

• SPECIAL OFFERS AND INFORMATION FOR FARMLANDS SHAREHOLDERS •

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# The FARMLANDER

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**Together  
stronger™**

**Farmlands**  
co-operative



## 5 minutes with Shaun Forgie

Dr Shaun Forgie, self-confessed dung beetle aficionado, explains why they are so useful in managing manure, both for environmental and economic benefit.



When abundant across whole pastures, dung beetles can bury fresh manure in 24-48 hours, leaving a loose chaff and minimal to no forage foul.

### What's so good about dung beetles?

They are Nature's clean-up crew. We introduced livestock to New Zealand but forgot about the dung beetles. Nowadays we have an estimated 100 million tonnes of cow and sheep poo added to our pastures a year. Most if not all of that is left on the pasture as a forage foul – an area five times the size of the manure pile is avoided by grazing livestock as it is repugnant. Most of these poos sit on the pasture for at least 30 days, much longer in summer. So imagine 9 million cows in production a year here and all are pooping 10 times a day. Each of those manure piles sits for at least 30 days. Multiply that by five for the area avoided by livestock. That's a lot of pasture wasting.

On top of this we lose a lot of the fresh stuff into waterways in rainfall events as part of the cocktail of contaminants running off the pasture surface into the water. This of course contributes to reductions in water quality. Enter the dung beetle, which when abundant across whole pastures can bury fresh poo in 24-48 hours, leaving a loose chaff and minimal to no forage foul. The tunnelling and nest building beneath each manure pile greatly increases nutrient and carbon loading into the soil, builds soil and improves soil biology and productivity. It also increases earthworm biomass five-fold and the dung beetle nesting increases the depth earthworms can burrow.

So they improve soil health and pasture productivity and reduce forage foul. Even more significant, we have published studies in an international peer reviewed journal showing that dung beetle activity on several soils in New Zealand on 11 degree slopes can reduce the surface flow of suspended contaminants by 80 percent following severe rainfall events. That's 80 percent less contamination entering the waterways from livestock farms. Dung beetles are the missing silver bullet on our farmlands.

#### **Are all dung beetles the same?**

The services they provide are the same environmentally and economically for us. We have 11 varieties approved for release following a full Environmental Protection Authority process. Each variety has something different. Some are summer active, others winter active, some are night active while others are day active. Some bury balls of manure to 30cm in the soil while others bury beyond 60cm.

#### **How did you come to farm them?**

I am a dung beetle aficionado. I got involved in dung beetles back in 1991 when I was a technician working for DSIR (Department of Scientific and Industrial Research). I ended up completing an MSc (Hons) on dung beetles here. I could see then this country needed more efficient pastoral varieties like every other agricultural country in the world. New Zealand is the last to get on with it. I gained a PhD in dung beetle research in South Africa. With the support of Manaaki Whenua Landcare Research we applied to the government for permission to import and release of 11 kinds of dung beetle suitable for New Zealand. In 2016 we formed Dung Beetle Innovations, which commercially rears these dung beetles for farmers.

#### **You must get some interesting responses when you tell people what you do?**

Yes! Many who don't understand about the legislation will think this is an

## “Dung beetles are the missing silver bullet on our farmlands.”

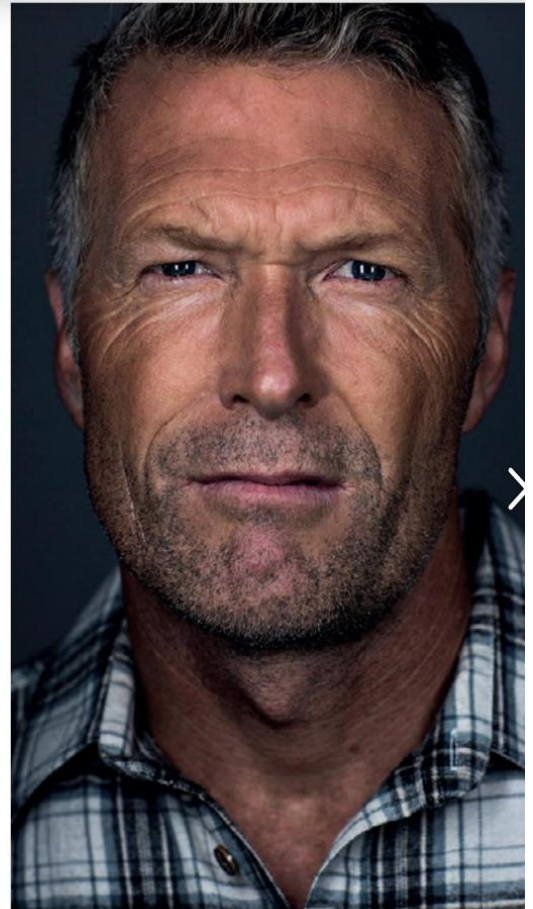
unwanted organism like rabbits and gorse and stoats. It normally takes five minutes to educate those interested to see that dung beetles are beneficial and a commonsense solution to controlling all the manure being dumped on New Zealand pastures and running off into its waterways. We also have the odd gag about us talking a lot of sh\*t, being sh\*t shovellers and sh\*t stirrers. We do have a mechanical variable speed sh\*t stirrer by the way. But mostly we get huge support and encouragement from people who can see the commonsense and need for dung beetles in a farm environment where cows were introduced but without the clean-up crew.

#### **Do you breed them here or are they imported?**

We have EPA permission to import 11 varieties of dung beetles to New Zealand. Each one was imported directly to a containment facility for disease testing. Once clear and approved to release from containment they were transferred to a mass rearing facility in Auckland. This facility now has eight varieties it mass rears and boasts the world's largest mass rearing facility for insects.

#### **Environmentally they are a winner, what about economically?**

There are huge economic benefits to the farmer and to the country. The farmer gets at least 30 percent increase in above-ground biomass and nutrient content, reduced forage fouling, less costly pasture management and higher productivity. All that sustainable manure supply is a nutrient goldmine



but only if it is buried. There it will cut costs on expensive unsustainable solid fertiliser inputs. Dung beetles also reduce gut parasite re-infection rates by at least 76 percent, which will reduce the cost and reliance on drenches. Farm environment plans will be compulsory from 2025. Having dung beetles established will help in reducing the costs associated with controlling nitrogen loss. We have found an 80 percent reduction in contaminants entering the water following the introduction of dung beetles.

**Dung Beetle Innovations' beetles are now available through Farmlands. For further information, contact your Farmlands Technical Field Officer or the friendly team at your local Farmlands store.**