

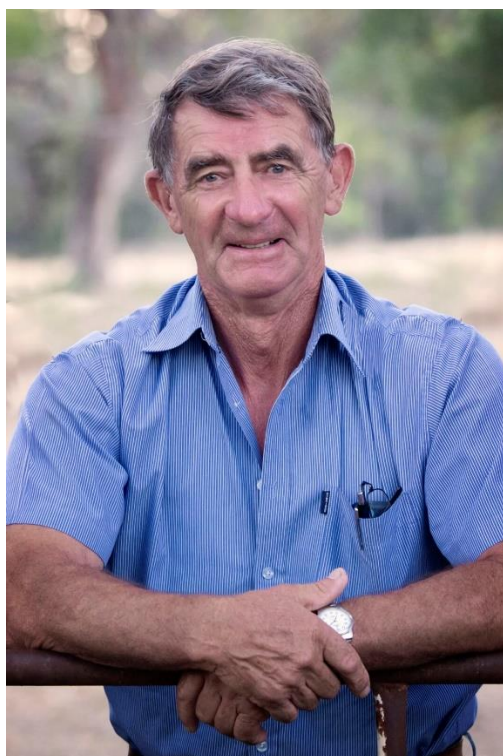
John Feehan – The dung beetle Expert

Where it all began

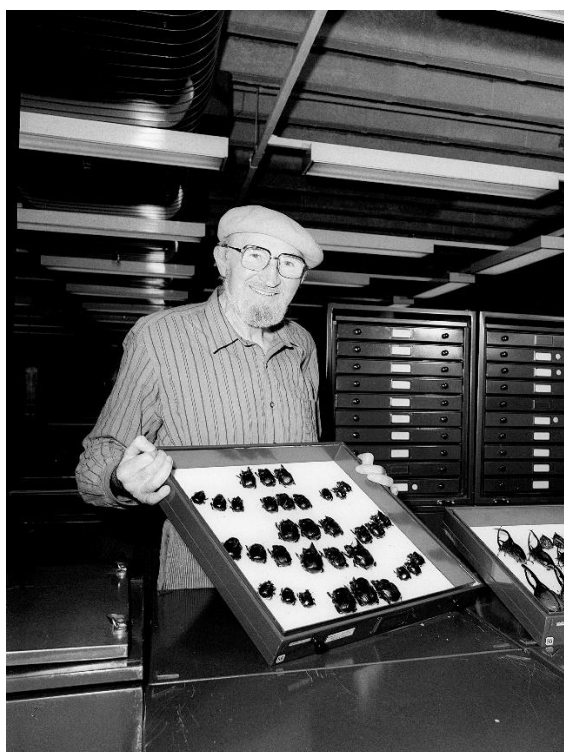
John Feehan was born and raised in Braidwood NSW, on a sheep grazing property. John continued to work in the farming community and then gravitated to the CSIRO in 1963 where his farming skills and work ethic could be applied to support his farming community. Among other interesting and progressive projects within the entomology department, John became heavily invested in the Dung Beetle program. As a young man, the excitement of travel and adventure soon turned to a passion where he soon realised, he was part of an unimaginably life changing initiative for Australia's future agricultural community.

The dung beetle program in Australia was the brainchild of Dr George Bornemissza. His brilliant initiative was summed up by Professor Frank Fenner when he said, "George you have changed the face of Australia forever".

Since the CSIRO dung beetle program ceased in 1991, John Feehan has dedicated his life to the distribution of dung beetles throughout Australia, to see the spread of every introduced dung beetle species around Australia.



John Feehan



Dr George Bornemissza

Soilcam Est 1994

It fast became evident that the incorporation of dung beetles into grazing practices was having a positive impact in pasture soil health which was also supported by research conducted by the CSIRO. Despite all the good work of the CSIRO, John was far from satisfied and saw an opportunity to use his skills and knowledge to distribute the dung beetles from the limited areas where dung beetles had been established to all of Australia for the benefit of the wider farming community and all citizens of the country as well as producing considerable benefits for the public living on this tired brown land of ours. When the funding for the CSIRO stopped in the early 1990's at that time just one of the 23 species known to be established on the continent had spread to its climatic and geographic limits, the other 22 species were in localised areas on beef properties, even now 29 years later there may only be two or three species fully spread.

With this knowledge, in 1994, John set up his business "Soilcam" (Soil Care and Management) in his quest to achieve his lifelong ambition to see the proliferation of all introduced dung beetle species to the full extent of their climatically matched locations. John Feehan is "finishing the job", with the introduction of dung beetles into Australia which involves the distribution of all introduced species and more importantly the education and awareness around the importance of dung beetles to the grazing sector.

Education and awareness played a pivotal role in the uptake of dung beetles by private farming sector with little investment in the procurement of dung beetles from public sources. This relied on farmers making selfless investments which ultimately benefited the wider community and Australia as a whole.

