Risk of serious anthracnose damage to stylo cultivars

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In Australia, the anthracnose fungus has adapted to attack previously resistant cultivars, resulting in the demise of once productive Townsville, Fitzroy, Endeavour, Graham and Cook stylos, among others. As a result, commercial seed of only 5 cultivars is now produced, although 12 have been released. Seca, resistant to all known races of anthracnose at its release, was affected by a new race within 5 years. These examples reinforce the view that the threat to our stylo-based pastures from new anthracnose races cannot be ignored.

This threat may come from within Australia, where 4 races within each of the 2 biotypes of the fungus may change to damage newly released cultivars. The recent discovery of a new biotype, which arose through a genetic change in one of the races, is a case in point. We already know that, as cultivars such as Seca are grown over a period of time, frequency of the Seca race increases relative to other races. For example, at a site near Calliope, the frequency of the Seca race increased from 26% to 49% between 1991 and 1994. Whether this will lead to the selection of a more damaging race on Seca, as the area under Seca continues to expand, is not known.

The Australian population of anthracnose represents only a small part of the overall genetic diversity found in its centre of origin in South America. There is a potential risk of damage to our cultivars from races, which may be accidentally introduced from overseas. Research is needed to characterise the diversity that exists in global populations of the fungus, so that the full genetic potential of the fungus to change is well understood. Studying the evolution of the fungus in Australia, and field surveys to detect the appearance of new races, must be a part of ongoing research. As stylo technology relies mainly on a few selected cultivars such as Seca, there is an urgent need to establish the potential risk of serious damage from a new pathogenic race accidentally introduced into Australia and/or evolving locally.

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