3rd Baltic Biowaste Conference, 23/24 Nov. 2011, Vilnius
"Status of organic waste recycling in the EU"
Josef Barth, European Compost Network ECN, Germany

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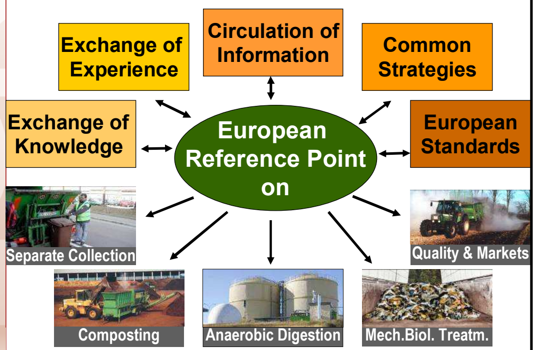
About the European Compost Network ECN



⇨ Sustainable solutions for the organic residues stream

Collection and Treatment of Organic Waste

Potential Offered by Optimisation of Org. Waste Management & Possible Benefits

ENVIRONMENT
- **CO_2 savings potential** – 10 - 50 Mt of CO_2 (including prevention)
- **Landfill Directive diversion targets** – Remove of organics before landfilling (65 % diversion until 2016!)

SOIL
- **Soil improvement potential** – between 3 - 7% of agricultural soils could be improved
- **Recycling of resources** – Nutrients P & N and organic matter. Phosphor reserves only for 70 years!

ENERGY
- **Potential for renewable energy** – maximum 7% of the EU 2020 target (= 20 %) if maximized energy production at cost of recycling
- **Potential to meet EU biofuel target (10% in 2020)** = 42% of the potential - if the bio-waste is subject to anaerobic digestion and all biogas is used as biofuel

Source: European Commission DG Env.

Organics Recycling by Composting in Europe (2009)

Degradation of <u>separately collected</u> organic wastes of households, gardens, parks and commerce

Ca. 2500 sites 40 % of which treat only green waste

Annual capacity -> 27 Mio. t

Additionally around 800 small agricultural co-composting plants mainly in Germany and Austria

Large potential for agricultural composting in new Member States and Austria, Scandinavia, Ireland, Spain and Portugal

Target: Manufacturing of a PRODUCT for fertilisation, soil improvement and humus management.

Green/Garden Waste Composting

Green waste composting in open windrows is state of the art in all European countries with very differing approaches from 200 t/y small scale up to 70.000 t/y high specialised composting companies producing high price growing media, potting soils with peat replacement

It is the main composting type for source separated organics in Finland, Denmark, UK, Ireland and France

Examples of treatment capacities:
- 3,0 mio t Germany
- 3,0 mio t France
- 0,4 mio t in Belgium (Flanders)
- 1,7 mio t Netherlands,
- 0,4 mio t in Sweden and

Anaerobic Digestion (AD) of Organic Residues & Wastes in EU (2010)

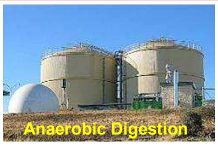
Target: Production of biogas (80%) or biofuels (Sweden, Switzerland) as renewable energy & of organic fertilisers

- 195 large AD sites with 5,9 million tons capacity for organic waste - post composting recommanded
- Additionally 7500 agricultural digestion and co-digestion sites for agricultural residues, energy crops & organic waste) -
- In total around 56 millon cbm digestates, 2.5 Gigawatt elect.
- Strong support by guaranteed feed-in-tariff 0.1-0.4 CAD/kwh

Use of Biogas

- 80 % in Europe in decentral combined heat and power CHP units with an increasing external use of the heat.
- Power generated is mostly sold to public grid as "green energy"
- < 20 % biogas upgrading to biomethane (mainly Sweden and Switzerland and Austria) as fuel instead of fossil natural gas.
- Upgrading means additional technical (gas cleaning, desulfurisation, drying ..) and economical efforts (2 - 6 ct/KWh). Grid connection mainly for plants >20.000 t/y.

