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Green light for composting shelter study

The Dominion Post, Wellington

Green light for composting shelter study

Simon Edwards

There's growing farmer interest in composting shelters – sometimes called "composting mootels" - but not a lot of verifiable information on how they impact the environment and balance sheets.

A team led by Rachel Durie of Perrin Ag Consultants aims to change that. As one of 12 projects to get the green light under round two of the National Science Challenge Our Land and Water Rural Professionals Fund, the aim is to take a whole systems focus on evaluating how a composting shelter could be integrated into a farm system.

"So we'll look at the impacts on the environment, on animal and staff welfare, and financial performance. We'll also try and reduce the misconceptions about composting shelters that are out there," Rachel says.

One of those misconceptions is the reason Rachel does not use the term 'composting barn'.

Composting shelters have no side walls, though some operators put up shade sail-type arrangements if they're on a particularly windy site. Barns imply something that is much more expensive to build and operate, and can raise hackles over animal welfare issues.

The deep layer of bedding material in composting shelters is most often wood chips or sawdust but Rachel says some people are trying different options, such as miscanthus. When the cows come in they pee and poo in the bedding and the composting process is aided by daily tilling.

"A tractor with a tilling machine on the back goes up and down, mixing the urine, dung and bedding together, aerating it and accelerating the composting, which is also aided by ventilation in the shelter. If the design is right, a lot of the urine simply evaporates.

"A key benefit is that when the composting is done properly, no liquid effluent comes out so you don't need the effluent systems required for other types of barn," Rachel says.

Depending on how often the cows are in the structure, the bedding material will last a year on average. It can then be applied as fertiliser.

"A lot of farms, if they have cropping blocks, put it on there but it can also go on pasture."

The study project also aims to gather data on benefits in terms of reducing nitrogen loss and potential impacts to greenhouse gases.

Keith Woodford of AgriFood Systems, who is also on the project team, says cows love composting shelters in winter because they are so warm. The surface temperature of bedding in a well-run shelter on the Allcock family farm in the Waikato is about 35-40 degrees Celsius – "cow bliss," as Keith described it.

But the shelters are not just for wintering, Rachel says. "They might also

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Resting on the warm bedding mix has been described as ''cow bliss''.

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FROM PAGE 9

be used in hotter hours during summer days to give shade, then the animals go out to pasture in the evening. They can be a good environment for calving, and others will use them in autumn when there is a higher risk of nitrogen loss from grazing.''

A few years ago Rachel completed her honours project on composting shelters at university. There was ''much less knowledge on them at the time'', she says. But with environmental regulations getting tougher, and for financial reasons too, farmer interest in composting shelters is definitely on the rise. Rachel believes there are around 30 mootels in New Zealand but perhaps only a handful of them are true composting shelters.

''A lot of the ones out there have almost come about by accident; their design and management hasn't been carefully thought about pre-construction and they've ended up with sub-optimal composting.''

Most are constructed of timber, but some newer shelters use steel. There are too many variables - not least how intended utilisation rates impact size - for Rachel to answer a question on how much they cost but at a very rough 'ballpark', $1000 per cow is a guide.

Joining Rachel and Keith and Lee Matheson (one of the Principals of Perrin Ag Consultants) on the project team will be Airini Hepi, Riria McDonald and Kyle Amopiu of Putaruru-based Māori farming trust Kokako Pi Karere LP. The first phase of the nine-month project will be to visit existing shelters to see how they've been incorporated into farming systems and to interview operators about their motivations and experiences. That will inform phase 2: a case study on one of the Kokako dairy farms looking at a range of scenarios for how a composting shelter could be integrated and the impacts to the farm system.

''Another part of the project is integrating Western science with a Māori world view and knowledge that's already been gained from farmers operating these systems,'' Rachel says.

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