



THE BIOLOGY OF FUNGAL PATHOGENS Vol. 3: Fungal Pathogens and Diseases of Cereals (3)

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3.1 Barley Leaf Spots – Fungal Disease or Stress Response? (14:00 min)

Necrotic leaf spots on barley caused by abiotic or biotic factors have gained considerable importance in some regions where the crop is grown. This disease complex may significantly affect yield and represents a challenge both to proper diagnosis and disease management. A new biotic barley disease caused by the fungal pathogen *Ramularia collo-cygni* causes necrotic leaf spots. The video illustrates the life cycle of the pathogen and differentiates the disease symptoms and etiology from abiotic leaf spots, the so-called 'physiological leaf spots' (PLS). PLS are induced by a complex of environmental stress factors including, excess irradiation, drought, air pollutants, or extreme temperatures, which cause elevated levels of free unscavenged oxygen radicals in the leaf tissue. The video represents the sequence of events leading from generation of toxic oxygen radicals to induction of cell death and necrosis. Finally the impact of modern fungicides on this leaf spot complex is represented, with special emphasis on physiological fungicide effects on the plant.

Recommendation: Although PLS/*Ramularia* appears less prevalent in North America as compared to Europe and Australia, this disease should not be overlooked. Because it is new and diagnostic expertise is scarce, the onset in North American barley regions may be similar to what's been seen in other regions of the world. Therefore, this video provides timely information to researchers, diagnosticians,rs in the United States and Canada.



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