

*Healthier environments supporting
healthier communities globally*



NuGrow – Closing the loop on waste

Presenter: Kali Martin

Overview

OUR COMPANY

Vision = Healthier environments supporting healthier communities globally



Overview

AWARDS

- 2016 Finalist – Banksia Sustainability Award, Leadership in the Circular Economy
- 2016 Winner – Ernst Young QLD Entrepreneur Of The Year
- 2015 Winner – Ipswich Chamber of Commerce and Industry's Innovation Award
- 2015 Finalist – Lord Mayors Business Award, Clayton Utz Award for Corporate Citizenship
- 2015 Finalist – QLD Regional Achievement and Community Awards, Environment & Landcare Award
- 2014 Finalist – Queensland Premier's Sustainability Awards
- 2013 Winner – Waste Recycling Industry Association Queensland, Innovation Award

Overview

FACILITIES



Overview

SERVICES



Overview

WASTE RECEIVAL AND RECYCLING

Utilising natural biodegradation processes, without the addition of raw materials our facilities create an economical, environmentally sustainable alternative to a traditional waste management approach.



Overview

WASTE RECEIVAL

NuGrow's facilities can accept a wide range of wastes including but not limited to:

Organics

- Green waste
- Sewage sludge
- Treatment tank sludges
- Food manufacturing waste
- Molasses
- Grease trap waste
- Animal manures
- Offal

Inorganics

- Fertiliser and fertiliser washings
- Ammonium nitrate washings
- Lime and cement slurry
- Directional drilling mud and waters
- Car wash water
- Filter cake and presses
- Oily water and sludges
- Stormwater

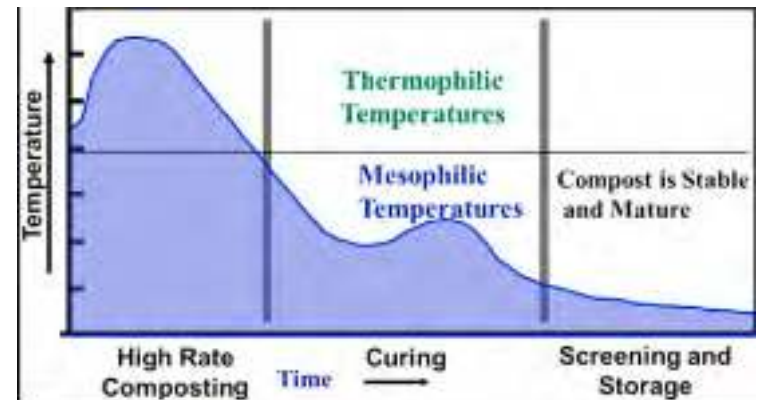
Beneficial Elements		Non Beneficial Elements	
Nitrogen	Phosphorus	Sodium	Chloride
Potassium	Calcium	Arsenic	Lead
Magnesium	Sulphur	Mercury	Cadmium

Overview

WASTE RECYCLING - COMPOSTING

Composting is a natural biological process, carried out under controlled aerobic conditions. During this process, various microorganisms, including bacteria and fungi, break down organic matter into simpler substances.

- Ground green waste + liquids = composting windrow
- Temperature profile is a key parameter
- Aerobic conditions must be maintained (5-18% oxygen)
- After 12-16 weeks the compost is stable and ready to be sampled for testing



Overview

WASTE TREATMENT - BIOREMEDIATION

An additional waste treatment methodology NuGrow offers is hydrocarbon bioremediation.

Suitable feedstocks include liquids, sludge and soils with up to 10% hydrocarbon contamination.

Degradation rates range up to 90% within 3 months of commencing treatment.

Benefits include:

- natural biological process
- no chemical inputs
- low levels of energy consumption
- recovery of beneficial material fractions with minimal waste to landfill.

Overview

WASTE TREATMENT - BIOREMEDIATION

Bioremediation process utilised is solid phase land farming.

Mature compost provides a starting media for the bioremediation process:

- rich in microbes
- stabilised organic carbon content ensuring microbes target hydrocarbons

Key Process Parameters include:

- Moisture content 40-60%
- Temperature 20-45 C
- Carbon/Nitrogen/Phosphorus ratio 100:10:1

Bioremediated material is tested against the compost feedstock criteria and can be added into the composting process once the hydrocarbon is suitably reduced

Overview

COMPOST AND SOIL CONDITIONER SUPPLY

NuGrow's products conform to Australian Standards:

- AS4454-2012: Composts, Soil Conditioners and Mulches
- AS4419-2003: Soils for Landscaping and Garden Use
- MRTS16B Specification



Case Study

IPSWICH CITY COUNCIL FOGO INITIATIVE

In 2011 NuGrow & ICC partnered to establish QLD's first and only FOGO collection

Key Drivers

- Ipswich fastest growing local government area in Queensland
- Increasing generation of waste and reduced landfill capacity



Case Study

IPSWICH CITY COUNCIL FOGO INITIATIVE

Methodology and Process

- Optional fortnightly green bin service.
- Objective to collect and reprocess food and garden waste
- Cost to a resident/business participating in the program is \$17.50 per quarter.
- Materials transported by existing ICC side tippers direct to NuGrow for reprocessing.
- Service complemented by an extensive environmental education program to promote sustainable waste disposal.



Case Study

IPSWWICH CITY COUNCIL FOGO INITIATIVE

Results:



Where To From Here

- Huge opportunity to increase organic waste recycling rates within Australia.
- Currently working with other local councils discussing a similar FOGO collection and recycling service.

Overview

- Innovative 'hydrocompost' solution

- Groundcover alternative for property developers, commercial landscapers, infrastructure contractors, government agencies, mine owners seeking to stabilise and rehabilitate land.
- Clients benefit from affordable, high-quality compost based germination media and erosion control solution not previously available in the market.
- Premium, traditional and budget application rates and prices to suit clients budgets and expectations.



Application



1 week



4 weeks

Case Study

LAND REHABILITATION - TOOWOOMBA SECOND RANGE CROSSING

Task: Transform some of Australia's most extreme construction landscape into native bushland on the \$1.6 billion, 41km project

Benefit: Traditional revegetation methods weren't possible in key areas for environmental, safety or cost reasons.

Result: Areas first treated are already germinating despite high temperatures and multiple extreme weather events



Application



4 weeks



Case Study

ORIGIN ENERGY, WASTE DISPOSAL AND LAND REHABILITATION



- NuGrow was contracted by Origin to assist in managing and providing a waste disposal service for its CSG operations.
- Through NuGrow's recycling services, Origin overcame three main challenges:
 - What to do with drill mud and fluid waste produced during exploration and production;
 - How to reduce the resulting strain on local infrastructure including sewage treatment plants and landfills by finding alternative disposal solutions for construction camp wastes (i.e. effluent and food waste); and
 - How to ultimately rehabilitate disturbed land.
- By redirecting the above waste streams, NuGrow connected Origin with a full-circle solution that has saved them money at the waste disposal stage and created beneficial products that were used in rehabilitation activities.

Closing The Loop

QLD GOVERNAMENT WASTE STRATEGY AND NUGROW LONG TERM FOCUS

- Queensland Material Recovery Recycling and Waste Strategy 2019 – 2050
- QLD's landfill levy will provide incentive for commercial and industrial customers to source separate waste and find beneficial reuse opportunities
- Councils will have the resources to facilitate residential waste separation providing a huge opportunity to redirect organic waste from landfill



Image source: 2018, Richmond Valley Council

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Thank You

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