

# “Valorización de residuos orgánicos biodegradables”

(Xuño - 08)

**D. SEVERIANO ONEGA ARES**

[www.agroamb.com](http://www.agroamb.com)

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27003 - LUGO

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Fax: 982-240-534



**EXPERIENCIAS NO  
EXTRANXEIRO.....**



## About Us

**SYNAGRO Technologies, Inc. is America's largest recycler of organic residuals for water and wastewater residuals management.**

SYNAGRO Technologies, Inc. recycles biosolids and other organic residuals from municipal and industrial generators. The company offers a variety of residuals management services for organic, non-hazardous residuals resulting from water and wastewater treatment processes, including:

- Facility cleanout
- Dewatering
- Transportation
- Land application
- Disposal
- Drying and pelletization
- Composting
- Alkaline stabilization
- Incineration
- Product marketing

We partner with our clients to develop cost-effective and environmentally sound solutions for residuals processing and beneficial use.

Synagro is committed to managing its business in accordance with basic tenets of environmental responsibility, including:

- Practicing sustainable development
- Implementing the precautionary principle when managing and controlling risk
- Taking preventive action to stop problems before they start
- Being good neighbors to communities in which we live and operate

Our services and operational practices conform to both regulatory requirements and the broader commitment to address all aspects of environmental protection. The services and technologies we provide are a valuable component in society's continuing effort to manage resources in ways that responsibly address environmental and developmental issues.



**800.370.0035**  
1800 Bering Drive  
Suite 1000  
Houston, TX 77057  
E-mail Us

## Services

SYNAGRO offers a range of high-performance organic waste residuals management and beneficial use services.

Fewer resources? More responsibilities? You're not alone. Get instant and cost-effective access to biosolids and organic waste management expertise, technology, and experience involving:

- Alkaline Stabilization
- Composting
- Digester Cleaning
- Drying and Pelletizing
- Incineration
- Lagoon Cleaning
- Land Application
- Mobile Dewatering
- Product Marketing
- Rail Transportation

Synagro has broad experience with many types of Class A and Class B biosolids processing and management approaches, ranging from Class B transportation and land application programs to higher technology options such as composting, alkaline stabilization, incineration, and heat drying and pelletization.

While we offer many distinct services to a number of facilities like yours, our staff approaches each customer with an eye towards its unique operational, political, and financial challenges. So whether you are looking for general services or a customized residuals management solution, **contact us** for more information.



800.370.0035  
1800 Bering Drive  
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## Industries Served

Get residuals management solutions engineered using industry-specific experience and attention to your specific operation.

Generic residuals management solutions simply don't exist. Your business has needs that defy generalization and cookie-cutter solutions. SYNAGRO's custom service and product packages can help you address critical residuals management issues quickly and economically from cleaning to disposal to marketing of waste materials.

- Chemicals
- Food
- Municipal
- Pulp and Paper
- Power Gen
- Textiles

Don't see your industry? Contact us anyway at **800.370.0035** or at **info@synagro.com**. Most likely, we have clients in your industry, and experience overcoming organic waste challenges just like yours.



From beneficial use to specialty facilities, SYNAGRO delivers application expertise and experience.

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1800 Bering Drive  
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nutri-bio introduction

latest news

- home
- product & service
- quality assurance
- financial implications
- safe sludge matrix
- latest news & tips
- links
- contacts



**Anglian Water is one of the leading water companies in the UK and covers a large geographical area. This includes Lincolnshire, Cambridgeshire, Northamptonshire, Bedfordshire, Buckinghamshire, Norfolk, Suffolk and Essex.**



'nutri-bio' is the final treated product of sewage treatment otherwise known as biosolids. It offers enormous potential to make savings on agronomic inputs, providing valuable quantities of organic material, nitrogen, phosphate, sulphur and magnesium. 'nutri-bio' presents a value for money service, including soil sampling, delivery and application, with year round availability.

**Farmer Benefits**

- value adding product cost effective source of nutrients
- organic matter- soil conditioning properties
- wide range of trace elements
- all inclusive spreading service
- professional advice (all Anglian Water farm sales advisors are Fertiliser Advisors Certification and Training Scheme (FACTS) qualified)

If you would like any further details please browse our site, contact one of the Farm Sales Advisors on the [contacts](#) page.

