

## EXPERIENCES WITH THE MIXED WASTE DIGESTION IN SPAIN

### RESULTS OF A SURVEY

Situation in Spain  
3rd Edition (2006)

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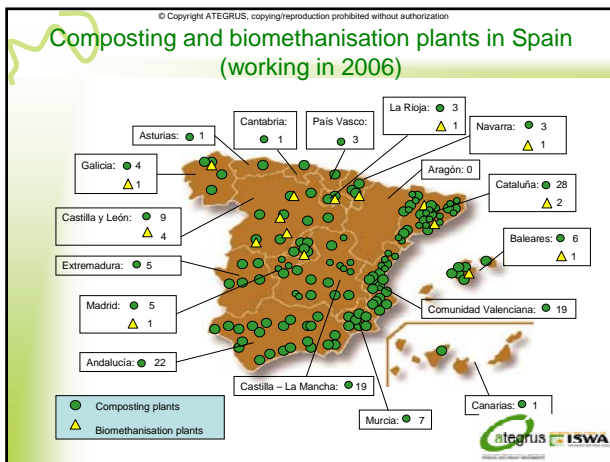
## Observatory of Biological Treatments 2007

Working methodology:

- Request of the authorized plants list to the Regional Environment Ministries.
- Surveys sent to people in charge of the plants.
- Updating of data obtained in 2004.
- Technical visits to all the plants of some Regions made by ATEGRUS observers, to know the general conditions.
- Surveys to the neighbours in order to know their general opinion about plants.

IDENTIFIED PLANTS	147
RECEIVED SURVEYS (shared out in an homogeneous way in Spain)	55 (40%)
VISITED PLANTS	60 (43%)

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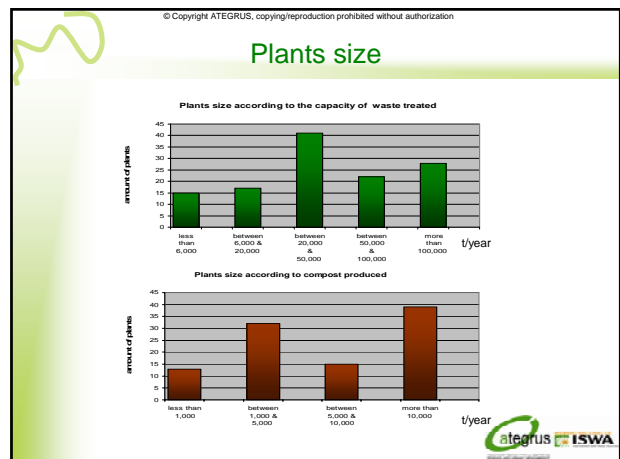
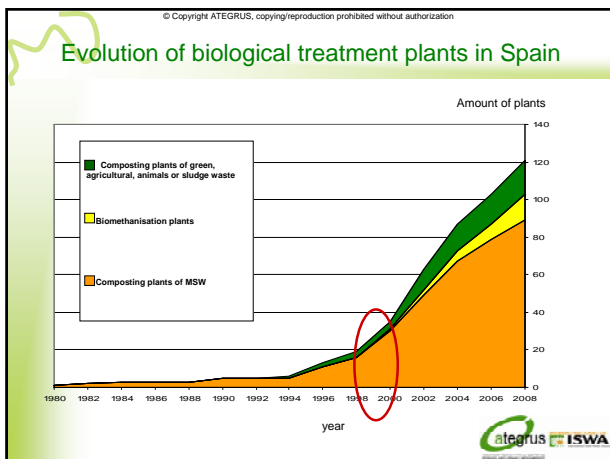
## Researched plants

