

Clean organics gain Groundswell

By Garth Lamb

'CARROTS and sticks' are typical euphemisms for discussing systems of reward and punishment, although the term takes on extra meaning in the NSW city of Goulburn where residents may literally be rewarded with carrots if they do a good job recycling organic matter including food scraps, lawn clippings and...sticks.

Rather than punishing rule breakers, the City to Soil Groundswell program, which is funded by a \$1.96 million grant over three years from the NSW Environmental Trust, seeks to drive positive behaviour by offering a \$100 hamper of fresh food for a rule-abiding resident selected after each organics collection.

"People love being rewarded for doing the right thing," explains project manager Simone Dilkara.

"It's a lovely positive incentive and, more importantly, [the food hamper] helps to drive home the really important link that we're trying to make from the householder back to agriculture and food production."

Prizes are used strategically, going to the best performer in a street of poor recyclers, for example, to try and spark neighbourhood conversations. Coverage of winners in the local media also helps raise the program's profile.

"To get people to do something... they need the right tools, the right information and the right motivation," surmises Dilkara.

Winning prizes was one of six 'motivators' identified by poring through the Department of Environment and Climate Change's *Who Cares About the Environment?* survey results. Other reasons people may source separate their organics include wanting to support local farmers, reduce waste to landfill, reduce waste costs, improve agricultural soils and help address climate change.

"The main thing we're finding is people love the idea [of food scraps] going back in to agriculture, into local farms," says Dilkara.

The mechanics of clean organics

Regardless of which motivators drive any individual, the required outcome is clean organics. Monthly collection across Goulburn's 9,200 households garners about 100 tonnes of garden organics and food scraps, with contamination rates consistently less



Agronomist Chris Houghton (l) with Simone Dilkara and sheep grower Andrew Sieler, who is testing the compost.

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than 1% by weight, and generally under 0.5%.

Problems such as lawn clippings in plastic bags, easily spotted as material is delivered to a composting site, are removed by hand.

Contamination in the 'cornstarch' bags of kitchen scraps has been so consistently low, however, that these are no longer opened: despite Dilkara originally expecting it might be necessary, "I haven't even found a bread tie".

Feedstock need not be shredded because anything that fits into an MGB is already small enough, meaning there are more opportunities to remove

foreign material later, if necessary. Not requiring a shredder also helps keep operating costs down, within reach for small regional councils.

The council has supplied each household with a Max Air kitchen bin and a roll of 150 BioBags, one year's supply. Each bag is stamped with a unique number, potentially allowing it to be tracked to a particular house.

Incidentally, while they are commonly called a cornstarch bag, supplier Neil Thompson points out BioBags are actually made from an even more sustainable source, "using vegetable oil derived from a non-food, non-irrigated plant that thrives on

marginal soils".

Most importantly, Dilkara says residents have embraced the system, partly because it reduces odour compared to putting food scraps in the anaerobic confines of a normal plastic bag. While Goulburn's monthly green- and food-waste collection sounds a bit of a push in hot summer months, Dilkara claims, "at the moment, it's working OK".

But considering the program aims to collect the 50-70% of organic material currently in the general rubbish stream, a council should ultimately be able to reduce the frequency of its general waste collection while increasing its greenwaste frequency, keeping collection costs neutral while reducing disposal costs.

The queen of composts

Rather than open windrow composting, a fermentation process based on biotechnology supplied by Queensland company VRM is used. An inoculant containing a patented mixture of micro-organisms, originally developed in Japan, is mixed with water and sprayed over the organics, kick-starting and speeding up their natural breakdown.

The VRM product (a similar mixture of bugs as it supplies for the household 'Bokashi Bucket' composting system) forces compost to mature in a primarily anaerobic environment, meaning it

Broadacre trials

It is early days for compost trials underway at Goulburn, but the potential for recycled organics in agriculture has already been demonstrated. In 2005, for example, GRL trialled outputs from its Eastern Creek municipal waste treatment facility at a tomato farm in the NSW Riverina.

Three application rates were investigated. With 10, 20 and 40 tonne/hectare of compost applied, total plant height was increased 5.5%, 14% and 24.9% respectively.

Marketable yield increased from 41t/ha in the control to 60t/ha with 10t/ha compost applied, 57t/ha with 20t/ha compost and 54t/ha with 40t/ha compost. Using a crop value of \$90/t, applying compost increased the gross value of the marketable crop by \$1,710-1,170/ha – more than outweighing cost of the compost.

does not need to be turned – again keeping processing costs down.

Dilkara claims the technique also produces very little odour, but “no one believes it doesn’t smell, so there’s been a steady trickle of different councils coming to inspect it... and they walk away amazed”.

The wetted windrows are simply covered with poly tarps and monitored for parameters such as temperature and pH for a 4-6 week period. Material is then uncovered and spread out, sprayed with inoculant again, recovered, and left for another 4-6 weeks before it is ready for screening and application.

“The process we’re using is very low labour [and] everyone is just using existing plant,” says Dilkara, who has the highest of aspirations for her simple system.

“We’re really focusing on making the best, most nutrient rich, biologically active compost – with no contamination – at a minimum production cost.”

Completing the food cycle

Moving food scraps back to those areas that produce food clearly makes sense from a material flow perspective; constantly taking nutrients from

the country and burying them in city landfills is inherently unsustainable.

There is also evidence compost made from food waste, which contains more nutrients than compost made from greenwaste only, can be an economically attractive way for farmers to improve their output (see box).

“The jury’s not out any more on the benefits of using compost in agriculture; everyone knows that,” says Dilkara.

Groundswell now aims to quantify the economic value so farmers can make “an informed decision” about the right price for recycled organic products. The three-year project has another two years to run.

Trials involve two Goulburn farmers each setting aside approximately 12ha (30 acres) of land. Divided into three plots, one will be left unfertilised, one treated with common superphosphate and the other with City to Soil compost. An agronomist will oversee the trial and assess stocking rates on each plot.

“Farmers need to know what the value of the product is, and councils need to know that too so that they

Key points

- Prizes awarded to good recyclers
- Food scraps and garden organics collected
- Fermentation composting process used
- Simple, low-labour, low-cost project
- Compost used on local farms
- Market for outputs exceeds supply

know if they want to get into the production themselves or if they just want to provide the feedstock to someone else,” says Dilkara.

In Condobolin, about 400km west of Sydney, Groundswell is running another trial, primarily looking at the value to a local nursery of using recycled organics.

In Palerang Council, encompassing 1,900 households around the towns of Braidwood and Bungendore, another model will be tested, with council delivering feedstock directly to the end user, a farmer, for processing.

Because that trial site is in the Sydney water catchment, it has also “had some interesting planning strings attached to it”, which Dilkara sees as a blessing; if composting can be done here, it can be done anywhere.

“At the end of the [Groundswell]

project, we will have three quite different models of council disengaging from the process at different stages, and will be able to look at the cost/benefit of each model,” she says.

One thing all trials have in common is that, unlike for those metropolitan councils hamstrung by transport costs, there is potentially greater demand than there is material to satisfy the market in regional areas. The entire organic output of Goulburn could, realistically, be used by a handful of farmers.

“I’ve got a database of farmers who are really interested in buying product...the market’s much bigger than the supply,” says Dilkara.

But there is plenty of organic material in the marketplace, if the ‘tyranny of distance’ between population centres and farming operations is overcome. Especially with the cost of synthetic fertilisers more than doubling over recent years, by quantifying the economic benefits of recycled organics, Groundswell could well be the program that inspires farmers to seek out these other waste-derived composts en masse. **iw**

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