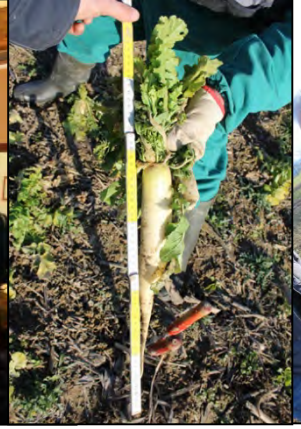




# Italian study site



Padova University (UNIPD) - Legnaro / Veneto Region

*Prof Antonio Berti*

*Dr Ilaria Piccoli*

*M.Sc Felice Sartori*

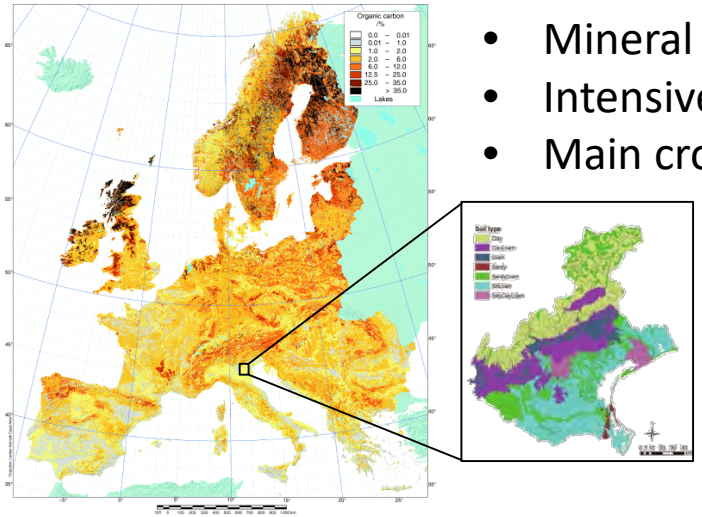
*Dr Riccardo Polese*

SoilCare

SOILCARE FOR PROFITABLE AND SUSTAINABLE CROP PRODUCTION IN EUROPE

www.soilcare-project.eu

# Veneto Region




- Mineral soils
- Intensive crop production
- Main crops: cereals

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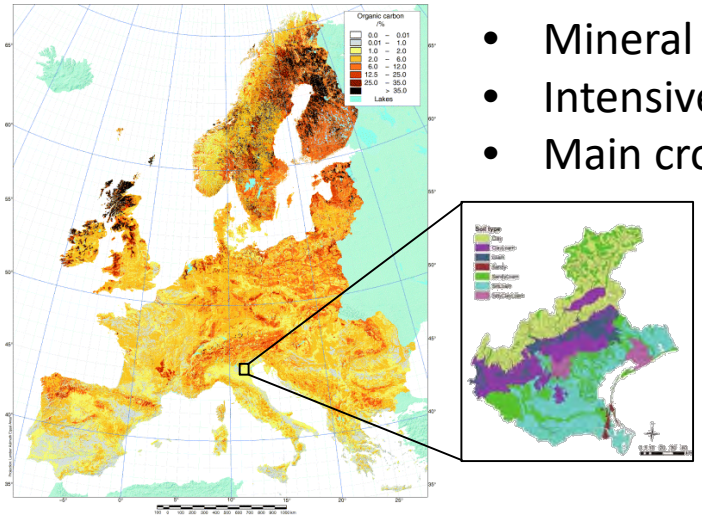