All efforts are focusing into making cost savings, the boom in fertiliser prices means that the profit margins are shrinking, unlike our waistlines after Christmas. [more...](#)

fact sheets

- biosolids recycling to agriculture
- heavy metals
- information summary
- nitrate vulnerable zones
- organic pollutants
- safe sludge matrix
- service to agriculture
- managing soil acidity
- frequently asked questions
- Managing Soil Organic Matter

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### History of Sludge Application

Originally Anglian Water, along with several other water companies, supplied sludge to farmers in the form of a liquid. Liquid sludge was directly injected into the soil. There was also a small quantity of digested cake produced at some of the larger centres and in fact a programme was in place to increase the amount of treated cake product produced.



This programme was accelerated when concerns were expressed about the use of untreated sludge on land where food crops were being grown. The water companies, under the auspices of Water UK, met with the British Retail Consortium and ADAS to derive a set of protocols and treatment processes.

A document was produced clearly stating which categories of biosolids could be used in conjunction with various crops and what if any periods were needed between application of the product and harvesting of the crop.

This was the origin of the Safe Sludge Matrix, which now forms a major part of the systems under which Anglian Water operates to ensure safe and sustainable use of biosolids in the agricultural industry.



The majority of products are now sold as solid materials, either a digested cake which is produced when sludge is anaerobically digested for 14 days at +35 degrees, or by adding calcium oxide to sludge which raises both the temperature and pH to produce a treated product.

### Treatment types

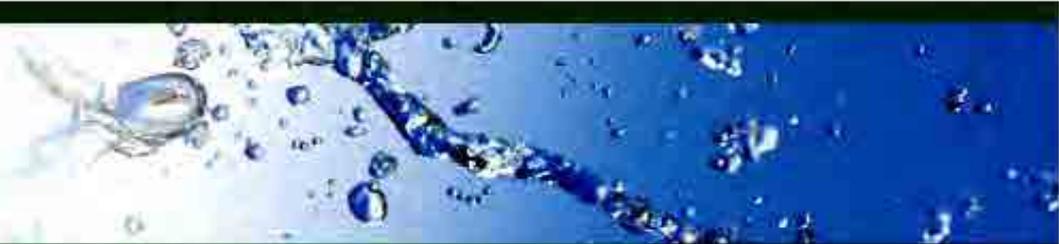
- digested
- lined
- dried (granular/pellets)
- compost
  - green waste
  - co-compost

[← back to product and service](#)

Sludge is a by-product of the natural sewage purification process that takes place at all Anglian Water's sewage treatment works. [more...](#)

### fact sheets

[biosolids recycling to agriculture](#)[heavy metals](#)[information summary](#)[nitrate vulnerable zones](#)[organic pollutants](#)[safe sludge matrix](#)[service to agriculture](#)[managing soil acidity](#)[frequently asked questions](#)[Managing Soil Organic Matter](#)



## product and service

## latest news

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### **Anglian Water offers the nutri-bio product and service to farmers throughout the Anglian Water region.**

There are huge financial benefits from the use of nutri-bio products and services.



To find out more about any of our products or services please click on the links below

- [product development](#)
- [nutri-bio products](#)
- [delivery and stockpiling](#)
- [soil analysis](#)
- [spreading](#)
- [advice](#)

Some of the products available are:

- nutri-bio cake
- nutri-bio calci-cake
- nutri-bio granules
- nutri-bio co-compost
- nutri-bio compost

Applications of organic manure on arable land, will increase the need to improve the accuracy of nitrogen recommendations. [more...](#)

## fact sheets

[biosolids recycling to agriculture](#)

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## ● PRODUCTS

### **In-Vessel Composting Systems**

Plants can be designed to process almost any volume of waste with diverse intake of waste streams... [more](#)

### **Mechanical and Biological Treatment**

Agrivert's combined MBT process can be deployed to achieve varying objectives for the customer... [more](#)

### **Green Waste Composting**

Agrivert specialises in the design, construction and operation of Green Waste Composting sites... [more](#)

### **Biosolids**

Agrivert has developed a unique process using centrifuge technology to dewater and lime treat sewage sludge... [more](#)

## Welcome



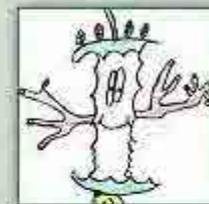
### **MBT, Green Waste Composting, Kitchen Waste Composter and In-Vessel Composting - Agrivert UK**

Agrivert is a medium sized company with over 13 years' experience in the organic waste management sector. We are proud to have built market leading positions in **MBT, Composting** and **Biosolids**.