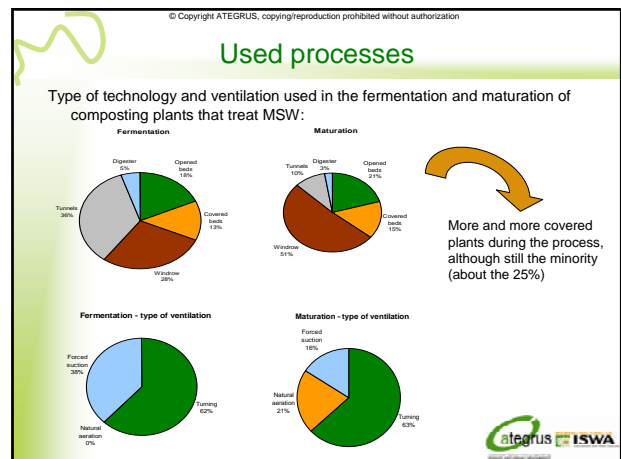
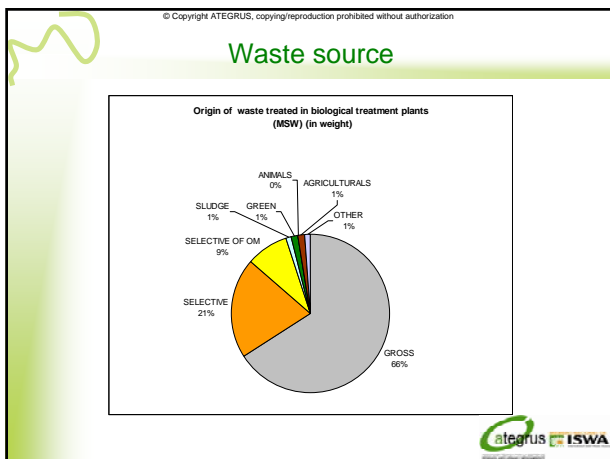
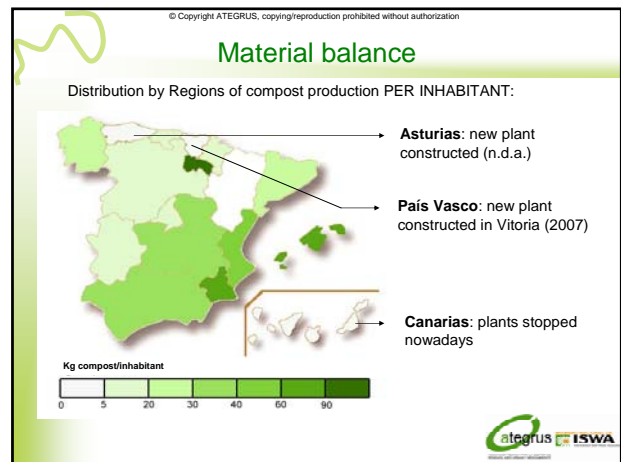
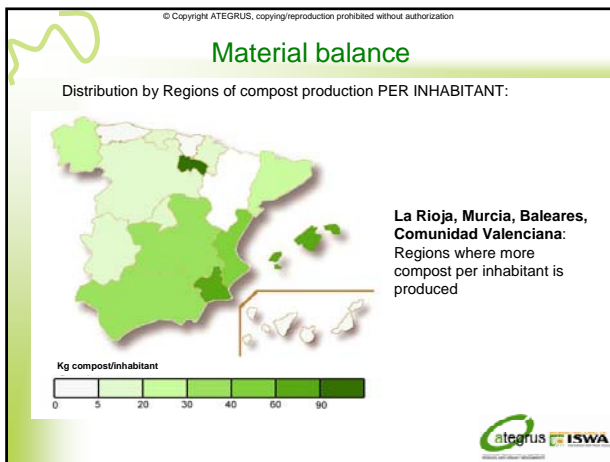
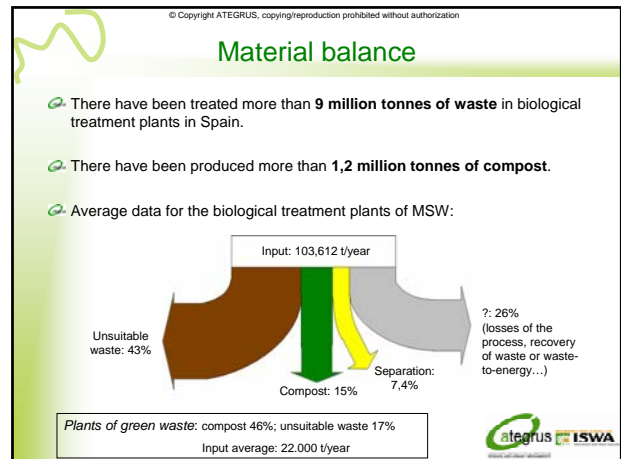
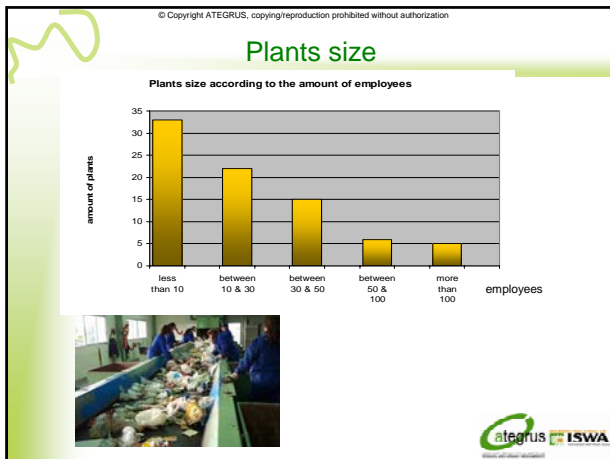
- There have been identified 147 plants, of which:
  - 91 are composting plants of municipal solid waste (MSW) and another waste
  - 45 are composting plants and don't treat any kind of MSW
  - 11 are biomethanisation plants