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**Soil treats**

- Organic matter decline
- Compaction

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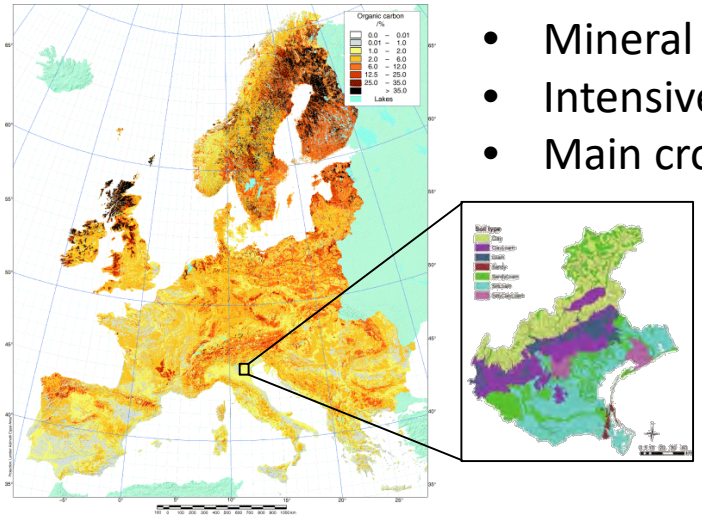


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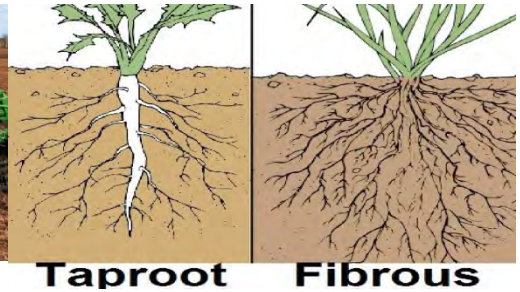
reduced tillage + winter cover crop



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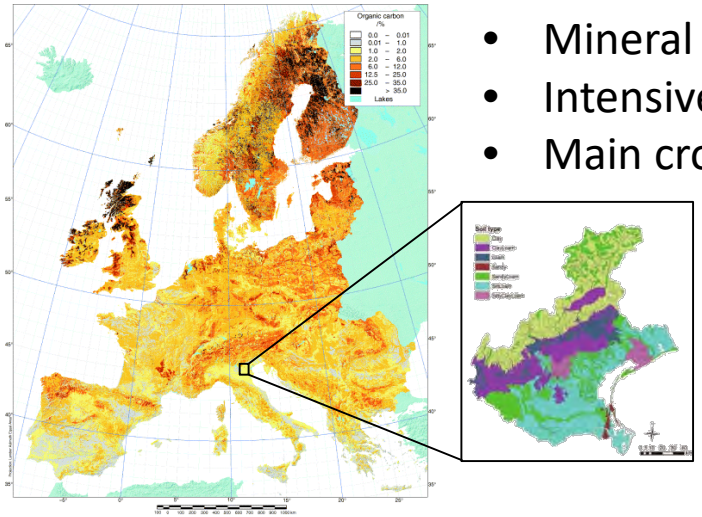


