

The SOILAssist sensor system – Linking the mechanical load of agricultural machines with changes in soil properties?

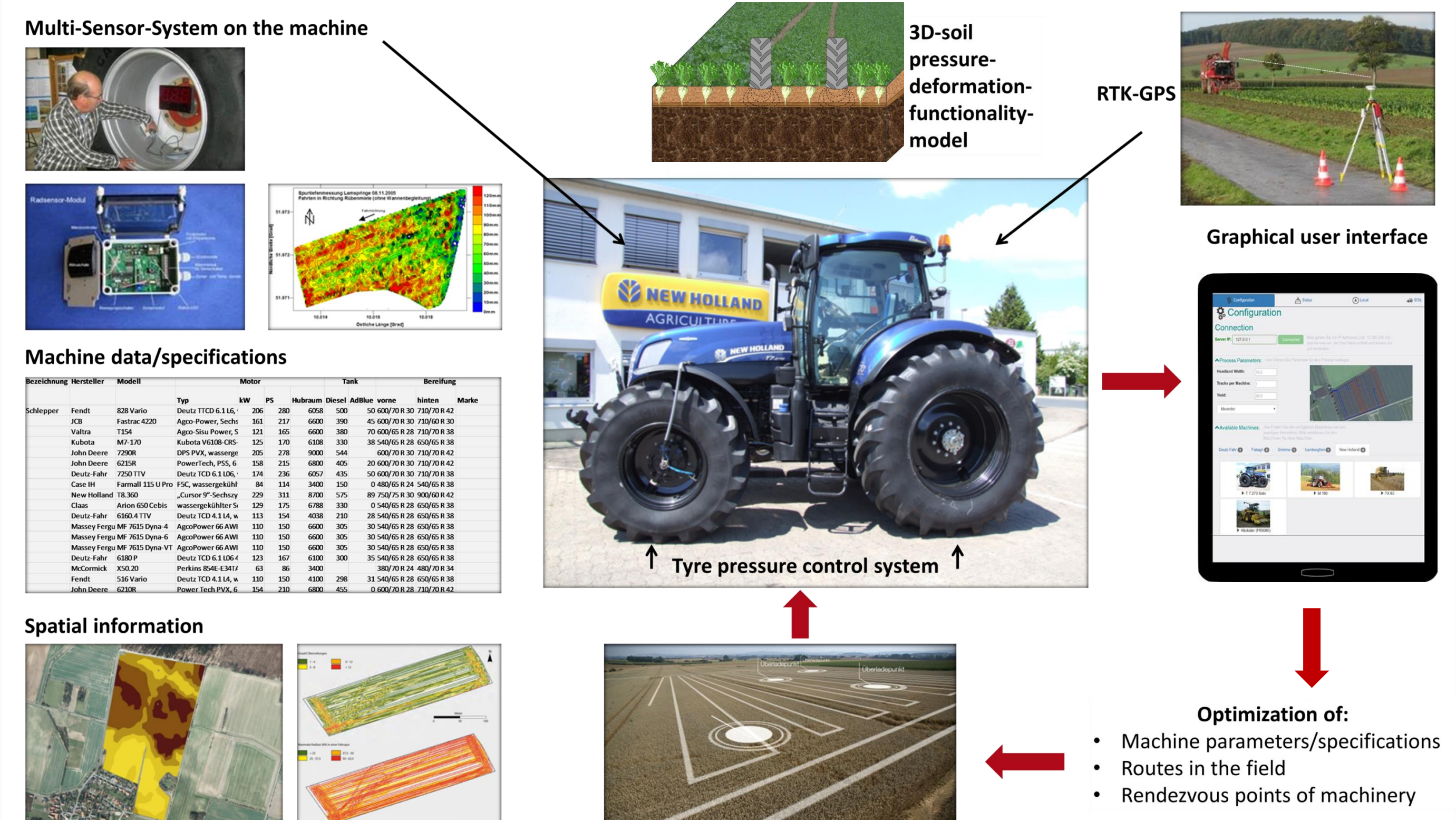
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The SOILAssist sensor system

- The sensor system is part of the SOILAssist assistance system
 - Totally it consists of 6 ultrasonic sensors:
 - one ultrasonic sensor in every tire to measure the tire deflection
 - one ultrasonic sensor under every axle to measure the track depth
 - additionally a pressure sensor and a temperature sensor are placed in every tire to measure tire inflation pressure and temperature
 - Furthermore machine data (e.g. used fuel, engine load, speed, wheel slip) will be used via ISOBUS
- The overall aim is the tracking of field traffic induced dynamic soil load, from the particular machinery to the subsoil, and the specification of the effects on soil functionality in layered soils.