⇒ Only commercial size plants are considered in this observatory

- There are under construction, predicted for 2007-2008.
  - 10 composting plants
  - 6 biomethanisation plants

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### Used processes


Plants that treat green, agricultural, livestock and sludge waste:

- Windrow turning technology is highly used (80%)
- Very few plants covered (less than 7%)



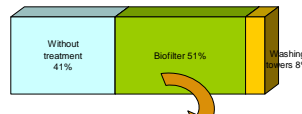
60% of the plants do **pre-treatment** of waste before the biological process.

67% of the plants do **treatment or recirculation of the lixiviates**



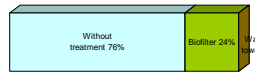

### Used processes: treatment against odours

Gases treatment (plants that treat MSW)



Percentage increasing (at least 2 more plants are already installing biofilters)

Gases treatment (plants that don't treat MSW)

### Used processes: treatment against odours

Odour problems:


- Are the 2nd problem being quoted by plants managers, after the conception problems
- Are detected by 50% of the neighbours
- Are detected in 34% of the visits done





### Analysis done

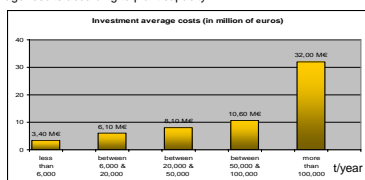
	PREVIOUS	DURING THE PROCESS	POSTERIOR
Gases analysis	0%	100%	100%
Nutrients	10%	100%	100%
Humidity	30%	100%	100%
Organic material	30%	100%	100%
Microbiological	10%	100%	100%
pH	20%	100%	100%
Temperature	10%	100%	100%
Aeration	10%	100%	100%
Heavy Metals	20%	100%	100%
Waste	80%	100%	100%
Characterization	80%	100%	100%
Visual Inspection	80%	100%	100%



### Market and economical aspects


Average investment

- 33 plants have answered the question about investment cost (plants started between 1999 and 2007)
- Average results according to plant capacity:




Types of financing

- Mainly European origin: cohesion funds and FEDER-POMAL
- Municipal financing
- Private financing