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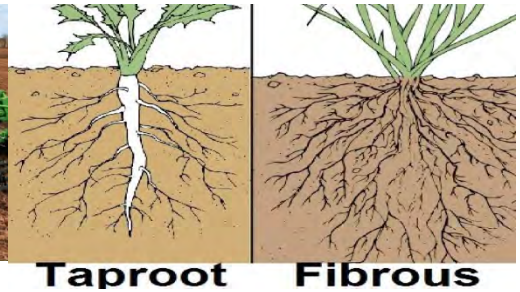
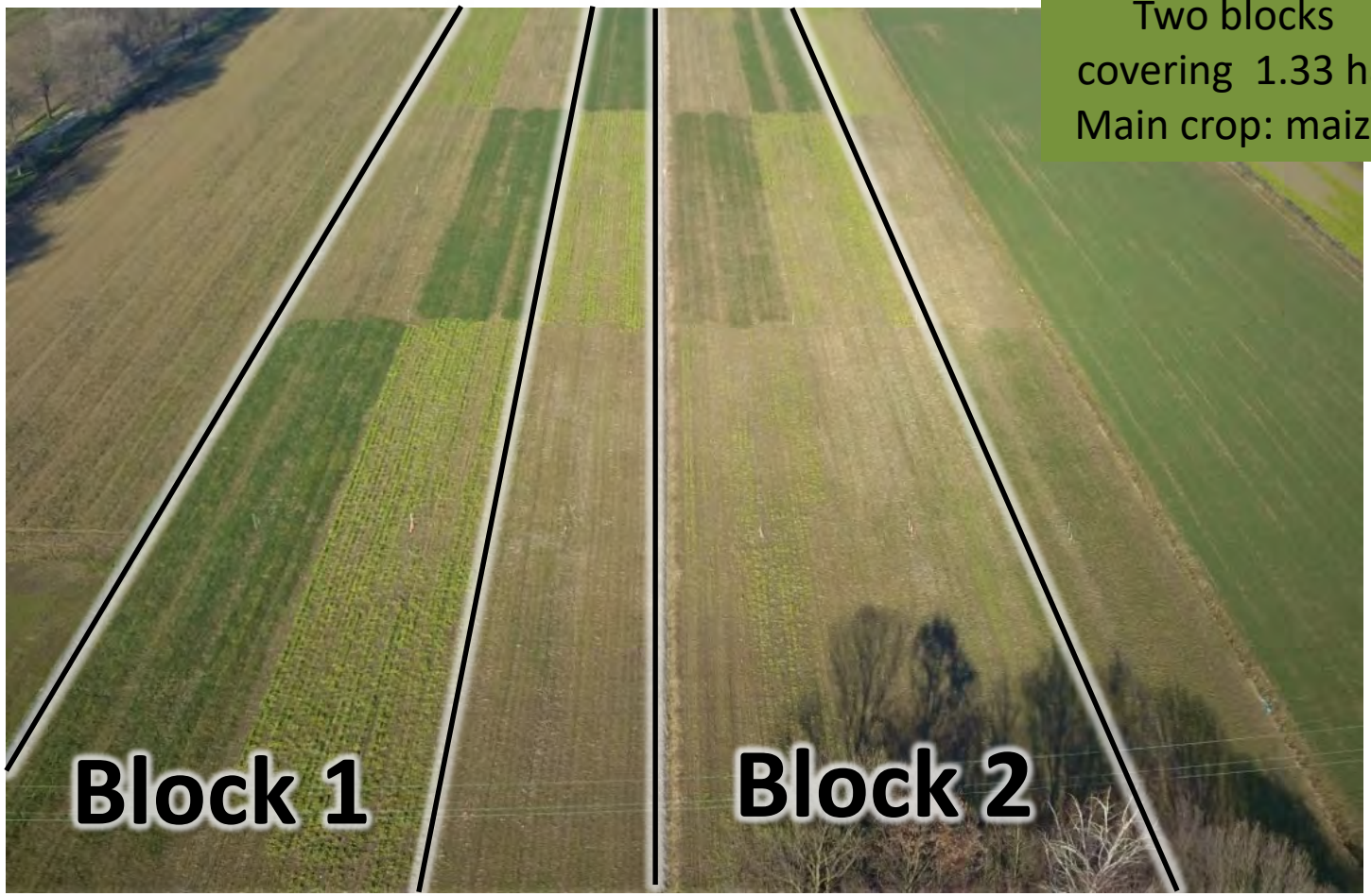



