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# Risk Assessment of *Puccinia jaceae* for Biological Control of Starthistles and Knapweeds

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Damage to purple starthistle, *Centaurea calcitrapa*, yellow starthistle, *C. solstitialis*, and diffuse knapweed, *C. diffusa*, from infection by *P. jaceae* was measured during evaluations for biological weed control. Disease severity data obtained from inoculations of certain non-target species are difficult to interpret in terms of risk. Strains of *P. jaceae* from *C. calcitrapa*, *C. diffusa*, and *C. solstitialis* are most aggressive on the *Centaurea* species of origin. Strains from each of these species also infect non-target *C. cyanus*, cornflower, and disease severity ratings on cornflower are comparable to ratings on the original host for each strain. As measures of damage from disease, biomass reduction was related to the number of infected leaves per plant and the rate of leaf senescence was related to the number of pustules/leaf. Results indicate the minimum number of infected leaves that cause biomass reduction differ for each host-strain combination. Also, the rate of leaf senescence increases as the number of pustules per leaf increases, but the maximum number of pustules/leaf, beyond which additional pustules have no greater effect, differs for each host:strain combination. Our evidence indicates that differences in these relationships are due to the interaction between each strain and its host of origin, since cornflower responds similarly to each strain *of P. jaceae* but biomass of cornflower is not reduced by any of the *P. jaceae* strains.