VARIOUS ENVIRONMENTAL FACTORS ALLOW TO OPTIMIZE THE EFFICACY OF BANANAS HYBRIDS RESISTANCE AGAINST BLACK LEAF STREAK DISEASE

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Black leaf streak disease (BLSD) is the most destructive leaf disease of bananas. The cultivation of resistant varieties appears as the most appropriate control. We aim to optimize the efficacy of hybrids resistance at plant, plot and regional scales. Two different approaches have been carried out : (i) a modelling approach to identify the most efficient resistance components (plant scale) and regional spatial arrangements (varieties mixture) in the disease control ; (ii) an epidemiological survey carried out at national scale in Cuba and Dominican Republic to understand the effect of three environmental (climatic, agronomical, edaphic) factors on the efficacy of the bananas hybrids resistance against BLSD.
The BLSD simulations showed the efficacy of two main resistance components (infection efficacy and lesions growth) in the disease control at plant scale.
The low level of BLSD resistance efficacy of bananas hybrids in Dominican Republic and Cuba can be explained by rainfalls, cultural practices (plantation densities, irrigation, weeds control) and edaphic factors (N, Mg, P). The BLSD hybrids resistance efficacy to BLSD can be modulated with climatic conditions and agronomical practices at plot scales.
The role of any environmental factor on disease severity on resistant hybrids at plant, plot and regional scales are discussed.