

Bruce and the beetles

This Laois farmer and his dairy discussion group show that production and environmental initiatives are compatible

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Bruce Thompson is an environmentalist with 300 cows. Walking through a paddock with him is an eye-opener and proof that production and promoting the environment are not incompatible.

Seeking out dung beetles, he points to the almost perfectly circular holes they have eaten out of cow pats three to four days' old. Bruce is soon pulling apart the cowdung and dropping spade-fulls into a bucket of water where a wide range of insects float to the surface.

He points out that black beetles are similar to dung beetles, but with a noticeable metallic copper colour on their wings. Eventually, he finds a jet-black dung beetle and explains how they chew up the dung, drying it out sufficiently for earthworms to begin the next stage of converting manure into soil organic matter.

Bruce's infectious enthusiasm and ability to communicate the complexity and importance of insect populations helps explain his high media profile.

The Thompsons, Bruce and his father Ian, farm in Ballyfin, Co Laois. Bruce qualified in Automobile Engineering at Cork IT and when asked what brought him back to farming, he replied: "I came home to help my father get the farm back up on its feet after a TB outbreak and haven't looked back since."

Bruce took over fully in 2012 and completed his Green Cert through Gurteen College, completing the 180 hour course. In 2012, the farm had 63 cows, 80 cows in 2015 and today stands at 300 cows on a 100ha milking platform plus support blocks for silage and heifers.

The Thompsons undertook a large capital project in 2017, where they installed a 40 point Waikato rotary parlour when the herd was at 200 cows. Bruce says: "When we looked at it, we knew we were not finished growing the herd and that the rotary would allow for further expansion. Also, the savings in labour helped justify the additional investment cost."

Last year, the herd delivered 460kg MS/cow on 800kg of ration.

Anthelmintics and dung beetles

Bruce is widely known on social media for his interest in dung beetles.

"I was dosing the calves with my father one year and he commented that we were dosing more often now than he used to in the past, as resistance to the wormer built up over time.

"This got me thinking and I started exploring online what the causes and possible solutions may be. We started by reducing our use of wormers on our own farm by using diagnostic testing and faecal egg counts for our calves.

"As I investigated further, I realized there is far more going on in the dung pads on-farm and the effect the anthelmintics were having on the biology within the dung pads.

"I contacted entomologist Dr Sally Anne Spence from the University of Oxford, who explained to me the role the dung beetle has in breaking down the cow pad quicker and breaking the cycle of the disease-causing worm in pasture and how the overuse of anthelmintics have a negative effect on biodiversity in pasture."

Bruce was accepted as a Nuffield scholar in 2019, where he planned on doing a study on anthelmintic resistance and its effects on biodiversity. His travels so far have brought him to South Australia and Tasmania. There he looked at the accelerated effects of wormer resistance on farms.

"I visited farms where there was



resistance to all five major wormer active ingredients and in some farms, the sheep had to be removed as they could no longer control the worms in the flock."

As part of his studies, Bruce explored different grazing options to reduce worm loads on stock. He also visited a research station which is importing African and European beetles to control the worm load on farms.

"The native beetle didn't have any interest in cattle dung when cattle were first introduced," says Bruce.

"It took a long time for the cow pats to break down. The pats are ideal for flies to nest in and there was a large build-up of flies in the area. Beetles introduced from Europe were 99% effective in reducing the fly issue as they broke down the cow pats."

Bruce hopes to travel further when Covid regulations allow, to finish his Nuffield studies.

Actions taken on his own farm

Bruce has introduced a new grazing



regime for his young stock on-farm to help lower the worm burden on the calves and reduce the need for wormers.

He has developed a Paddock Parasite map, which details the parasite loading on each paddock. Using this, Bruce operates a traffic light system of grazing for his young stock.

A green paddock has a low worm burden and is available for calves to graze. An orange paddock is a paddock the calves have recently grazed. They will return to a green paddock depending on the rest period they have had, to break the worm cycle. Red paddocks are those with a history of a high worm load based on egg counts and the calves don't graze there.

The traffic light grazing strategy is run in conjunction with diagnostic faecal sampling every two to three weeks from a pooled sample. Bruce will only dose his calves if the egg count is about 250 eggs per gram. Bruce uses a microscope to do his

own diagnostics on the faecal samples, but says there are plenty of labs around the country that can do it for farmers.

"We dose calves strategically," adds Bruce. "The calves are weighed. Any calf that is below target or not achieving their average daily weight gain will be dosed, while the balance of the calves will not be dosed that time. This continues through the grazing season.

"The yearling heifers are also monitored, but no dosing has been used on them since 2018 and no dose has been administered to the cows since 2017. This has significantly reduced our overall use of worm doses, which has improved the number of dung beetles on this farm, increasing biodiversity and further reducing the worm load."

Discussion group and European Innovation Partnership (EIP)

Bruce now wants to move this on and try it at a larger scale with the help of his local dairy discussion group.

The O'Moore Discussion Group has recently received sanction for EIP grant aid money from Europe to roll out the implementation of new grazing strategies across the discussion group.

"The group, and Teagasc facilitator Lorcan Dooley, have really embraced these ideas," says Bruce. "With the EIP money, we plan to purchase weighing scales to monitor calves and complete more diagnostic testing to help reduce anthelmintic use."

Bruce is one of the founders of a new website www.dungbeetlesforfarmers.co.uk. This website was set up with vets, ecologists, entomologists and conversationalists to give free and impartial advice for farmers who may be struggling with wormer resistance and are looking for alternatives.

Large dairy farmers sometimes bemoan the lack of positive PR for the industry. Bruce Thompson and the O'Moore dairy discussion group are certainly doing something about it.