**Expected benefits**

- Soil aggregates do not break up
- Natural decompaction
- SOC input

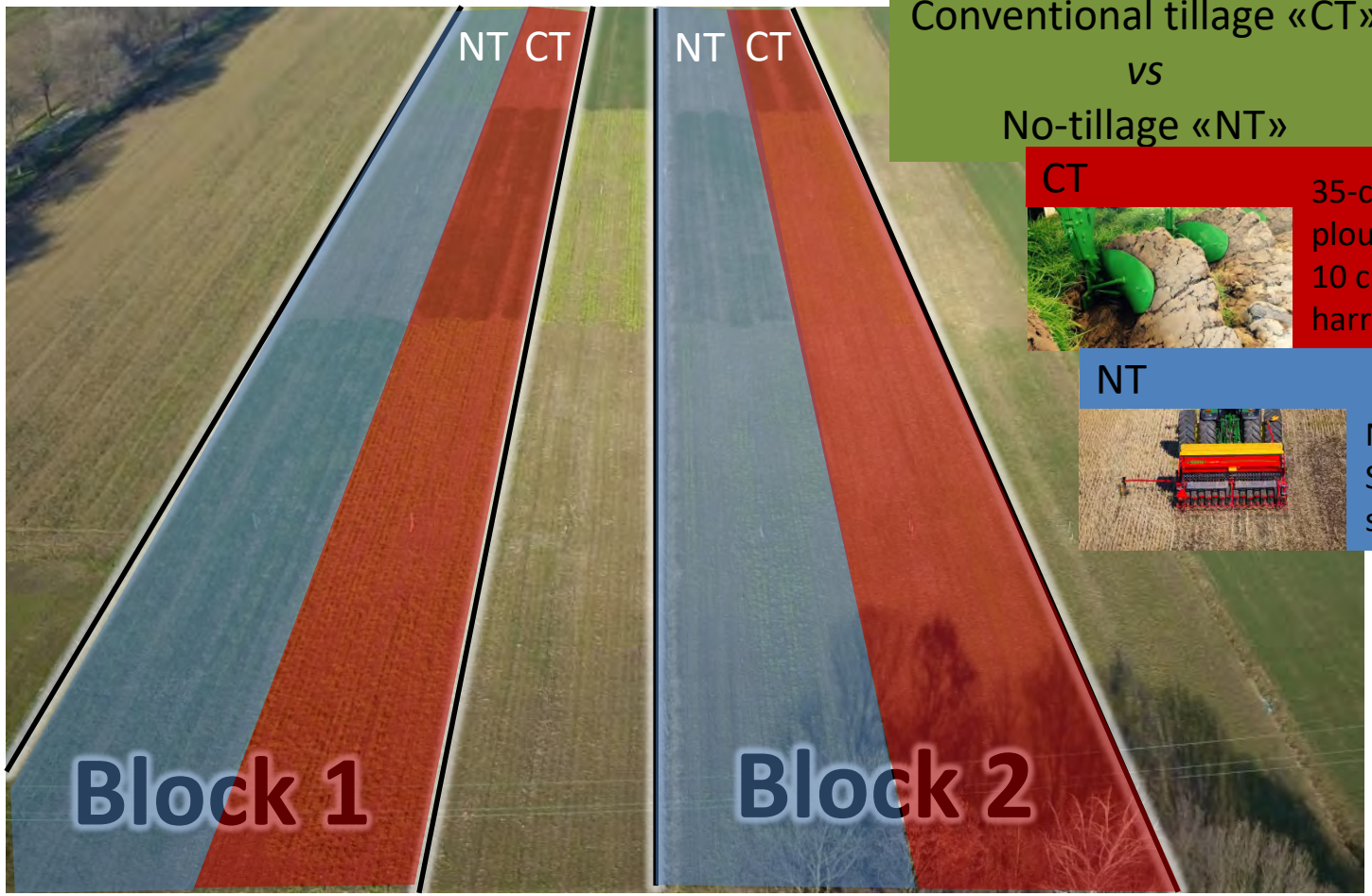
Positive effect on soil structure and maize yield

# Split-plot design




Two blocks
covering 1.33 ha
Main crop: maize

# Splitting factor: tillage




Conventional tillage «CT»
*vs*
No-tillage «NT»

