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**Why are they important?**
- Annual loss of 110 billion EUR in global food production
- Root knot nematodes and potato cyst nematodes are at 1. and 2. place among top 10 high-impact plant parasitic nematodes
- RKN and PCN account for more than 5% of global food losses

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**Methods of spreading?**
- low motility (up to 1 meter in soil)
- most common vectors are farming equipment and shoes
- infested planting material

**Current methods of identification?**
- visual inspection of roots and tubers
- laboratory analyses for species identification
- invasive and impractical for large scale use
- effects on canopy are non-specific and are identical to signs of drought or nutrient depletion

**There is a clear need for early detection of infestations with high spatial accuracy for effective management.**

**Why remote sensing?**
- enables accurate determination of plant health status
- enables differentiation between abiotic and biotic stress
- can be applied over large areas using UAVs, airplanes and satellites
- different parts of the light spectrum reflected off plants carry different information

**Main goals of the project**
- bridge the gap between science and implementation
- pilot case study using hyperspectral, multispectral and thermal imaging on different platforms and spatial scales to detect nematode infestations
- pilot case study focused on two root knot nematode and two potato cyst nematode species, and two potato varieties
- organise workshops and seminars for NPPOs and other stakeholders
- prepare a monography on remote sensing applications for nematode infestation detection
- prepare guidelines for NPPOs for implementing remote sensing applications

**The visible, near infrared, and short-wave infrared light spectrum and the information it carries**

**A hyperspectral data cube; each pixel carries information from the visible, near infrared, and short-wave infrared light spectrum**