Matching expectations and reality: Potential impact of biological control on flaxleaf fleabane

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Summary Flaxleaf fleabane (*Conyza bonariensis*) is a major weed of cropping in northern New South Wales and southern Queensland causing revenue losses in excess of $43 million for grain producers. Development of resistance to herbicides is making populations increasingly difficult to manage in these agricultural environments. Biological control is a potentially useful and valuable tool for the management of flaxleaf fleabane given the success of previous biological control programs against other weeds in the Asteraceae family such as *Parthenium hysterophorus* and *Chromolaena odorata.* In order to increase the likelihood of biological control being effective in the cropping context clear management expectations should be set. In addition to this, an agent which is determined to be safe for release ought to have a negative impact on the growth and fecundity of the plant. For these reasons while native range agent exploration is being undertaken in South America, an online survey of land managers was conducted to help define the management expectations of a potential biological control agent for flaxleaf fleabane. A simulated herbivory experiment involving removal of both above and below ground plant biomass was also performed to determine if a defoliating or root feeding insect will be an effective biocontrol agent. Defined management objectives and results of the simulated herbivory study will guide selection of potential biological control agents and evaluation of their effectiveness in the field, provided they are approved for release into the Australian environment.

Keywords *Conyza bonariensis*, biocontrol, stakeholder engagement, simulated herbivory, agent prioritisation.