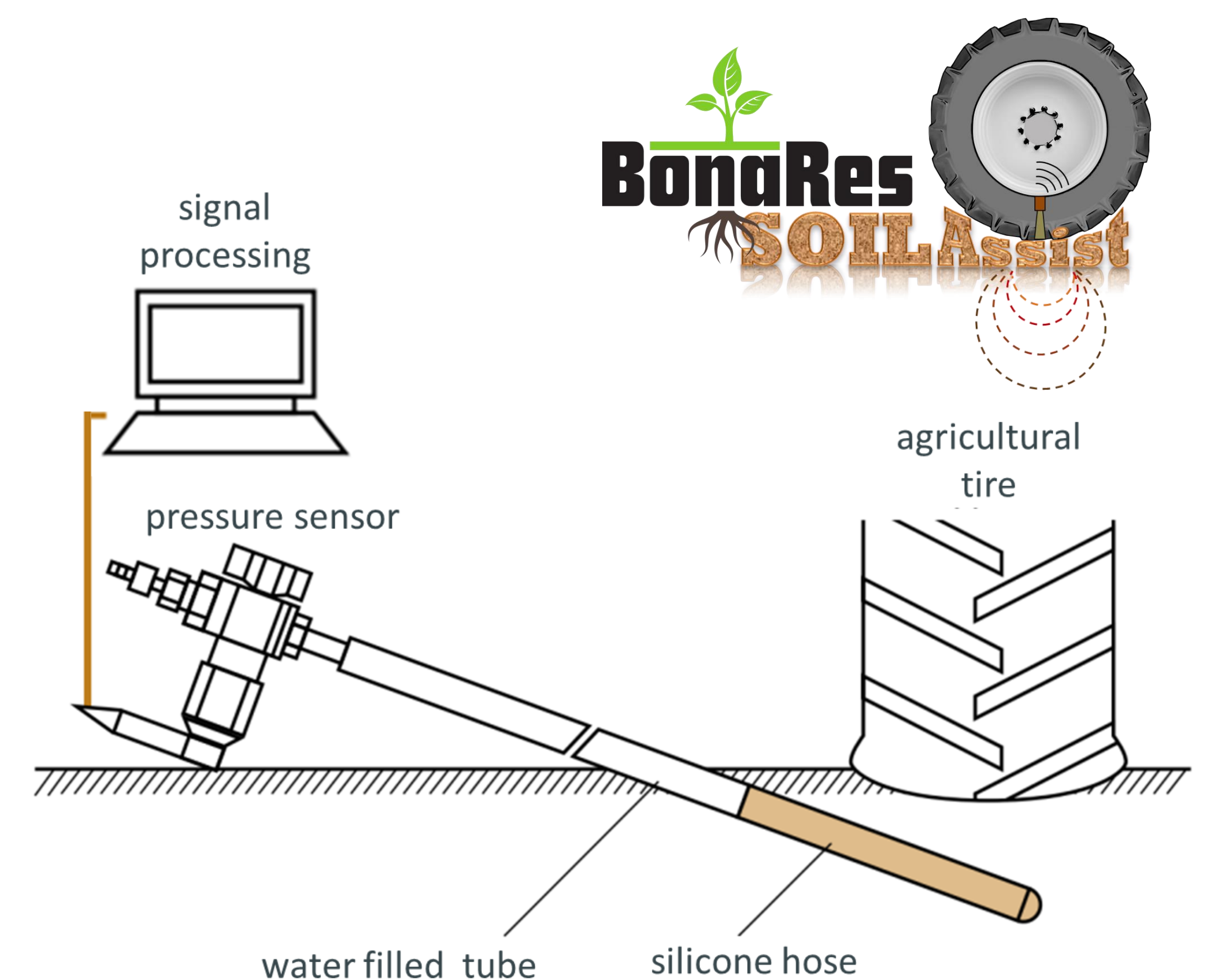
