

Webinar Soil management and Land planning, 24th of January 2025



Soil health measurement in rural areas : gaps, needs, challenges and opportunities

In Wallonia, Belgium

B. Hardy (CRA-W), E. Goidts (SPW), C. Vandecasteele (ARIES), A. Delfairière (ARIES), L. Vandebroek (ARIES), Y. Agnan (UCLouvain)



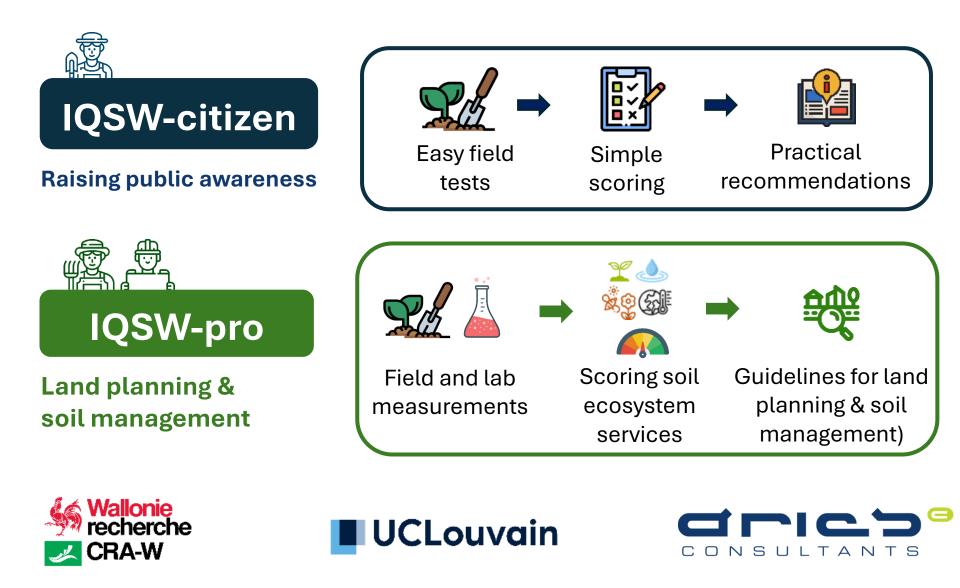




The IQSW project



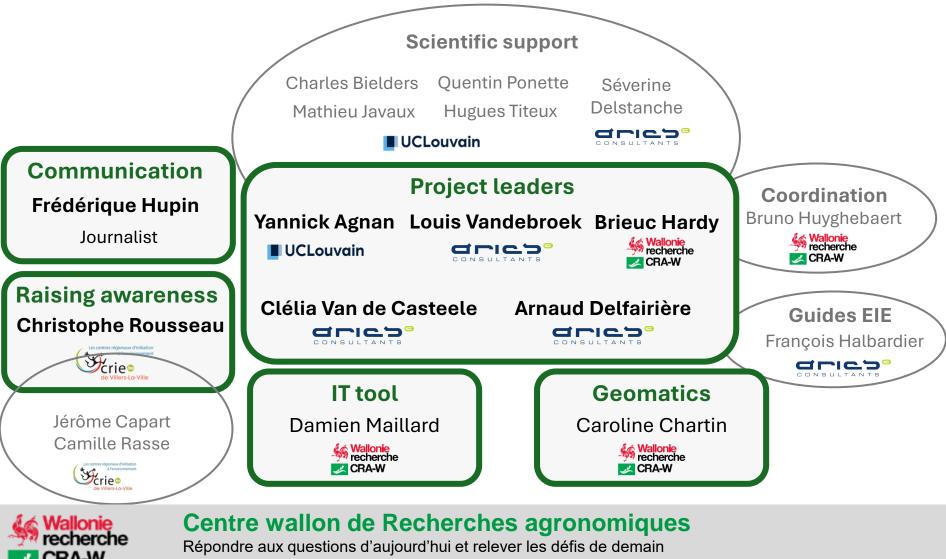
A tool to measure soil quality in Wallonia



The IQSW project



A multidisciplinary team to meet an ambitious goal...



www.cra.wallonie.be

The IQSW project

A participatory process...



- **Kick-off event** (April 24) : survey on stakeholders needs
- Workshops (June 24) : soil ES
 & indicators
 - Urban soils

and fears

- Forest and natural soils
- Agricultural soils
- Site identification for sampling and field tests
- Feedback on IQSW method an results for validation



Centre wallon de Recherches agronomiques

Répondre aux questions d'aujourd'hui et relever les défis de demain www.cra.wallonie.be



Measuring soil health in agricultural land



Specificity of soil management & threats



- Agricultural lands occupy the least restrictive soils in terms of slope, stone load, soil depth, water holding capacity... with few exceptions (ex. vineyards).
- Soil management aims to bring the soil to an optimal state for biomass production by inputs (fertilizers, amendments, pesticides) or mechanical interventions (drainage, tillage)
- Agricultural soils face multiple threats of degradation (soil loss, SOM loss, biodiversity loss, pollutions, excess of nutrients, compaction, ...)
- Agricultural lands are particularly vulnerable to land take (accessible, flat, free of perennial vegetation, ...) !



Centre wallon de Recherches agronomiques Répondre aux questions d'aujourd'hui et relever les défis de demain www.cra.wallonie.be

Measuring soil health in woodland



Specificity of soil management & threats



- In Wallonia, most forest occupy soils having limiting factors for agricultural production (steep slope, sandy soil, high stone load, wetlands, ...)
- Three species grown is adapted to the terroir, according to its water and nutrient requirements
- Forest soils face specific threats of degradation (soil compaction, soil acidification unbalanced nutrient export)
- Accordingly, specific needs exist :
 - Intervention planning tool based on weather conditions and soil bearing capacity
 - Effective approach to assess compaction;
 - Effective rules for forest partitioning
 - Alternatives to conv. skidding: horse skidding, wiring

Wallonie recherche CRA-W Centre wallon de Recherches agronomiques

Répondre aux questions d'aujourd'hui et relever les défis de demain www.cra.wallonie.be

Measuring soil health in rural areas



Needs & opportunities



- **Taking into account soil ES that have no monetary value** (water regulation, biodiversity conservation, climate regulation) together with monetary ES (biomass production, physical support).
- **Protecting agricultural & forest soils against artificialization!** Objective measures of soil quality/soil health beyond pollution may help respecting the principle of prioritization of uses (natural and agricultural uses before artificial uses) !
- Currently, the Walloon Soil Decree (ruling soil pollutions) makes it more difficult to re-use artificialized areas than artificializing healthy soils. A paradigm shift in soil management is needed to meet the objective of zero net land take.



Centre wallon de Recherches agronomiques Répondre aux questions d'aujourd'hui et relever les défis de demain www.cra.wallonie.be

Measuring soil health in rural areas



Needs & opportunities



- Improve the management of excavated soils, beyond the pollution criteria.
- Provide threshlods/target values of soil quality for neosols
- Improve soil knowledge for a better soil management against external pressures (increasing occurrence of extreme climatic events, new pests, ...)
- Currently, analysis of soil chemical fertility and regulated pollutants is routinely available. An access to quantitative soil physical and biological indicators is missing.



Centre wallon de Recherches agronomiques Répondre aux questions d'aujourd'hui et relever les défis de demain www.cra.wallonie.be





ContactWebsiteb.hardy@cra.wallonie.behttps://iqsw.be/





Centre wallon de Recherches agronomiques

Répondre aux questions d'aujourd'hui et relever les défis de demain **www.cra.wallonie.be**