Residual/mixed waste: Status of MBT and MSW Composting/AD (2009)



-> **Treatment of residual waste without or after separate collection by composting or digestion mostly to stabilise it before landfilling**

280 plants - 18 million t/year = ? million t compost like output mainly in Italy, Germany, Austria (France, Spain)

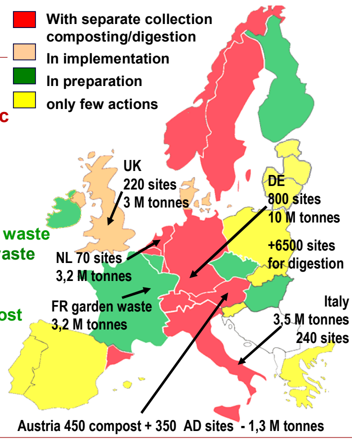
Target: Production of organic material **(WASTE!)** which can be used on restricted areas **(= Mixed Waste Compost MSWC)** or with very low organic matter content which is suitable for landfilling **(= Stabilised Biowaste SBW or SOF or CLO)**

Potential of organic waste in EU27:
115 M tonnes / year

Recycling in 2009:
16 M tonnes organic waste
11 M tonnes green waste
5 M tonnes digested

= 15 M tonnes compost

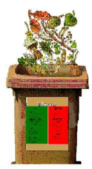
Only 1/4 of the potential - still a long way to go



Quality defines & confidence creates markets

Experiences of European Compost Producers

How to create sustainable compost markets?



Separate collection of organic waste
=
Clean sources

+

COMPOSTING ASSOCIATION CERTIFIED

Quality Assurance
=
External!! control

=

High quality composts/digestates
=
Marketable product

Quality Assurance, Certificates and Labels for Compost and Digestion Residues

QAS Monitoring in EU:
800 plants with capacity of 11 million tons composting and 2.5 million tons digestion

The Compost Market

Is there a demand for compost?

A) No real demand in starting countries, because compost products and their benefits are **UNKOWN**.

B) A strongly growing demand in advanced countries with mature and developed markets

- The amount of produced compost is increasing. No marketing problems for quality compost, high demand
- The development of different compost products leeds to an opening of additional market sectors and demand.
- Different market sectors have different prices, sometimes quite low, partly quite high (agriculture versus growing media sector)

Agricultural Market

Market for 50 % of the compost (up to 75%) and still increasing

Standard qualities, often fresh compost (D) or digestates (D/SWE)

No longer restrictive to compost. Farmers start to pay for compost!

Benefits became obvious:

Dry summers - water holding capacity of compost led to much higher yield e.g. with maize

Development of Nutrient Value of Compost

2005 to 2007, Value in € per t fresh matter FM and ha

Fertiliser	2005	2007	Increase
Compost	5,30 €/t FM	8,10 €/t FM	+ 52 %
	212 €/ha	320 €/ha	
Digestion products solid	7,80 €/t FM	11,70 €/t FM	+ 51 %
	156 €/ha	235 €/ha	
Digestion products liquid	4,45 €/t FM	6,72 €/t FM	+ 48 %
	123 €/ha	181 €/ha	

Additional 4 to 5 € for the organic matter in compost

The Landscaping Market

Market for > 20 % of the compost

High quality product for e.g. potting soils and growing media

The Challenge:

Product development according to specifications necessary in accordance with end-user requirements

Solutions (mixtures) are required, not only compost

The Hobby Gardener Market

Market for 20 % of the compost

Large target group (= the Public)

Important for the compost image

Has to be integrated by local closed loop approaches

Expensive public relation

BUT! deliverers of the raw material

Successful peat replacement in products for the hobby gardener market has been started with up to 70% substitution

Thank you!

European Compost Network ECN e.V.

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