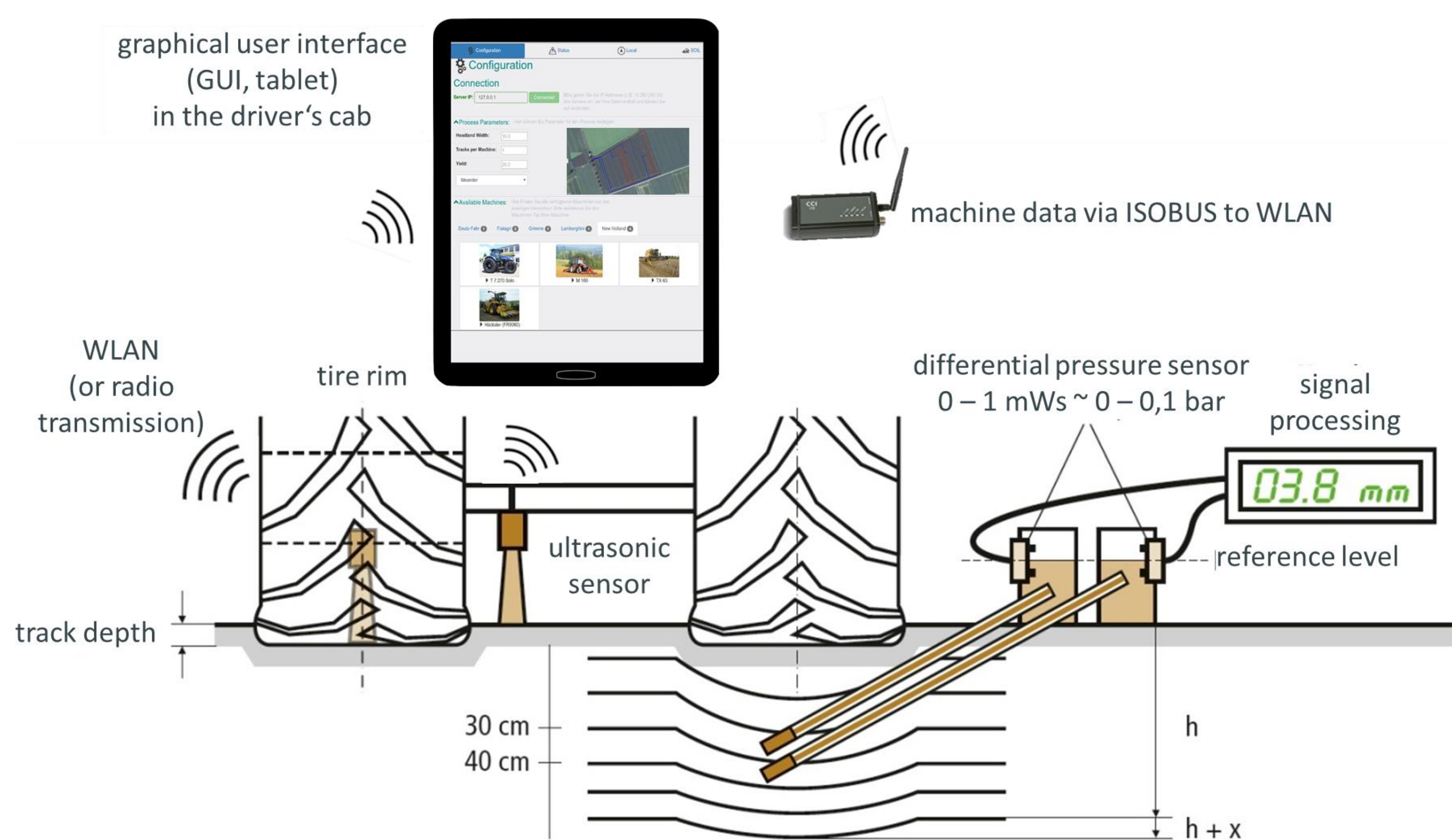
The SOILAssist assistance system