Operating across the UK, Agrivert works for many Local Authorities and water companies in the specialist field of organic waste processing and recycling.

Agrivert's long term experience gained in large scale processing and recycling of organic waste has allowed Agrivert to apply its knowledge in a relevant manner to the significant emerging market of municipal waste treatment. We can now offer the market a focused range of solutions for biodegradable municipal waste.

**It is estimated that 64% of the waste produced in gardens, parks and in the home could be recycled through composting.**



### **Composting Competition**

We recently ran a competition for school children in West Oxfordshire to raise awareness in the value of composting. See the winners and runners up [here](#).



### **Meeting your recycling targets**

Agrivert has produced a free DVD to explain its approach to In-Vessel Composting more clearly. The DVD includes information on site design, construction and operation.

[request your copy](#)



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## ● PRODUCTS

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## Biosolids Sewage Sludge Treatment

Treatment of sewage sludge has become a significant issue for water companies since dumping at sea was made illegal in 1997. One solution for sewage sludge is to sanitise it and stabilise it into a 'cake' which then can be used as a fertiliser on agricultural land.



The challenge for the water industry is to produce a process that is robust, cheap and creates minimum odour. This process usually involves extracting the liquid element of the sludge and then treating the solid residue with lime, which heats up the cake and sterilises it. The lime content also adds a nutrient value that enhances the cake as an agricultural fertiliser. Once treated, the cake has a significantly reduced odour and is sterilised to a degree that it is safe to spread directly onto land.

Many different systems have been trialed and operated within the UK using different mechanisms, including belt presses and centrifuges. Because it is critical to have a constantly operational plant, most UK companies run systems that have significant operational redundancy and spare parts on-line that in effect triple the size of the plant needed to be built.

Agrivert has designed a unique process using centrifuge technology to dewater and lime treat sewage sludge to produce a stable cake. The design has very high output levels compared to the capital investment needed and has very low operating costs. Critical spares are kept on site to ensure smooth and uninterrupted operation of the plant.

## CASE STUDY

### **Case Study:** **Northumbrian Water**

A sewage sludge treatment plant built and run for Northumbrian Water by expert waste treatment company Agrivert has been hailed for its design and efficiency... [coming soon](#)





Cont@ct

>>> Les Matières Fertilisantes Recyclées <<<

- Membres
- Identifiant \*\*\*\*\* OK
- Identifiants perdus ?
- Nos missions
- Nos actions
- Nos partenaires - liens
- Nos Adhérents

## NOS ACTIONS

Outre une participation active aux débats préalables aux évolutions réglementaires et normatives le SYPREA mène des actions diversifiées visant à pérenniser la filière d'épandage agricole des boues de stations d'épuration.

## GPS

Le SYPREA a mené en partenariat avec l'ADEME et le CEMAGREF une étude sur l'utilisation du dGPS pour le suivi des épandages. Les premiers essais ont débuté en 2002 et ont permis une évolution du système au cours de l'année 2004 sur les 4 sites pilotes participants. Les résultats obtenus ont montré que le dGPS améliore à la fois la précision et la traçabilité de l'épandage. En effet, le dGPS guide les conducteurs sur un itinéraire prenant en compte les particularités de la parcelle et permet un enregistrement des données de l'épandage (quantités épandues, zones de passage...).

Même si des progrès sont encore nécessaires pour permettre la généralisation de cette pratique, elle représente une nouvelle étape dans la professionnalisation de la filière d'épandage des boues.

**Les membres du SYPREA engagés dans cette démarche envisagent de continuer cette pratique et même de l'étendre, ce qui montre leur confiance dans les techniques mises en oeuvre.**

Notons que le premier prix de l'Innovation 2004 est venu couronner l'un des membres du SYPREA participant à ce programme.

[Télécharger l'étude](#)

## ERS

Afin d'approfondir les connaissances sur l'impact potentiel des boues sur la santé humaine, le Syndicat des Professionnels du Recyclage en Agriculture (SYPREA), en partenariat avec l'Agence de l'Environnement et de la Maîtrise de l'Energie (ADEME), le Syndicat Professionnel des Distributeurs d'Eau (SPDE) et l'Institut National de l'Environnement Industriel et des Risques (INERIS) ont réalisé une étude visant à mieux évaluer les risques sanitaires liés aux épandages de boues.

