# Avoid Rejecting Safe Agents – What More Do We Need to Know? St. John's Wort in New Zealand as a Case Study

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## Abstract

St. John's wort beetles (*Chrysolina hyperici* Forster and *C. quadrigemina* Suffrian), were introduced to New Zealand (NZ) in 1943 and 1965 (respectively) to control St. John's wort (*Hypericum perforatum* L.), without any NZ-focused host range testing. The beetles produced one of NZ's greatest classical weed biocontrol successes. In a recent retrospective host range testing study we found that, under current safety standards, these beetle species would almost certainly have not been introduced into NZ. This is due to successful oviposition, feeding and development on indigenous *Hypericum* species. However, field surveys portray a more complex picture, with the indigenous *Hypericum* species possibly declining, but suffering little to none non target feeding by the biocontrol agents. This raises the question – what more do we need to know in order to better interpret risk apparent in artificial arenas in containment to improve risk assessment? Unusually, the response of some *Chrysolina* spp. to the secondary plant chemical hypericin in *Hypericum* spp. has been well-studied, but we show that this information would not have helped in *a priori* risk assessment. More positively, we discuss how knowledge of the seasonal phenology of the herbivores and plants, and the potential for direct and apparent competition between the target weed and indigenous congeners, could be used to improve agent risk assessment and perhaps avoid rejecting excellent and safe weed biocontrol agents in the future.

This study is now published and the full reference is:
Groenteman, R., Fowler, S. V., & Sullivan, J. J. (2011) St. John's wort beetles would not have been introduced to New Zealand now: A retrospective host range test of New Zealand's most successful weed biocontrol agents. Biological Control **57,** 50-58.