

Dickeya and *Pectobacterium* species in potatoes: What should we tell to farmers?

Yeshitila Degefu, MTT Agrifood Research Finland, Biotechnology and Food Research, Agrobiotechnology Team, Paavo Havaksen tie 3, P.O. Box 413, 90014 University of Oulu, Finland.

Blackleg and soft rot of potatoes are caused by bacteria belonging to *Pectobacterium* and *Dickeya* species. For many years, three species currently named as *Pectobacterium atrosepticum*, *Pectobacterium carotovorum* and *Dickeya* spp have been known to cause the disease complex. However, studies in that last decade reveal more species and strains are involved in the complex causing outbreaks in parts of the world where they did not occur before. The establishment and very fast spread of *Dickeya solani*, *Pectobacterium wasabiae*, and blackleg causing strains of *Pectobacterium carotovorum* in Europe are among the current potential threats to the potato industry. What does this diversity of causal agent of a disease complex mean in practice? Is the potato industry facing new challenges?

The blackleg bacteria survive poorly in soil. Although there are indications that the bacteria survive in surface water and in the soil environment, all the evidences suggest that the blackleg bacterium does not survive very well outside of the host plant tissue. Hence, the seed tuber is the most important source of inoculum in the blackleg disease cycle. Hence, disease management depend mainly on cultural measures and the use of tissue culture derived plantlet and minitubers Whereas these measures helped to maintain some level of control, field infections on first generation minitubers grown from plantlets in protected environment are not uncommon. This raises the serious question, where and when the contamination occurred? So far no conclusive evidence is available whether the pathogens survive in hosts other than potato such as weeds. Do the bacteria survive in soil and irrigation water below the threshold level of detection? These issues warrant investigation to address farmers' practical questions and the actual dilemma of the blackleg and soft rot complex. This presentation is not attempting to suggest solutions to all these issues but provoke discussion along the lines of the most frequently asked questions by plant disease inspectors, agricultural advisory service providers and producers and streamline future targeted investigations. Results of studies conducted towards addressing some of these problem areas will be presented.