**CT**



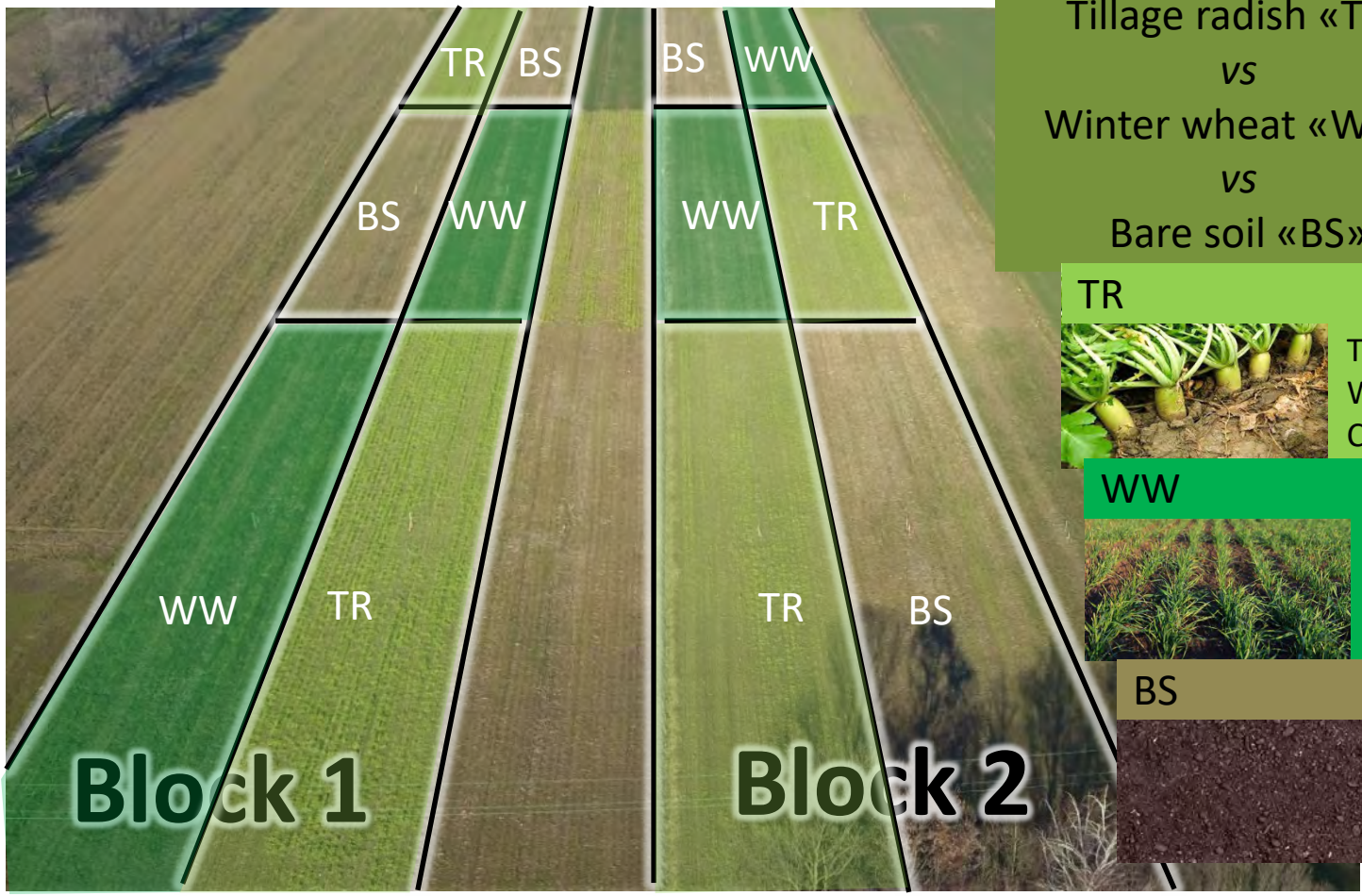
35-cm ploughing
10 cm disk harrowing

**NT**



No-tillage
Sod seeding

# Subplot: soil covering




Tillage radish «TR»
*vs*
Winter wheat «WW»
*vs*
Bare soil «BS»

