

10

FarmLink Research Report 2018

MLA Dung Beetle Project

Trial Site Location Southern NSW

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Introduction

Manure can also immobilise the conversion of nutrients in the soil - thus reducing mineral uptake needed to produce grasses and pasture. Additionally, dung serves as a medium for insect pests that spread contagious diseases - compromising human and animal health and productivity, resulting in economic losses due to the increased costs from our dependence of ag chemicals to prevent or control.

The accumulation of domestic livestock manure has been a longstanding environmental problem, causing pollution of waterways as well loss of nitrogen to the atmosphere from unburied dung.

Project Partners



Funding Partners



Background

Australia has several species of native dung beetle, all having evolved specifically to deal with the manure of macropods and other native animals. These varieties are not adapted to the introduced European livestock and their larger type of dung. The absence of appropriate complimentary species in the Australian ecosystems can be observed by the longstanding retention of dung in the paddock and the slow rate of its decomposition.

Dung beetles have long been recognized for their essential role in grazing ecosystems for recycling and decomposing animal dung. With this in mind, the dung beetle project endeavours to find suitable species of introduced beetles able to address this issue, thus mitigating some of the challenges relating to animal waste as well as improving the quality of our soils.

A total volume of the 80M tonnes of dung is produced by Australia's livestock, with a value of \$13B, however most manure is an underutilized resource that is often left undisturbed on the soil surface. As a consequence, pasture is often smothered by its accumulation, attracting pest flies and parasites, reducing arable grazing and slowing paddock turnover periods. There is great potential with this resource to extract value if appropriately recognised.

With the onslaught of drought and intensification of agriculture, livestock owners and producers are going to continue to face the challenge of remaining economically viable. The emphasis on strategies to improve the ability to maintain production of pasture are likely to remain a challenge.

CSIRO has previously conducted projects introducing dung beetle species during 1960's into the 1990's. This resulted in 23 species of southern African and southern European dung beetles being established in Australia, a

project that provided valuable insight into some appropriate species and habitats.

With this in mind, MLA with the support of funding through the Australian Government's Rural Research and Development for Profit Program are putting \$23 million into a five-year project aimed at quantifying the environmental and economic value of dung beetles on farms and to rebuild the national capabilities to develop a sustainable RD&E business model of dung beetle services.

FarmLink is partnering with CSU along with eight other organisations as part of a national collaborative project that will rear and introduce several new strains of dung beetles for release across southern Australia and Western Australia.

Recognised benefits of dung beetles in production systems

- Dung beetles store dung underground in tunnel systems, storing carbon in the soil profile; improving soil aeration and reducing compaction.
- Reduced dependence and cost to producers on chemicals/drenches and losses to animal production resulting from parasite burdens and pest flies.
- Reducing the nutrient run-off into waterways.

Delivery of project

FarmLink and its partner, CSU, will:

- Investigate and report how these species of dung beetles can improve profitability and productivity for primary producers
- help to deliver regionally specific dung beetle services to farmers through facilitating and supporting extension and monitoring activities to develop producer knowledge and capacity to enable dung beetles to delivery on-farm benefits. ■