



# QUESTS

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Quantitative Evaluation  
of the Fertility of Tropical Soils



ALTERRA  
WAGENINGEN **UR**

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QUEFTS is a method to estimate the site-specific marketable yield and the effect of fertilizer application on the yield for a given crop on the basis of soil characteristics. It was first designed in 1990 by Bert Janssen and co-workers of the Wageningen UR (University & Research centre).

Alterra Wageningen UR has now developed a software App for its application in the field. With this new version of QUEFTS users can derive optimal fertilizer recommendations for various target scenarios (yield, economic optimum and agronomic optimum) on the basis of local data for N, P, K and user-defined micro-nutrients.

QUEFTS is meant to provide solutions for some practical problems arising in quantitative assessment of native soil fertility for land evaluation.

Therefore, the QUEFTS model has various concepts of soil fertility built into it.

These concepts provides conceptual insight into the basics of soil fertility emphasizing its chemical side. Once these concepts are understood, the QUEFTS model provides a diagnostic tool

to analyse experimental data, recommend fertilisers and cross-check theoretical ideas.

QUEFTS applies a semi-mechanistic approach to asses how crops respond to various nutrients. It distinguishes itself from other fertiliser recommendation tools by its ability to account for interactions between nutrients.

QUEFTS applies the 4 quadrant approach resulting in clear and logical steps going from soil parameters to crop yields. The software comes with a standard calibration. After local validation, the tool needs only four input parameters which are commonly available, visualising soil organic C content, pH-H<sub>2</sub>O, exchangeable K, available P (P-Olsen) and average soil temperature.

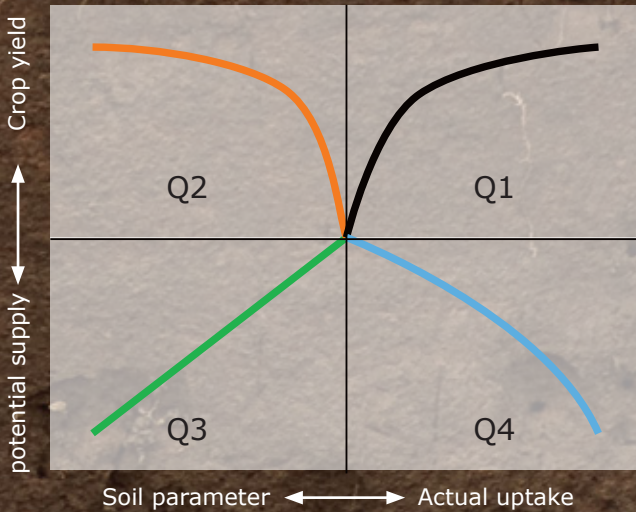
*'QUEFTS has been successfully applied under a wide range of conditions, and in various locations in South-East Asia, South America and Sub-Saharan Africa.'*

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**Four-quadrant diagram  
from soil parameter to crop yield**



- Q1: Crop yield vs Actual uptake
  - Q2: Crop yield vs Soil parameter
  - Q3: Potential supply vs Soil parameter
  - Q4: Actual uptake vs Potential supply
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## Contact & more information

Dr. Marius Heinen

E [marius.heinen@wur.nl](mailto:marius.heinen@wur.nl)



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