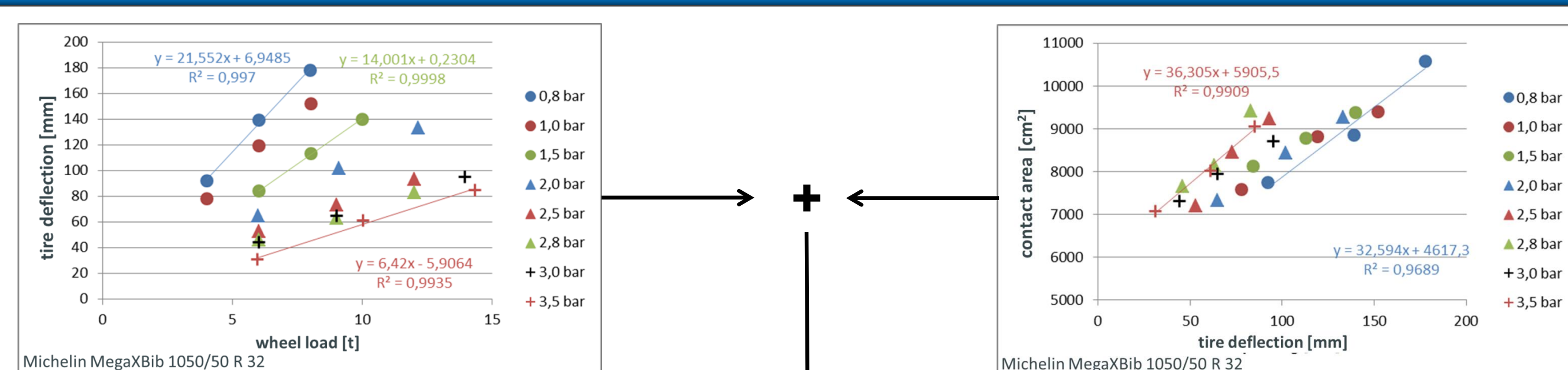
SOILAssist sensor system

soil deformation

soil pressure

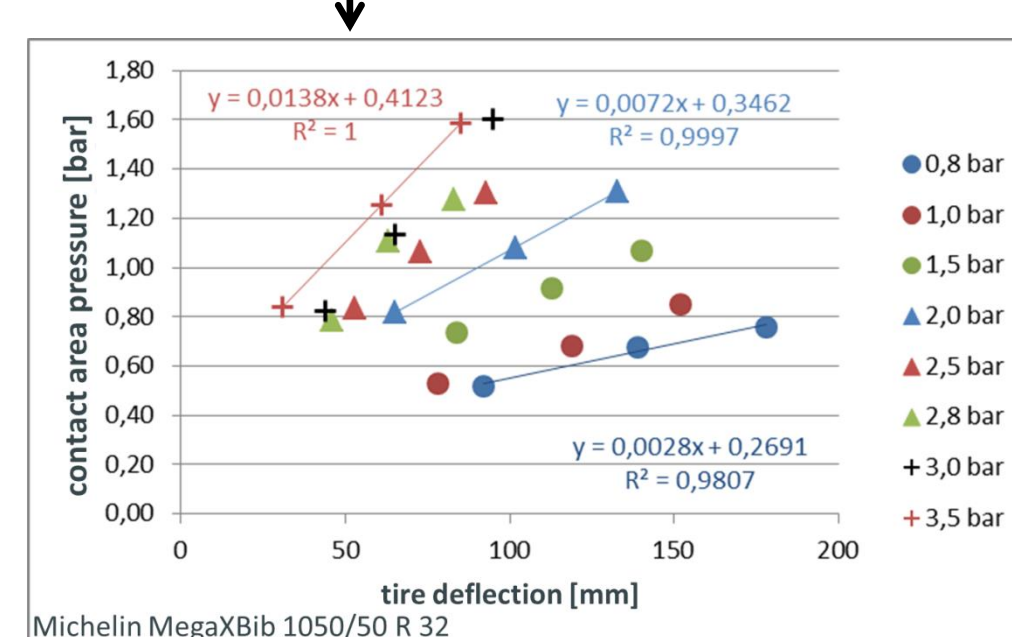


tire deflection – contact area pressure

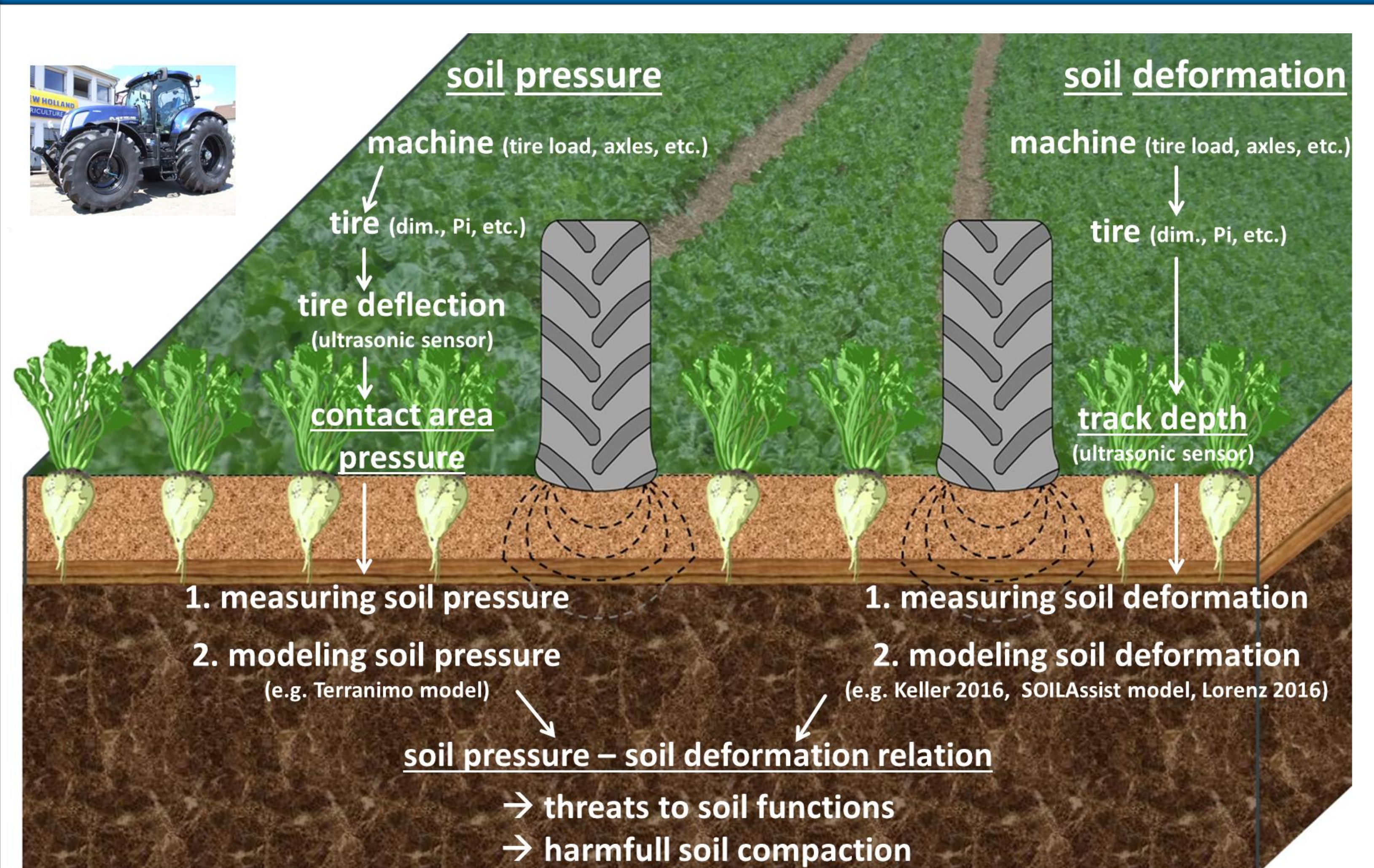


The correlations between tire deflection and contact area pressure, depending on wheel dimensions and tire inflation pressure, will be used to determine the dynamic wheel load and contact area pressure during field traffic.

Contact area pressure and track depth are the initial values at the soil surface to link the mechanical load of machines with changes in soil properties and soil functions.



from machines to soil functions



SOILAssist is a part of the German research program „BonaRes – Soils as Sustainable Resource for the Bioeconomy

This project is supported by BMBF BonaRes (grant no. 031A563A)

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