Education and Awareness

The key to his success was the educational campaign he embarked upon to highlight the benefits of dung beetles to grazers and the adaptation of good farming practices to support the proliferation of dung beetles. John Feehan literally took to the road visiting grazers and farming organizations and engaged the media to get his story out. He soon gained the support and interest from many key stakeholders and influential people. To date, John Feehan has attended numerous field days, spoken at Universities and Schools, addressed Parliamentary Committees, and has featured in many media events and interviews. John has presented more than 250 presentations for farming groups. Even today, John Feehan continues to make himself available for workshops, field days and was recently asked to speak at the "Fenner conference" on Making Australian agriculture Sustainable.

With no external funding, John has always invested his time to advise and assist farmers to embrace dung beetles and adjust their farming practices for more sustainable outcomes. Combined with the many regional surveys John has conducted and the profile he has attained, he has earned the well-deserved unofficial title as "The dung beetle expert".

This is supported and substantiated by the constant and positive feedback John receives from grazers. The outcome of John's work is immeasurably extraordinary throughout Australia. This could only have been achieved through John Feehan's tireless and selfless work. It would have been considered inconceivable that one person could make such a difference.

John Feehan's passion and uncanny communication skills has inspired incredible support through.

- Landcare organisations
- Farming groups
- Environmental and Water catchment Authorities Entrepreneurs
- And the science fraternity

John has invested considerable time and resources into educating not only farmers in Australia but also students at Princeton University, in the USA as well as the staff at the Department of Environmental Protection Agency in Washington DC.

John also presented at the management of Fort Dodge Animal Health in Kansas City. This company held the patent on the molecule moxidectin which was the active ingredient for the now commonly known as the “Dung beetle friendly parasiticide for cattle and sheep.” John felt this product needed to be promoted in Australia to give all introduced species the best chance to survive. The subsidiary company in Australia took the dung beetle friendly concept on board and eventually ended up with a considerable share of the parasiticide market.

John still provides a free dung beetle identification service for farmers but with the advances in technology particularly in mobile devices, John sees an opportunity through collaborating with technical support, to develop an App where dung beetles could be "self-identified", in the paddock to build a data base of species- location - with Date/ time stamp. This would be an invaluable tool to measure the location, spread and adaptation of dung beetle species and encourage schools, and farming groups to actively participate.

John Feehan has captivated Australians to embrace the benefits of dung beetles to help restore the balance in soil health and fertility throughout Australia.

John has given his time on many occasions at regional schools throughout Australia with students conducted experiments showing how dung beetles increased soil fertility and pasture growth. Students were encouraged to harvest and distribute beetles within their own communities as they learned the important roll dung beetles play in our environment.

John recognised that the future of sustainable farming and the future of Australia's soil health depended on inspiring and educating the younger generation and now many of these students are our progressive farmers who still today talk about that excursion many years ago with the bloke who is now commonly referred to as the "Dung beetle expert" or the "Farmer's friend"



John conducting field days as he educates farmers about dung beetles



John Feehan in collaboration with Virbac promoting the benefits and sustainability of dung beetles in the grazing sector.



Figure

The results

Agriculture - Notwithstanding the environmental, social, and economic benefits dung beetles bring to Australia, the biggest beneficiary is soil, pasture, and animal health. Early research suggests the introduction of dung beetles into grazing situations can increase pasture growth by up to 40 %, reduce fertiliser use by up to 50 % and increase the topsoil profile by up to 100% in some regions. This is achieved by the burial of the estimated 180 million tonnes of cow dung dropped annually in Australia. This represents an immeasurable benefit to Australia's agriculture and environmental wellbeing.

The environment - Heavy rain on a farm can contain dissolved chemicals and nutrients from herbicides, insecticides, wetting agents, fertilisers and organic nutrients from grazing animals' dung and urine. When contaminated runoff water enters the dung beetle tunnel system, gravity continues to take water downhill resulting in chemicals and nutrients being filtered by topsoil and remaining in the paddocks. More absorption of heavy rain runoff results in reduced erosion due to damaging bulk flow events.

Buffalo and bush fly - Bush fly, and Buffalo fly reduction is also a result of dung beetle activity, a scientific publication reveals rapid burial of cow dung can result in up to 99% reduction in bush fly numbers, these results were produced by just two species burying cow dung in less than six days which is the period bush fly larvae require to mature.

Social benefits- For example - The situation in Canberra alone, where there are eight species established in the ACT region is a good example. People can now eat outdoors just as is done in London Paris and New York, whereas 30 or more years ago it was illegal for a restaurant to supply food on a footpath. The health department considered it a health hazard when 50 or more bush flies descended onto a meal outdoors. While many younger Australians could not appreciate how bad the flies once were, the reduction in bush flies through the introduction of dung beetles has transformed our way of life.



