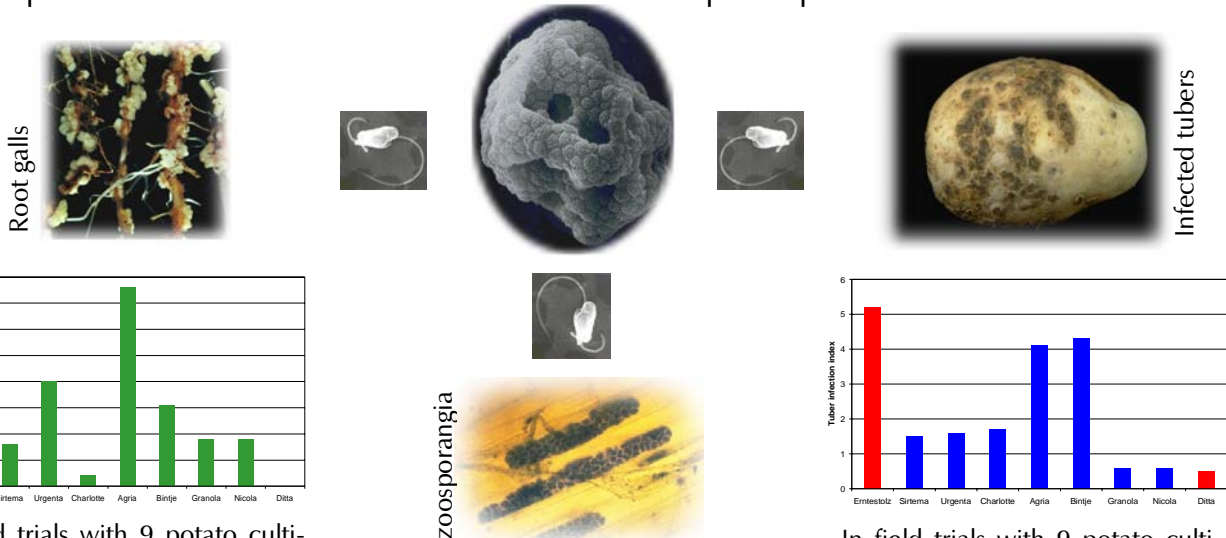


Potato cultivars - is there a relationship between root and tuber resistance levels to infection by *Spongospora subterranea* f.sp. *subterranea*?

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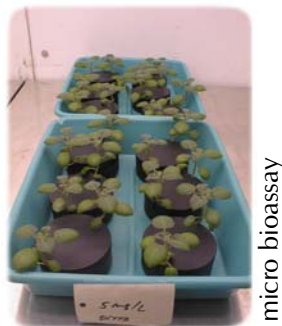
The protozoan pathogen *Spongospora subterranea* f.sp. *subterranea*, a soilborne organism, causes the powdery scab potato disease. Zoospores, the infection units, are released from the 500-1000 single spores of the resting sporeballs. Tuber infection, the most important one, reduces quality, yield and consequently, profit. Root and stolon infection can produce galls containing resting spores which, once liberated, increase soil infestation. Finally root infection also results in zoosporangial production whereas the zoo-



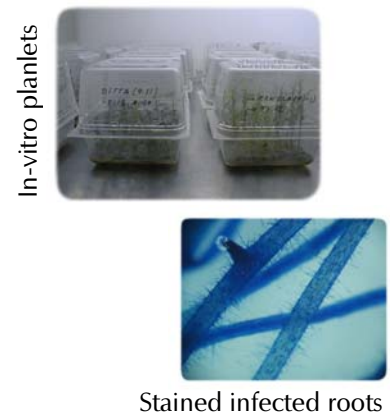
In field trials with 9 potato cultivars, different levels of root resistance to galling were found but no relationship to the level of tuber infection index (see right)

Screening for tuber and galling resistance against powdery scab is mostly done in field trials which are expensive and laborious. So simpler and faster test methods have a clear economical advantage and, if lab based, are weather-independent.

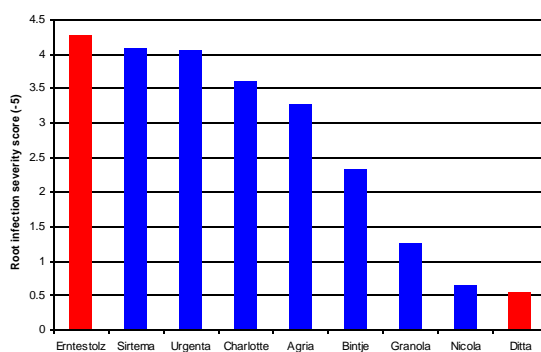
In field trials with 9 potato cultivars, different levels of tuber resistance were found but no relationship to the level of root gall index (see left)



A bioassay has been adapted to assess *Spongospora* zoosporangial root infection of in-vitro plantlets of 9 different potato cultivars. Roots were stained and infection level scored under the microscope.



A clear difference in zoosporangial root infection between cultivars was observed but no relationship with root galling susceptibility. A different picture was obtained when compared with the tuber infection data. The most susceptible cultivar and the least susceptible ones



were the same in field and lab.

The test has the potential to identify new breeding lines resistant to powdery scab in a fast and economic pre-screening procedure. Furthermore it is possible to test resistance performance against different pathogen strains.