**TR**



Taproot
Winter killed
Crop residue

**WW**



Fibrous root apparatus
Crop residue

**BS**

Crop residue only

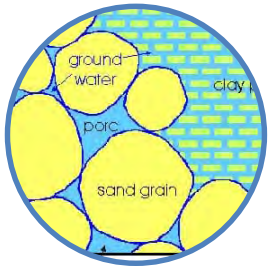
# Measured properties

**Biological**

- Crop yield
- Soil coverage
- Weed abundace
- Weed species
- Earthworm number

**Chemical**

- Soil organic carbon
- Available P
- Mineral N
- Exchangeble bases




**Physical**

- Soil water content
- Bulk density
- Penetration resistance
- Hydraulic conductivity
- Aggregate stability

# Selected measured properties

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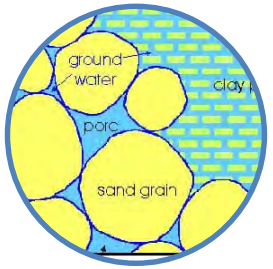


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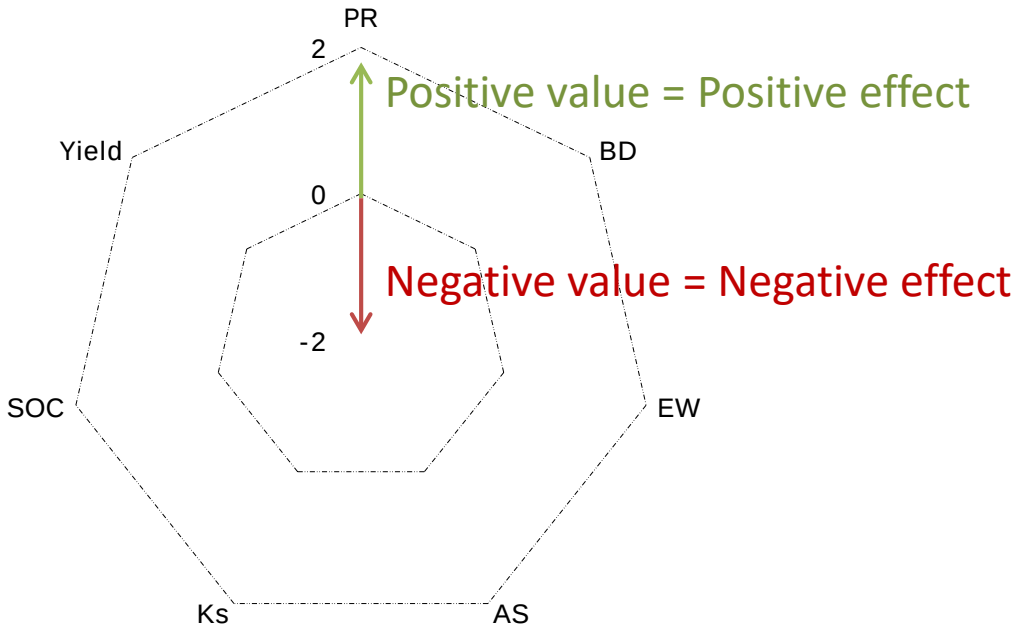
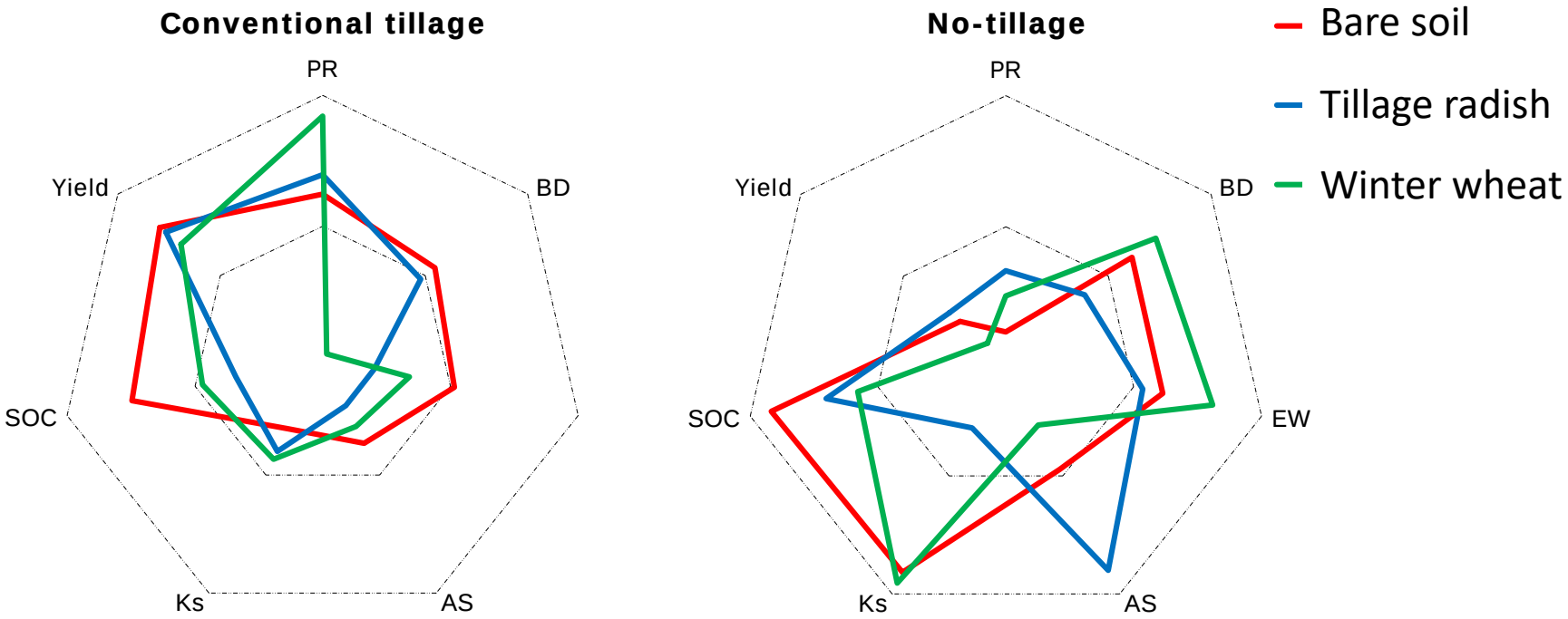
# Graphical representation of selected properties




