

## Bridal creeper – a serious weed of citrus orchards

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**Abstract** Bridal creeper (*Asparagus asparagoides* (L.) W.Wight) is one of the most serious weeds affecting the productivity and sustainability of citrus orchards, particularly in the Riverina, Sunraysia and Riverland irrigation areas of New South Wales, Victoria and South Australia.

A highly competitive and shade-loving species, bridal creeper grows beneath citrus trees where it climbs up to form dense canopies. The long, wiry stems grow vigorously and can completely smother small trees. In such instances, bridal creeper severely hampers tree growth and may indirectly kill trees by increasing their susceptibility to disease such as collar rot. On larger trees, fruit production is reduced as few fruit are borne on smothered branches. The dense bridal creeper foliage reduces air movement within the canopy, leading to increased humidity and *Septoria* spot on fruit. In addition, the large volume of dead stems serve as disease reservoirs for reinfestation by plant pathogens.

Bridal creeper is difficult and expensive to control. Traditional weed management practices in orchards have been largely ineffective, contributing to this weed's prevalence and continual spread. Many herbicides registered for use in citrus orchards are not highly effective against bridal creeper. The herbicides, glyphosate and metsulfuron-methyl will kill bridal creeper if applied to the foliage, however the risk of herbicide damage to citrus trees makes their use undesirable. Tillage exacerbates the problem as bridal creeper forms large underground tubers, which regenerate into more plants if broken up. Hand removal

is effective but short term. Birds aid in the dispersal of bridal creeper and reinfestation of citrus orchards from infested adjoining properties and public land puts continual financial pressure on orchardists trying to control this weed.

In recognition of the difficulty in controlling bridal creeper in natural ecosystems, the Australian and New Zealand Environment and Conservation Council initiated research into its biological control. A national program is being coordinated by the CRC for Australian Weed Management and involves five organisations across four states. Detailed host testing was conducted on three natural enemies of bridal creeper from South Africa, the leafhopper (*Zygina* sp.), the rust fungus (*Puccinia mysiphylli*) and leaf beetle (*Crioceris* sp.) (approval given in May 2002). As such AQIS and Environment Australia approved the releases of these agents into Australia in 1999, 2001 and 2002 respectively. These biological control agents are specific to bridal creeper and therefore no threat to commercial or native plant species.

Through support from the Murray Valley Citrus Marketing Board, the biological control of bridal creeper is being implemented throughout the Sunraysia area. Strategies for integrating biological control into orchard pest and weed management practices are under investigation. The biological control of bridal creeper in citrus orchards, when used as part of an integrated management system, is self-sustaining, permanent, safe, relatively inexpensive and desirable to consumers, and will improve the 'clean-green' image of the Australian horticultural industry.