Pendant plus de 2 ans, un important travail a été réalisé afin de rassembler les connaissances existantes. Celles-ci ont ensuite été utilisées pour déterminer les risques auxquels sont exposés tant les agriculteurs qui exploitent les parcelles fertilisées grâce aux boues que les populations riveraines des zones d'épandage.

L'étude, confortée par les observations de la cellule de veille sanitaire, montre qu'en 20 ans aucun accident sanitaire n'a pu être imputé à l'épandage de boue en agriculture. Cette observation est d'ailleurs corroborée par la démarche menée qui valide le fait que lorsque la réglementation est respectée, les risques sanitaires liés aux épandages sont extrêmement faibles.

## DVD

Malgré les exigences croissantes de la réglementation et la progression régulière de la qualité des boues et des épandages, le recyclage agricole reste un sujet soumis à controverses.

Ce constat a poussé le SYPREA à engager une action ambitieuse de communication, aboutissant en juillet 2006 à la réalisation d'un DVD intitulé : « Recycler les boues en agriculture, un choix raisonné ».

Il apparaît en effet que le déficit d'image du recyclage agricole trouve ses racines, comme beaucoup des polémiques qui menacent les filières alimentaires, dans le manque d'information des consommateurs.

Un nombre extrêmement limité de personnes savent comment sont produites les boues et ce qu'elles contiennent. Il en va de même en ce qui concerne la mise en œuvre et le suivi des opérations d'épandage. Les enquêtes publiques prévues dans le cadre des procédures d'autorisation donnent souvent lieu à des oppositions acharnées motivées par le syndrome NIMBY (faites ce qui vous voulez de vos boues mais ne venez pas les traiter ou les épandre derrière chez moi).

Dans ce contexte, les membres du SYPREA considèrent comme un véritable challenge le fait d'apporter des informations objectives sur ce sujet délicat et de les mettre à la disposition de tous sur un support interactif.

**Pour vous procurer gratuitement ce DVD, envoyez votre adresse à [contact@syprea.fr](mailto:contact@syprea.fr)**





# Milorganite<sup>®</sup> Lawn & Garden Products

HOMEOWNERS

STORE FINDER

DEALERS

PROFESSIONAL

GARDEN WRITERS



## For Better Results. Naturally.

*Recommended by Horticulture Expert,  
Melinda Myers, author of Birds  
Blooms Ultimate Gardening Guide*




How do we  
make this  
stuff?



*new video, click here*

Milorganite ~ 260 W. Seeboth Street, Milwaukee, WI 53204 ~ (800) 304-6204

[info@milorganite.com](mailto:info@milorganite.com)

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AGROamb<sup>®</sup>

# Milorganite® Lawn & Garden Products

HOMEDOWNERS

STORE FINDER

DEALERS

PROFESSIONAL

GARDEN WRITERS

## Products

### Milorganite 6-2-0 Classic (4Fe)

SGN 160

Milorganite helps everything from fairways to roughs look their best.

- Non-Burning
- Slow-Release Organic Nitrogen
- Rich in Iron

[Classic Bag Label – English](#) 

[Classic Bag Label – Spanish](#) 



### Milorganite 6-2-0 Greens Grade (4Fe)

SGN 90

The industry's favorite organic nitrogen fertilizer is also available in a smaller particle size. Specifically developed for use on greens, Milorganite Greens Grade settles into the turf canopy. Your patrons can play through on clean putting surfaces after application.

[Greens Grade Bag Label – English](#) 

[Greens Grade Bag Label – Spanish](#) 



#### SALT INDEX

MATERIAL	INDEX
Potassium Chloride	116
Ammonium Nitrate	109
Sodium Nitrate	100
Urea	75
Potassium Nitrate	74
Ammonium Sulfate	69
Calcium Nitrate	53
Sulfate of Potash	46
Methylene Urea	24
Urea Form	10
IBDU	5
<b>Milorganite</b>	<b>2</b>

#### GUARANTEED ANALYSIS

Total Nitrogen (N)	6.0%
0.75% Water-Soluble Nitrogen	
5.25% Water-Insoluble Nitrogen (Slowly Available)	
Available Phosphate (P <sub>2</sub> O <sub>5</sub> )	2.0%
Calcium (Ca)	1.2%
Total Iron (Fe)	4.0%

Nutrients Derived from Biosolids

Net Weight: 50 lbs. (22.7 kilos)

*Also available in half-ton and one-ton sacks.*



# O Procesado e a Reciclaxe de Biosólidos

- ☀️ • Qué fai Agroamb?
- ☀️ • Cómo?
- ☀️ • Por qué?



