

# The Effect of Composting on *Synchytrium endobioticum*, the Organism Causing Potato Wart Disease

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- Potato waste might be contaminated with quarantine pests like *Synchytrium endobioticum*, the organism causing potato wart disease
- Sanitation of organic waste prior to application on arable land is required by German law
- Composting is an approved method to sanitise waste
- The efficacy of this measures concerning robust quarantine pests has still to be proven
- Aim of the project: To study the effect of composting and pasteurisation on quarantine pests of potato



Picture: Stachewicz

Potatoes infected with *Synchytrium endobioticum*

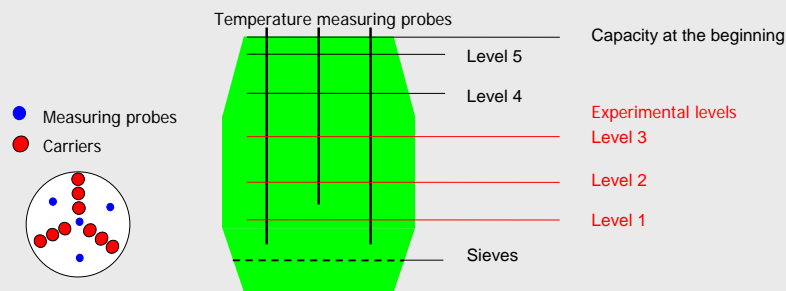
## Experimental set up in 60-L-Composter

- Samples: silica sand containing resting spores of Se
- Composting substrate: potato waste mixed with compost at a ratio of 2:1
- Conditions: 2 months T < 50 °C n = 54  
12 days T > 60 °C n = 27



PE Gauze  
pore size 17 µm

Sample carrier to introduce the pathogen into the process



Scheme of composter and of carriers arrangement at various experimental levels

## Analysis



- Extraction of resting spores with wet sieving



- Analysis of spore suspension with stereo microscope for
  - filled (vital) resting spores



- empty (dead) resting spores



- Bioassay with potato tubers
  - Rating for warts at potato germs
  - Conditions: 12 weeks at 16 h light and 15 °C

## Results and Conclusion



Viable and dead (with arrow) resting spores after composting for 2 months at T < 50 °C



Freshly grown warts (white arrows) at potato tuber germs after composting for 2 months at T < 50 °C

### Composting for 2 months, T < 50 °C:

- Filled (viable) resting spores could be found
- Freshly grown warts were detected after bioassay

### Composting for 12 days, T > 60 °C:

- Filled (viable) resting spores could be found
- Bioassay has not yet been finished

- ❖ Current results indicate that composting is no adequate measure to sanitise potato waste and to prevent potential spreading of Se
- ❖ Alternative methods have to be proven