Dead, not gone: weed residues revealed as an inoculum reservoir for multiple *Diaporthe* species

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Summary Unincorporated weed residues are commonly found in zero and low till cropping systems where herbicides are used for weed control. Although living plants are well recognised as playing a role in the 'green bridge' which facilitates transmission of diseases to crop hosts between seasons, the role of weed residues as a 'brown bridge' in aiding the survival of some groups of pathogens has not been previously studied.

Diaporthe species are responsible for producing damaging cankers on a range of crop hosts including sunflower, soybeans, and lupins. Until recently, *Diaporthe* species were considered to be host specific however this study shows that many *Diaporthe* species found in broadacre cropping systems survive on a range of live crop and weed host plants as well as on these plant residues. They have also been found in both live tissues and the residues of asymptomatic crop plants and weeds.

Molecular applications have revealed that cankers on a single host may be caused by a complex of species. Twelve previously undescribed *Diaporthe* species have been identified from a range of hosts in this study to date. Pathogenicity testing and host range studies are underway. The role of endophytic infection of both crops and weeds by *Diaporthe* species as an aid to survival also needs further investigation.

These findings have significant implications as even with effective rotational strategies, the overlooked weed residues on the surface are an effective 'brown bridge' between pathogenic *Diaporthe* species and crop hosts. Identification of additional asymptomic live hosts is also a priority.