



Mobile Aerated Composting Systems

**- practical, solutions for
regional and rural communities**

Andy Gulliver
Custom Composts

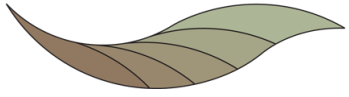
Email: info@customcomposts.com.au

Midwaste Regional Waste Group – Nov 2011



What We'll Cover

- Why are we doing it?
- Working from the market backwards
 - Who's doing it?
 - How are they doing it?
- How can smaller communities do it?
 - Can we handle food waste?
 - Pros and Cons



Why are we doing it?

- Government policy
- Community pressure
- GHG emissions
- Other drivers?
- Because it works?
- Because it makes sense?



Why Use Compost?

- Build organic matter
- Improve soil health
- Improved plant nutrition
- Reduce nutrient leaching
- Reduced use and cost of fertilisers





“A nation that destroys its soils
destroys itself”

Franklin Roosevelt



Why are we doing it?

EU Report

0.25% increase in soil carbon on agricultural soils will absorb all the EU's greenhouse gas emissions

“Carbon sequestration in soil and vegetation is a bridge to the future. It buys us time while alternatives to fossil fuel take effect”

Dr Rattan Lal (Ohio State Uni and IPCC member)



Soil Organic Matter

- the Living
- the Dead
- the Very Dead (humus)

“The depletion of the soil humus supply is apt to be a fundamental cause of lowered crop yields.”

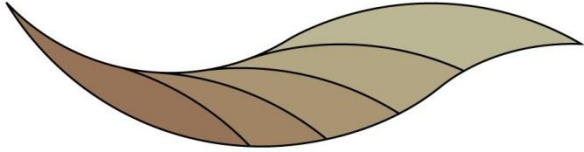
Hills, Jones and Cutler, 1908



Working from the market backwards

- Supply chain thinking
- Understand the links in the chain
- Push or pull marketing
- Closing the loop successfully
- Sustainable communities

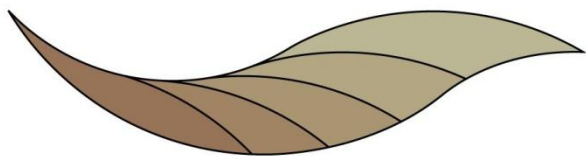
CUSTOM COMPOSTS



What Can We Do?



CUSTOM COMPOSTS



Why Use Compost?



Control

Compost

- Improved yield and quality
- Improved uniformity
- Reduced harvest costs
- Improved water use efficiency
- In amenity horticulture/ rehab?
 - Better establishment, Fewer replants
 - Reduced risk for landscaper and client

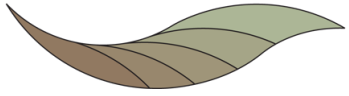


Marketing

Marketing is not the most
important question.

It is the only question.

**CUSTOM
COMPOSTS**



Who is composting?



Knowledge and Experience

Innovative Ideas

Practical Solutions



Who is composting?



Knowledge and Experience

Innovative Ideas

Practical Solutions



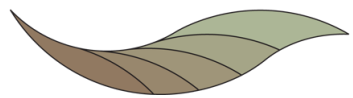
Councils are doing it



Knowledge and Experience

Innovative Ideas

Practical Solutions



Councils are doing it





How are they doing it?

Composting – a controlled process

- Process design – think ‘manufacturing’
- Living process -food, air and water
- Management – art & science
- Passion & dedication
- Attention to detail
- Customer focus
- Different to ‘waste management’



How are they doing it?

Composting – what can go wrong?

- Incomplete process
- Poor product performance
- Loss of market and goodwill
- Remember marketing is the.....?
- Technology is not a silver bullet
- Fire
- Odour.....



How do you make compost?



- Correct ingredients and recipe:
 - Physical structure
 - C: N ratio
- Blending is critical
- Moisture is the on/off switch
- Monitoring the process;
 - High temperature pasteurisation
 - Convert organic matter to humus



Current practice

Tractor-drawn
windrow turners



Knowledge and Experience

Innovative Ideas

Practical Solutions



Current practice

Self-propelled turners



Knowledge and Experience

Innovative Ideas

Practical Solutions





Mobile Aerated Floor



Knowledge and Experience

Innovative Ideas

Practical Solutions

Why did we change our system?

- Process control, product quality
- Flexible and expandable
- Wide range of wastes can be handled
- Ease of implementation & management
- Simple and proven technology - low risk
- Low capital cost, low cost of production
- GHG emissions – especially manure/food



Why did we change our system?

- Process control
 - Water
 - Oxygen
 - Temperature
- Surface area: volume ratio



Why did we change our system?

- Product quality
 - Control of the process
 - Simple process control (fan timers)
 - Finesse and fit-for-purpose products
 - Reliability – there is less to go wrong!
 - Future odour management





Why did we change our system?

- Ease of implementation
 - Fits existing site
 - Complemented existing resources
 - Reduced capital on site works
 - Flexible to suit changing needs
 - Modular design (can start small)





Why did we change our system?

- Cost of production
 - More efficient use of space
 - Shorter travel distances
 - Up to 3x production on same area
 - Fuel, machine and labour savings
 - Simple to maintain at remote site
 - Easier to manage



Why did we change our system?

- Re-engineering around energy cost
- GHG emissions
 - Fuel savings
 - Oxygen present all the time
 - Less likelihood of GHG production
 - Over 6000 t of CO₂-e /year



Will it handle food waste?

- Yes and simply
- Uniform airflow – even if partially loaded
- Food waste can be managed as it arrives
- Pipes don't get blocked by loader
- Maintenance is simple
- Low cost, no odour complaints



Will it handle food waste?



Knowledge and Experience

Innovative Ideas

Practical Solutions



Will it handle food waste?



Knowledge and Experience

Innovative Ideas

Practical Solutions



Will it handle food waste?



Knowledge and Experience

Innovative Ideas

Practical Solutions



Will it handle food waste?



Knowledge and Experience

Innovative Ideas

Practical Solutions



Will it handle food waste?



Knowledge and Experience

Innovative Ideas

Practical Solutions

Will it handle food waste?

- Yes and simply
- Uniform airflow – even if partially loaded
- Food waste can be managed as it arrives
- Pipes don't get blocked by loader
- Maintenance is simple
- Low cost, no odour complaints



Pros and Cons

- Power supply
 - cost of power supply
 - very low power requirements
 - can use small generator
- Power leads on work site
- Pipes on surface
- Pulling aeration pipes
- Inexperience of new users
 - support systems provided
 - current project - learn by doing



Thank you

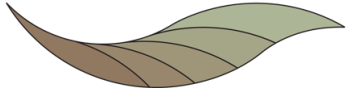


Knowledge and Experience

Innovative Ideas

Practical Solutions

**CUSTOM
COMPOSTS**



Knowledge and Experience

Innovative Ideas

Practical Solutions