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## **Policy Brief for CILY environmental and mitigation plan in Grand-Lahou**

<b>Project</b>	<b>IDRC-DFATD 107789 <i>'Fighting lethal disease for coconut farmers'</i>.</b>
<b>Policy Brief Title</b>	<b>CILY environmental and mitigation plans in Grand-Lahou</b>
<b>Location</b>	<b>Grand-Lahou, Côte d'Ivoire</b>
<b>Directed to</b>	<b>Policy makers and stakeholders (Major, Authorities, Farmers, Traders, Processors, NGOs)</b>
<b>Define the context and the issue</b>	<p>CILY has had an important environmental impact in the coconut-growing areas of Grand-Lahou since the late 1990's when the first symptoms were spotted in the village of Palmindustrie V1, and since its very first outbreak. Information from previous soil analysis and recent observations during the IDRC-DFATD project, and the records of environmental variables such as rainfall and temperature in Grand-Lahou were considered to develop preliminary environmental and mitigation plans for the CILY-affected coconut farms to be disseminated within the coconut farming community.</p>

## Findings

Annual temperature means were 26°C in 2014, and 26.3°C in 2015 in Grand-Lahou. Temperature value of 26°C has been reported as the temperature that enhances the phytoplasma multiplication rate (22-26°C) within the plant hosts. No data on the biology of *Nedotepa curta* are available yet; however the current temperature ranges within the coconut-growing area of Grand-Lahou may influence the insect vector population, and consequently the spread of CILY. Rainfall means in Grand-Lahou were 175.87 mm in 2014 and 117.4 mm in 2015, which were considerable below the ideal rainfall requirement. It has been noticeable that due to the severe droughts during 2014 and 2015, and early 2016, CILY has become more widespread throughout the coconut-growing villages of Grand-Lahou. Moreover, the number of coconut palms that transit from stage 3 to the terminal disease stage (telephone pole) is higher, particularly in the westernmost areas.

Recent observations indicate that severely CILY-affected farms show higher levels of erosion in the villages of Badadon, Braffedon, Adjadon, Palmindustrie V1, V2 and V3, and Yaokro, which could be associated with the removal and burning of palms, so the soil gets more exposed to waterlogging, fragmentation and drought. Indeed, a higher frequency of waterlogging around CILY-affected palms has been also observed during the periods of heavy rain, and the transition of the palm to the disease stage 3 or 'telephone pole' speeded up. A similar situation has been reported from heavily CSPWD-affected areas in Ghana, where a new system for disease containment 'slow down' that recommends leaving the felled palms within the farm without burning is being successfully implemented. An alternative to overcome the soil situation in Grand-Lahou is the implementation of the econometric model developed to relocate those severely CILY-affected farms in areas with optimal soil conditions. Weed surveys showed that the majority of CILY-affected farms are dominated by plant species of the family Poaceae followed by families Fabaceae, Rubiaceae, Asteraceae, Malvaceae and Apocynaceae. It is noteworthy that the most widespread alternative host for the CILY phytoplasma, *Pennisetum pedicillatum* belongs to the Poaceae family. There are reports about soil pollution caused by plastic and metal pollution. Plastic negatively impact on the natural environment and create problems for plants, wildlife and even human population. In Grand-Lahou, and particularly in many coconut farms affected by CILY, the plastic and metal waste have increased in the last 5 years. Although no data is available on how the plastic or metal waste could be related to soil erosion in lethal yellowing disease-affected areas, or how it affects the ecosystems in Grand-Lahou, local urgent actions are required to be implemented to prevent any possible environmental impact associated with plastic or metal waste.

**Implications**

If not actions are taken in regards to the removal and burning of the coconut palms to delay or prevent the soil erosion, as well as to eliminate weeds that act as reservoirs for the CILY phytoplasma to minimize the environmental impact of CILY, the disease will wipe out the coconut groves of Grand-Lahou more likely in the next five years. This would be a niche for the emergence of phytoplasma diseases in other weeds and crops. The environmental management plan should be disseminated to farmers, stakeholders, authorities and policy makers through field schools, plant clinics and meetings. Farmers and extensionists should be properly informed and trained. Training includes the measures for the removal and environmentally-friendly use of the felled palms, the introduction of the new technique 'slow down', the recognition and removal of weeds from the farm, the implementation of the econometric model to relocate CILY-devastated areas and to identify new areas with optimal soil conditions for the coconut crop. Farmers should adopt and disseminate the new measures through the field schools and plant clinics. It is crucial that policy makers and stakeholders, including Women Groups support the farmers in Grand-Lahou to adopt and implement the present policy brief.

**Limitations and further research**

Monitoring of the CILY-affected farms is required for the implementation of the CILY environmental and mitigation plans. After-project surveys will follow to assess for the compliance of the plan.

**Declaration**

Sporometrics, CNRA, UNA and ANADER confirm that the policy brief has been issued in accordance with the budget and research proposal under the IDRC-DFATD research project 107789.

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