

MCGILL ENVIRONMENTAL SYSTEMS

– 25 YEARS AND GROWING *Heather Loughlin, McGill*

This year, McGill Environmental Systems celebrates the 25th anniversary of its incorporation. The roots of the company can be traced back to a small anaerobic digestion project at a piggery in County Limerick when Jim McGill teamed up with Noel Lyons to tackle the environmental impact of pig slurry waste disposal.

Later, the two Abbeyfeale men turned their focus to the USA when they were asked to use their knowledge to tackle a waste management problem threatening North Carolina's burgeoning poultry industry.

Along the way, the company succeeded in convincing industry and Governments that composting could be more than a 'backyard process'. McGill has achieved this by evolving a design which has made composting a very predictable and reliable process capable of converting a wide range of organic materials into high value compost products.

"It took several exciting, but lean years to commercialise what is today called the McGill process," says co-founder Lyons, now chairman of McGill-Ireland. "It is based on a proprietary modification of the Rutgers composting methodology developed in the 1970s by a team led by Dr Melvin S. Finstein, an internationally-renowned composting expert." An environmental science graduate student at Rutgers at that time, Jim McGill was on the coalface of project development.

Collectively, McGill recycles about 360,000 tons of organic waste a year in the manufacture of a branded line of compost products. Its cumulative compost sales have reached 5 million cubic yards.

"We process about 40,000 tonnes a year in Ireland, and though smaller in size, McGill-Ireland is the leading edge of McGill, especially in design and operational excellence," Lyons admits. "Our Glenville facility, opened in 2008, has set a standard which is recognised far beyond Ireland. It is, today, the prototype for all new McGill facility designs. Some of our older plants in the U.S. are being upgraded based on R&D and designs first tested in Glenville."

The practice of introducing process and design changes at its smaller Irish operations, then up-sizing for plants in the U.S., has proven to be a sound investment strategy for McGill. The company lives by the core belief that an environmental business can have the greatest impact on the environment by being economically viable.

"It might appear redundant to say composting is a microbiological process, but this is often overlooked in facility design," he explains. "Balancing mechanical simplicity with maximum biological control is the foundation for evaluating design changes or upgrades."

Niall Carroll, a partner and manager of operations for the McGill companies in Ireland, sees those upgrades as vast improvements in efficiency, helping the company survive in a very competitive and sometimes unsettled marketplace.

"Major design changes have included isolated bays, where each processing bay operates as an independent mini-facility within the composting facility," Carroll says. "Process monitoring has evolved from manual temperature readings to continuous monitoring through a wireless system which allows process adjustments on the minute, 24/7. The Glenville facility is also unique in that it is dedicated to biostabilisation of the organic fraction of MSW as part of Ireland's commitment to comply with the EU Landfill Directive and Waste Framework Directive".

Over the decades, McGill has taken composting from the haphazard 'little bit of science and a little bit of art' concept to a bona fide industrial process. This transformation makes a real contribution to a better environment by offering a means of returning all organic waste to where it originated – the earth.

"If the past was all about developing composting to be a viable waste reduction and recycling process, the future of composting will be about realising the value of compost by understanding and monetising

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its attributes,” Lyons predicts. “Compost is now being recognised as offering enormous potential to address climate change through long-term carbon capture.”

Among the many research projects measuring this benefit is California’s 8-year Marin County Carbon Project study. One of its conclusions is that a onetime application of compost on 5% of California’s rangeland could neutralise the carbon footprint of all the homes in the state – the most populous in the U.S.

“More and more research demonstrates compost’s significance in addressing a variety of soil issues,” Lyons says, citing a report published by a Canadian research team this year favouring compost for control of root

lesion nematodes, soil quality and reduced risk of nitrate leaching. Another project, funded by the EU Framework Programme, concludes the organic matter in compost is more stable than the organic matter in digestate and contributes more to disease suppression.

“Once we are able to monetise the many benefits of returning stable organic matter to the soil, there will be no question as to the value of organics recovery,” he concluded. “Compost use is the future of composting.”



Inside the McGill Glenville composting plant