BIOMASA PENINSULAR
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“M.S.W. ORGANIC FRACTION
under SEPARATE COLLECTION SCHEMES:
GOOD PRACTICES and BIOREFINERY APPROACH”

2nd Interregional event
Castilla-La Mancha, Puertollano
November 28th, 2017
SUMMARY

1. ACTIVITY of Grupo BIOMASA
2. ALGODOR R&D&i and EXP PRODUCTION CENTRE
3. The CLAMBER MSWOF Project
4. Other RELATED PROJECTS
5. WHAT IS OUT to the MARKET?
1. Activity of Grupo BIOMASA

BIOMASA PENINSULAR holding company of Grupo BIOMASA, providing full services related to recycling organic by-products:

- Consulting and Engineering
- R&D&i technology and bio-products development
- Design and turnkey supply of composting systems
- Development and production of Bio-based fertilisers (Compost, Biochar) and new solid and liquid biofertilisers, biostimulants

BIOMASA del GUADALQUIVIR subsidiary company, specialized in management services of Bioresidues and By-products

- Recycling services of bio-residues / Operation Recycling plants

Spanish Technology Platform of Plant Biotechnology "BIOVEGEN" [www.biovegen.org](http://www.biovegen.org) from December 2014

Member of Spanish Water Technology Platform PTEA" [www.plataformaagua.org](http://www.plataformaagua.org) from March 2015

Member of Scientific - Technological Park of Córdoba [www.rabanales21.com](http://www.rabanales21.com)

Grupo BIOMASA operates 5 Recycling Centres with 170,000 m² surface with a treatment capacity of 140,000 t/year:

- **El Salao”** Composting Plant. Vegas del Genil (Granada)
- “Els Ramblars” Municipal Recycling Center. Xabia (Alicante)
- “Montes Orientales” Composting Plant. Darro (Granada)
- **“Algodor”** R&D&i Experimental Production Centre. Toledo
- “El Raigal” Composting Plant. Almonte (Huelva)
2. Algodor RD Exp Production Centre

Organic fraction processing line

Anaerobic digestion line

SEPARATE COLLECTION

Auxiliary equipment and installations
BIOMASA PENINSULAR
Pilot Plant of Windrow aerated piles w/ semi-permeable cover

Dynamic Composting Reactor of 1500 L.

COMPOSTING

Pilot Plant of Windrow aerated piles w/ semi-permeable cover

Monitoring and Control
COOPERATION with TOLEDO GASTRONOMY SCHOOL
In SUMMARY: GOOD PRACTICES  TECNOLOGY  BIOPRODUCTS

- Model of Separate collection and Treatment for MSWOF.
- Development of bio-products with high added value (liquids and solids).
  - Liquid Bio-fertilizers with phytofortifying action
  - Compost enriched with Biochar and PGPRs (Plant Growth Promoting Rhizobacteria)
- Development of Monitoring Software for Composting process control.
- Engineering Composting system.
Development in the digestate, consist of maintaining at a constant temperature of 28 °C and continuous agitation of 500 rpm.

Expected Bacillus concentration of $10^7$ UFC/mL were exceeded, as concentrations of microorganisms above $10^8$ UFC/mL were reached.
COMPOST ENRICHED WITH MICROORGANISMS

Inoculant - compost mixed at 1% ratio (inoculant volume/compost weight)

Agronomic trials

- Effect of bio-fertilizer in **Pepper** seedbed
  The bio-fertilizer at doses between 0.5% and 1.0% provides the best results.

- Field trial on pepper with different doses of biofertilizer
  Biofertilization increased the yield compared to the non-biofertilized control by 26% in the best case. Improving in all cases.

- Enhanced compost assays with PGPRs: **microcosm Maize test**
  The best results were obtained with the Enriched compost at 5 t/ha dose.
  30% increase in wet weight and 27% in dry weight.
Composting monitoring and control

Composting pilot 1500 L in collaboration
### 4. Other related Projects

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<th>Project</th>
<th>Ending</th>
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<td>AgriREFIN - BIOREFINERÍA AGRÍCOLA para VALORIZACIÓN de BIORESIDUOS de la HORTICULTURA INTENSIVA. (Grupos Operativos MAPAMA 2016 - Fase I)</td>
<td>2017</td>
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5. What is out to the market?

**Bio-products**
(Initially developed with IRIAF and Cooperatives in Castilla La Mancha)
- Liquid Biofertiliser
- Biochar and PGPRs (Rhizobacteriae) ammended Compost (Carbo-compost)
- Capitalising knowledge for biostimulants and biofertilisers production

**Technology**
(Design and turn-key for small and medium size composting plants)
- Advanced and flexible Compost Process Monitoring Software
- Standardized probes and comm equipment for process monitoring
- Wireless data transmission and remote control access via internet

**Services**
- Integrated model of Separate collection and Treatment for MSWOF
- Engineering, Eq Supply and Operation of Composting systems
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"THANK YOU FOR YOUR ATTENTION"

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