

Soil health

What is it?

Healthy soils are important for the future of crop production in Europe and healthy crop rotations are a pre-requisite to maintain, improve or restore soil health. Nematodes and soil-borne pathogens are causing a threat to soil health. The decision support tools developed by the EU thematic network Best4Soil help the sustainable control of these threats.

Crop selection

How does it work?

Crop rotation

- Farmer sees strange symptoms in the field
- Takes a soil sample. Soil analysis shows problematic nematodes
- Uses the Best4Soil Decision Support Tool
- Selects the crops and makes an output scheme
- Decides on measures to take

Control measures

Outcome

The farmer can take informed decisions for the control of pests & improve soil health

Non-chemical control measures

- Change order of crops
- Replace a susceptible variety with a resistant variety or choose an alternative crop
- Include resistant green manure/cover crops in the rotation
- Grow Tagetes for active control of *Pratylenchus penetrans*
- Apply anaerobic soil disinfection
- Apply inundation

Impacts

- Increases biological soil health
- No use of chemical soil disinfection

	Cyst nematodes		Root-knot nematodes		Root lesion nematodes		Stem nematodes		Free-living root nematodes	
	<i>Globodera pallida</i>	<i>Globodera robusta</i>	<i>Meloidogyne arvensis</i>	<i>Meloidogyne chthonica</i>	<i>Pratylenchus brachyurus</i>	<i>Pratylenchus neglectus</i>	<i>Pratylenchus penetrans</i>	<i>Ditylenchus dipsaci</i>	<i>Ditylenchus dipsaci</i>	<i>Ditylenchus dipsaci</i>
Potato	***	***	***	***	***	***	***	***	***	***
Beet (sugar, fodder)	***	***	***	***	***	***	***	***	***	***
Barley	---	---	---	---	---	---	---	---	---	---
Japanese/Black oat	---	---	---	---	---	---	---	---	---	---
Mustard	---	---	---	---	---	---	---	---	---	---

Legend damage	Legend propagation	Legend soil type
unknown	active decline of population	1 sandy soil
none	host plant suitability unknown	2 reclaimed peat soil
little (0-15%)	root host	3 sandy clay loam
medium (16-35%)	poor host	4 clay soil
serious (36-100%)	moderate host	5 silty soil (loess)
	good host	
	variety dependent	
	serotype dependent	
	some information	