Dung beetles achieve these beneficial results, with relatively insignificant one-off investments though the farming community -

- Without tractors
- Without machinery
- Without a farmer's time and resources
- Without fossil fuel
- Without producing CO₂
- The burial of dung sequesters CO₂



Diagram showing dung beetles in a grazing environment and the holes created after only 12 hours under a dung pad

Distribution

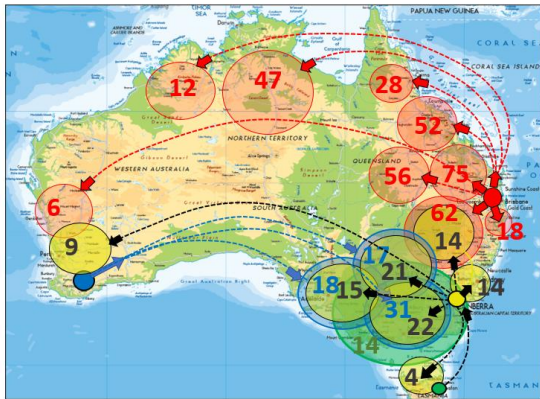
Realizing the extensive logistical issues involved in the processing and transportation of live Dung beetles to regional areas of Australia, John established facilities to enable the large scale operation enabling the movement of large numbers of beetles from paddock of origin to destination within 72 hours. This could not have happened without collaborating with quarantine, logistical and transport providers to create trusted relationships and an understanding of the importance into the importance of dung beetles. An example of this is the ability of beef producers to collect beetles in less than 24 hours at Perth and 36 hours at Geraldton W.A; which includes clearance by bio security.

John's work and dedication has inspired investment within the farming sector to uptake nearly 7000 dung beetle starter colonies involving the harvesting and processing of an estimated 7,000,000 dung beetles of 20 different species throughout Australia including but not limited to -

- *Bubas bison* – 2,000,000 from W.A. to the eastern states.
- *Onthophagus binodis* – 263,000 from Esperance W.A. to the eastern states
- *Geotrupes spinger* - 180,000 from Pyengana Tasmania to the mainland.
- *Onitis aygulus* – 165,000 from Meningie S.A. to NSW and Victoria.
- *Onitis alexis*, *Onthophagus gazella*, *Euoniticellus intermedius* – 2,000,000 from Coonabarabran. NSW
- *Euoniticellus intermedius*, *Liatongus militaris*, *Onitis alexis*, *Onitis viridulus*, *Onthophagus gazelle*, *Sisyphus rubrus*, *Sisyphus spinipes*. 800,000 From southern Queensland to Northern Australia
- *Onthophagus binodis*, *Onthophagus taurus*, *Onitis pecuarius*, *Euoniticellus fulvus* 1,500,000 from ACT and regional areas to Southern Australia

From 2001 – present, John Feehan has distributed approximately 540 starter colonies to different parts of Australia adding

SOILCAM - Dung Beetle distribution 2021- 2022



SOILCAM - Dung Beetle distribution 2020- 2022

Summer species distributed from SE Queensland. Total colonies distributed – 356 Species distributed – <i>Euoniticellus intermedius</i> , <i>Liatongus militaris</i> , <i>Onitis alexis</i> , <i>Onitis viridulus</i> , <i>Onthophagus gazelle</i> , <i>Sisyphus rubrus</i> , <i>Sisyphus spinipes</i> .
Summer species distributed from southern NSW Total colonies distributed – 99 Species distributed – <i>Euoniticellus intermedius</i> , <i>Liatongus militaris</i> , <i>Onitis alexis</i> , <i>Onitis viridulus</i> , <i>Onthophagus gazelle</i> , <i>Sisyphus rubrus</i> , <i>Sisyphus spinipes</i> , <i>Onthophagus binodis</i> , <i>Onthophagus taurus</i> , <i>Onitis pecuarius</i> , <i>Euoniticellus fulvus</i> .
Winter species distributed and harvested from West Australia Total colonies distributed – 66 Species distributed – <i>Bubas bison</i>
Summer species distributed from Tasmania Total colonies distributed – 14 Species distributed – <i>Geotrupes spiniger</i>

John Feehan AOM was awarded the order of Australia medal in 1997 in recognition of his contribution to Australian Agriculture which is a testament to his hard work and dedication in this field.



John Feehan with some of the 40,000 *Bubas bison* bought back from western Australia, destined for southern districts on the Eastern seaboard.



Releasing beetles in the vast areas of Northern Australia, requiring unique methods to ensure timely release

Today

John continues his work and already has a full orderbook for the upcoming winter species and next summer's harvesting season.

John continues to speak at field days, schools and recently was a speaker at the "2022 Fenner conference - making Australia sustainable". John has never received direct government assistance or funding for his work and has relied on investment through the private sector.

Recently John is also investing his resources into some exiting projects such as the –

- "Glencore Mine rehabilitation project", to rehabilitate there mine sites to their original grazing land and rebuild the depleted soil structure and fertility.
- Drought resilience through the incorporation of dung beetles into drought resistant pastures
- R&D into Soil carbon sequestration through the incorporation of dung beetles into existing projects.
- Research and lobbying for introduction of additional dung beetle species into Northern Australia, including a recent self-funded trip to Indonesia to identify potential species suited to our northern regions.
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John is also in the process of investing into a Queensland based operation to service the high demand for dung beetles in northern Australia. John still provides a free dung beetle identification service for farmers but with the advances in technology particularly in mobile devices, John sees an opportunity through collaborating with technical support, to develop an App where dung beetles could be "self-identified", in the paddock to build a data base of species- location - with Date/ time stamp. This would be an invaluable tool to measure the location, spread and adaptation of dung beetle species and encourage schools, and farming groups to actively participate.