### Market and economical aspects


Distribution by Regions: sold compost in relation to produced compost

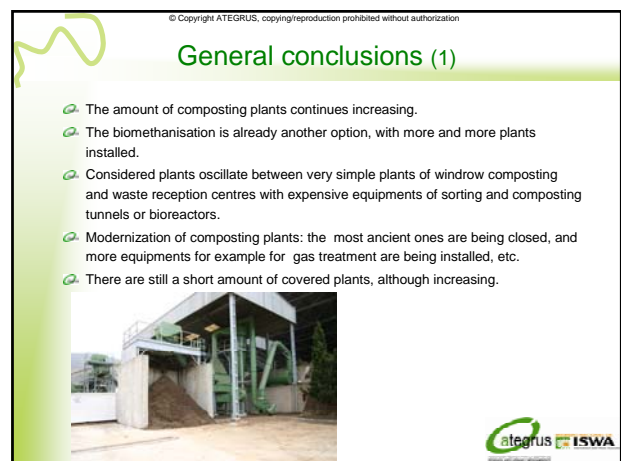
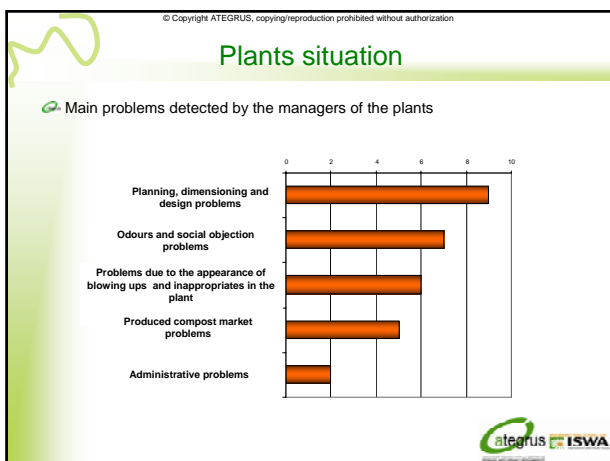
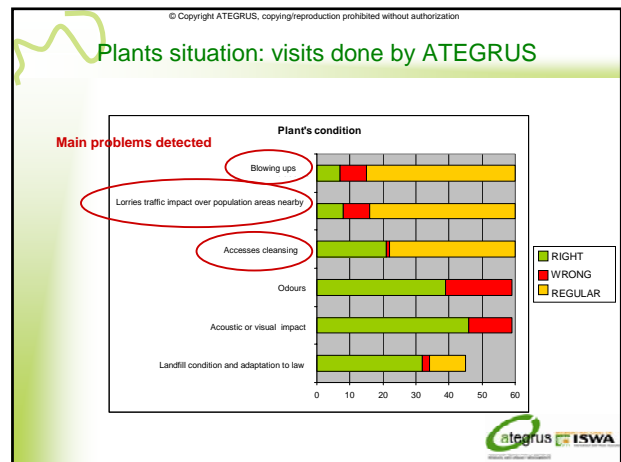
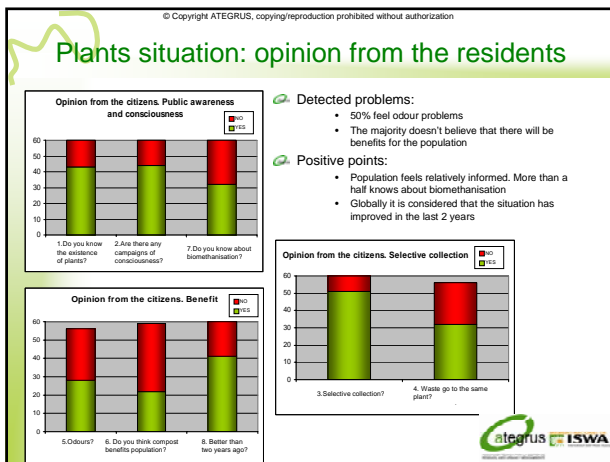
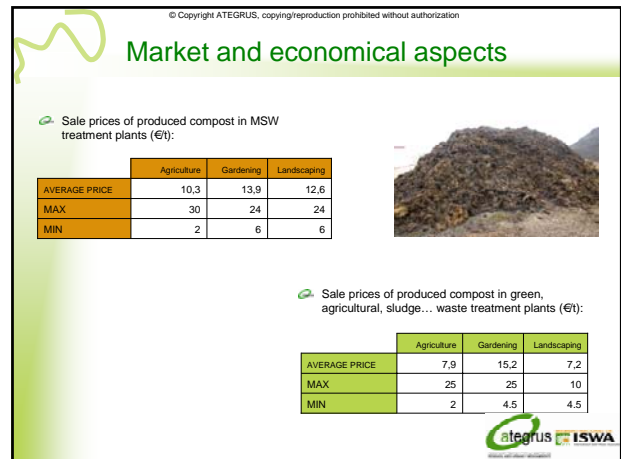
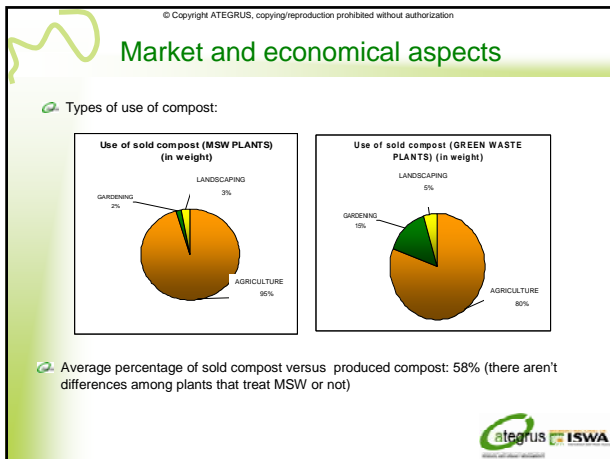


- Heterogeneous distribution that doesn't seem to be explained by geographical reasons or soil necessities
- The relation with the quality of the compost produced doesn't seem clear either
- Areas with more difficulties to commercialize: Murcia, Castilla y León

% Sold compost

Regions where compost is not produced or very little







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## General conclusions (2)

- The main use of compost is agriculture, therefore the quality has to be a very important aspect.
- Odour and compost market difficulties continue being the essential problems.
- Inappropriate dimensioning of lots of plants or the excess of waste to be treated causes lots of problems in the operating plants.



AGENCIJA ZA PROMICANJE IZVEDENJA IZ OBLASTI  
OKOLNEGA ZAŠTITE I VARNOSTI



Thank you very much  
for your attention

Further information from:  
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