

Title Biology and management of microbial biofilms on plant surfaces
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Abstract

Biofilms are communities of microorganisms growing within a self-produced extracellular polymeric matrix, and in association with a surface. Cells within a biofilm frequently have measurable, or observable, phenotypes that are distinct from comparable cells growing in more solitary or free-floating (planktonic) conditions. For example, cells within a biofilm are frequently able to survive antibiotic or biocide treatments that are lethal to comparable planktonic cells. Descriptions of biofilms formed by phytopathogenic bacteria and fungi have confirmed that, in some cases, plant disease management strategies may need to be effective against biofilms. Development of high through-put technologies, such as the MBECTM and BESTTM plate assays for rapid culturing and assessment of microbial biofilms, have greatly accelerated the ability to screen for anti-biofilm compounds and treatments. Furthermore, use of these assays has facilitated characterizations of cell populations and growth stages within biofilm development for single and mixed species biofilms. Technology and information developed through this type of biofilm research has significant potential to support the identification and development of novel, effective biocontrol strategies.