

Prouteau Rémi, Ribeyre Fabienne (fabienne.ribeyre@cirad.fr), Jaeger Marc



Introduction

Estimating coffee pest or disease attack levels without procedure may lead to overestimation.

Our proposal: a procedure via an embedded decision support tool on mobile phone

Materials/Methods

A sequential statistical procedure

Using phone sensors (GPS and accelerometer)

Intuitive Data entry phase using picture selection

Developed with C++ under Qt environment

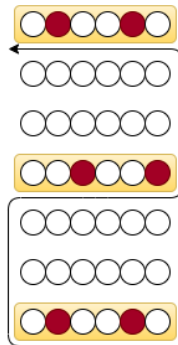


Fig. 1: Optimized sampling points locations

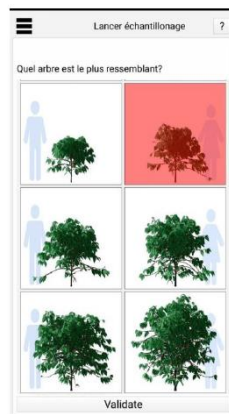


Fig. 2: User friendly evaluation of tree age from which fruits/leaves sampling numbers and position are defined



Fig. 3: Seizing attack intensity of coffee leaf rust

Results

A first Android devices prototype
 Modular, can be extended to other pest and disease

Offers systematic sampling

Guides the user along a minimal seizing route

Checks and controls the seizing procedure (position, number of entry)

Aggregates data at both tree and organ levels

Estimates the attack intensity on the whole plot

Further developments

Other sampling statistical procedures or targeted pests

Link with growth and production models to refine recommendations

Automated data acquisition by processing image captures

Feeding epidemiological surveillance models on a regional scale

References:

Rémond, F. (1996). Mise au point de méthodes d'échantillonnage pour estimer les attaques des fruits du caféier par le scolyte (*Hypothenemus hampei* Ferr.). Applied mathematics PhD these Univ. Montpellier
 Berrou J.-P., Mellet K., 2020. A mobile revolution in sub-saharan Africa?, 2020, Réseaux, 219, 11-38. DOI : 10.3917/res.219.0011. URL : <https://www.cairn.info/revue-reseaux-2020-1-page-11.htm>