**PR**: penetration resistance; **BD**: bulk density; **EW**: earthworm density; **AS**: aggregate stability; **Ks**: saturated hydraulic conductivity; **SOC**: soil organic carbon

# Monitoring results on selected properties

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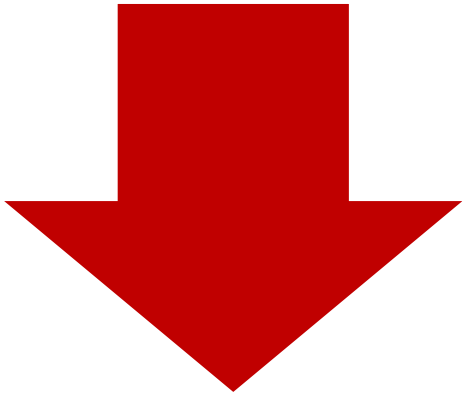
# SICS promotion or prevention in the Region



**Prevent**

- Weed management under no-tillage
- Tillage radish needs additional management (e.g., seeding)
- Transition period (from conventional to no-till) length
- …

# SICS promotion or prevention in the Region

**Prevent**

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**Promote**

- Benefits in terms of soil health
- Presence of multidisciplinary network and field days
- Subsidies with flexible prescriptions
- …

# THANK YOU FOR THE ATTENTION

Contact: ilaria.piccoli@unipd.it