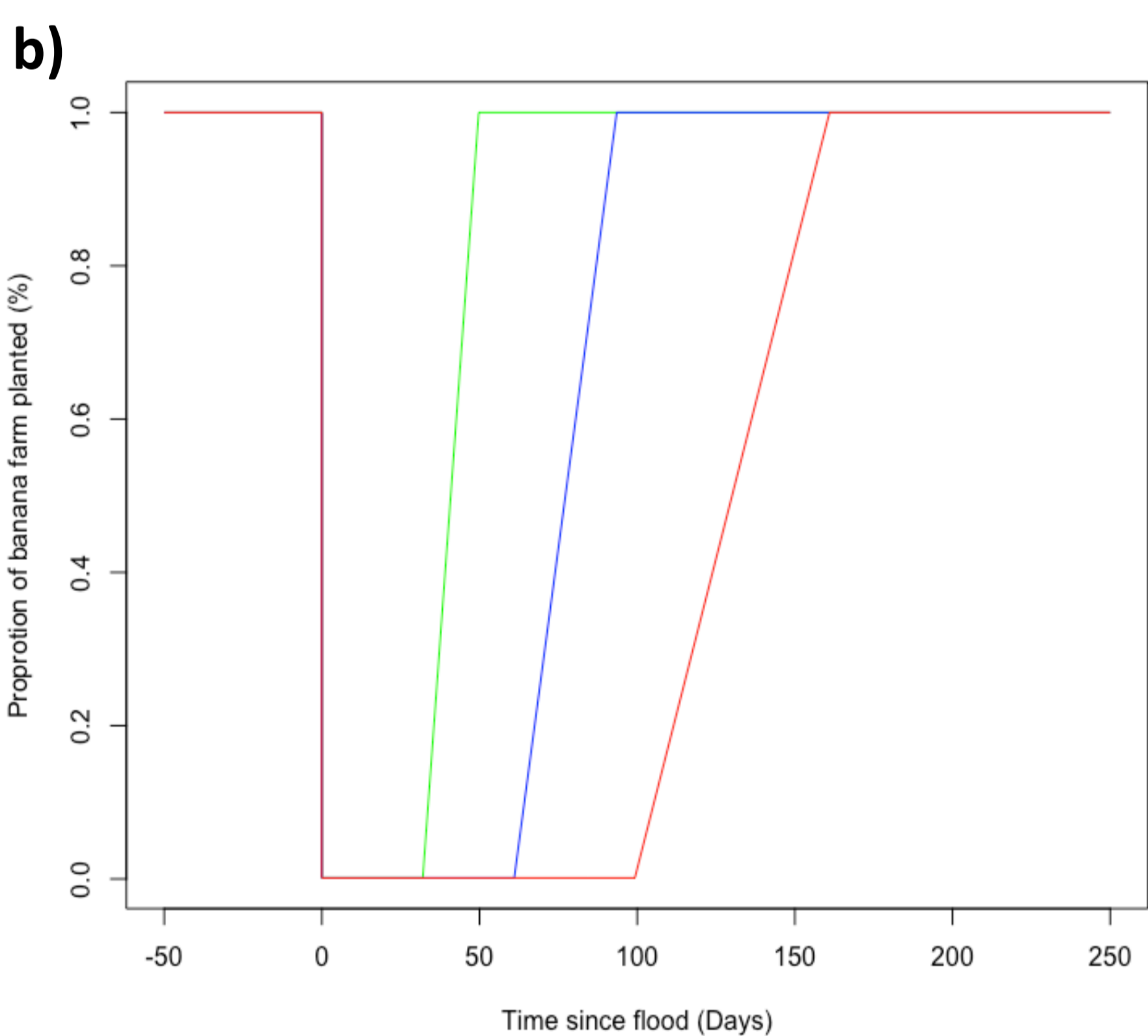
Flooded area



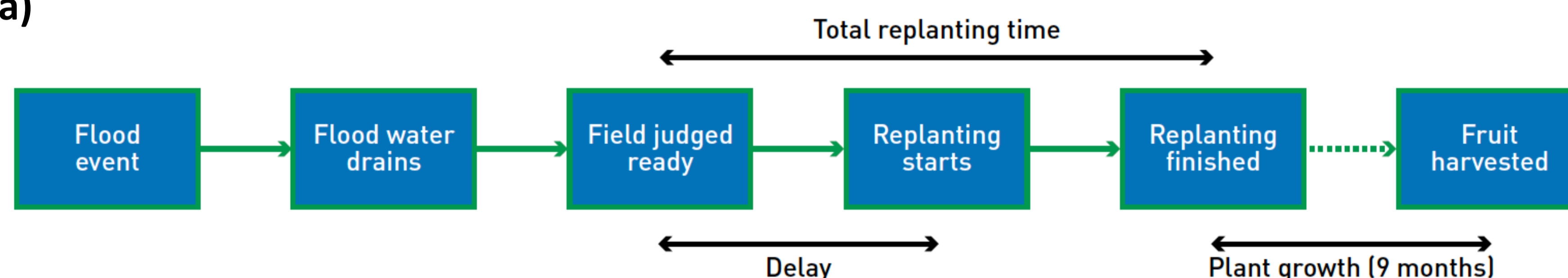
Damage to plants and farm infrastructure



Recovery



a)



a) What is recovery?

Recovery is the process by which farmers return their system state back to normal after a shock – the “bouncing back” phase. After flooding there are a key set of activities that take place to return banana production to full capacity, these are moderated by natural processes after the flood event such as the drainage of flood waters and the time taken for the soil to aerate. Following this the farmer and their labourers will cultivate the field using traction, prepare drains and paths and then plant seed material. Following the replanting phase there is a nine month growth phase before fruits are again harvestable and saleable. Recovery is not finished here, we also focus on market access in the proceeding years

b) Differences in recovery

Recovery was not the same for all farmers, with the fastest 25% (green) of farmers recovering, agronomically, 100 days faster than the slowest 25% (red). The main drivers of these time differences were delays in the start of replanting due to available finance and planting materials.

Opportunities to enhance climate resilience

This resilience assessment has allowed several opportunities to enhance the resilience of the banana value chain be identified. These focus on:

1. Reducing physical damage,
2. Reducing economic damage,
3. Enhancing recovery.

The next phase of the project will develop blueprints for resilience enhancing measures in collaboration with the stakeholder platform building on the findings of this assessment.

Partners

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