## Qué fai Agroamb?

- ✿ **Xestor de Residuos CG-I-NP-XV-64 y SC-U-NP-40, RIV-24/01**
- ✿ **Planta Técnica ES.27.04.PTEC segundo R (CE) 1774/2002**
- ✿ **Procesa e recicla sobre 70.000 toneladas de biosólidos = *recursos* por ano.**
- ✿ **Dispón dun Banco de Terras cunhas 3.700 has autorizadas pola Consellería do Medio Rural correspondentes a 400 agricultores e gandeiros.**
- ✿ **80 produtores, principalmente EDAR's e Industrias Agroalimentarias.**
- ✿ **Opera en toda Galicia e comunidades próximas.**

## Qué fai Agroamb?

### ☀ Empresas do Grupo AGROAMB

- ☀ **AGROAMB-TRESIMA, U.T.E.** Xestión e prestación de servizos medioambientais
  - ☀ **TRESAMB, S.L.** Loxística específica en contenedores e basculantes.
  - ☀ **ONEGA ARES, S.L.U.** Servizos avanzados de tecnoloxía agraria.
  - ☀ **TROBO AGRÍCOLA, S.C.G.** Producción integrada da terra.
  - ☀ **AGROAMB** Valorización e tratamento de recursos biodregadables.
- 

## Qué fai Agroamb?

### ☀ PROYECTOS DE I+D+i:

- ▶ **PROXECTO DE “VIABILIDADE DO APROVEITAMENTO DE ACEITES E GRAXAS ANIMAIS EN DIFERENTES AREAS INDUSTRIAIS”**

CONSELLERÍA DE INNOVACIÓN E INDUSTRIA. FOMENTO DA INNOVACIÓN EMPRESARÍAL. Código IN841B 2007/49

- ▶ **PROXECTO “VALORIZACIÓN AGRONÓMICA NO EMPREGO DE RESIDUOS ORGÁNICOS NA ELABORACIÓN DE FERTILIZANTES**

PLAN GALEGO DE INVESTIGACIÓN, DESENVOLVEMENTO E INNOVACIÓN TECNOLÓXICA [PGIDiT]. Código PGIDiT05RAG025E  
ANTONIO RIGUEIRO RODRÍGUEZ E ROSA MOSQUERA LOSADA [DPTO. DE PRODUCCIÓN VEXETAL DA E. P. S. DE LUGO]

- ▶ **COLABORADOR NO PROXECTO "INVESTIGACIÓN A ESCALA INDUSTRIAL PARA A RECICLAXE E A VALORIZACIÓN DOS RESIDUOS ORGÁNICOS E DA INDUSTRIA PESQUEIRA“**

PLAN GALEGO DE INVESTIGACIÓN, DESENVOLVEMENTO E INNOVACIÓN TECNOLÓXICA [PGIDiT]. Código PGIDIT03tAM24E.

## Qué fai Agroamb?

### ☀ PROYECTOS DE I+D+i:

- ▶ **COLABORADOR NO PROXECTO "INERTIZACIÓN E PROMOCIÓN DO RECICLADO DE RESIDUOS DERIVADOS DO VERTIDO DE FUEL DO BUQUE PRESTIGE"**

PLAN GALEGO DE INVESTIGACIÓN, DESENVOLVEMENTO E INNOVACIÓN TECNOLÓXICA [PGIDiT]. Código PGIDIT03TAM06E

- ▶ **PROXECTO "DESENVOLVEMENTO DE ESTRATEXIAS PARA A INTEGRACIÓN AMBIENTAL DE MESTURAS DE LODOS DE DEPURADORAS, CINZAS DE COMBUSTIÓN MADEIREIRAS E MATERIAIS TRADICIONAIS"**

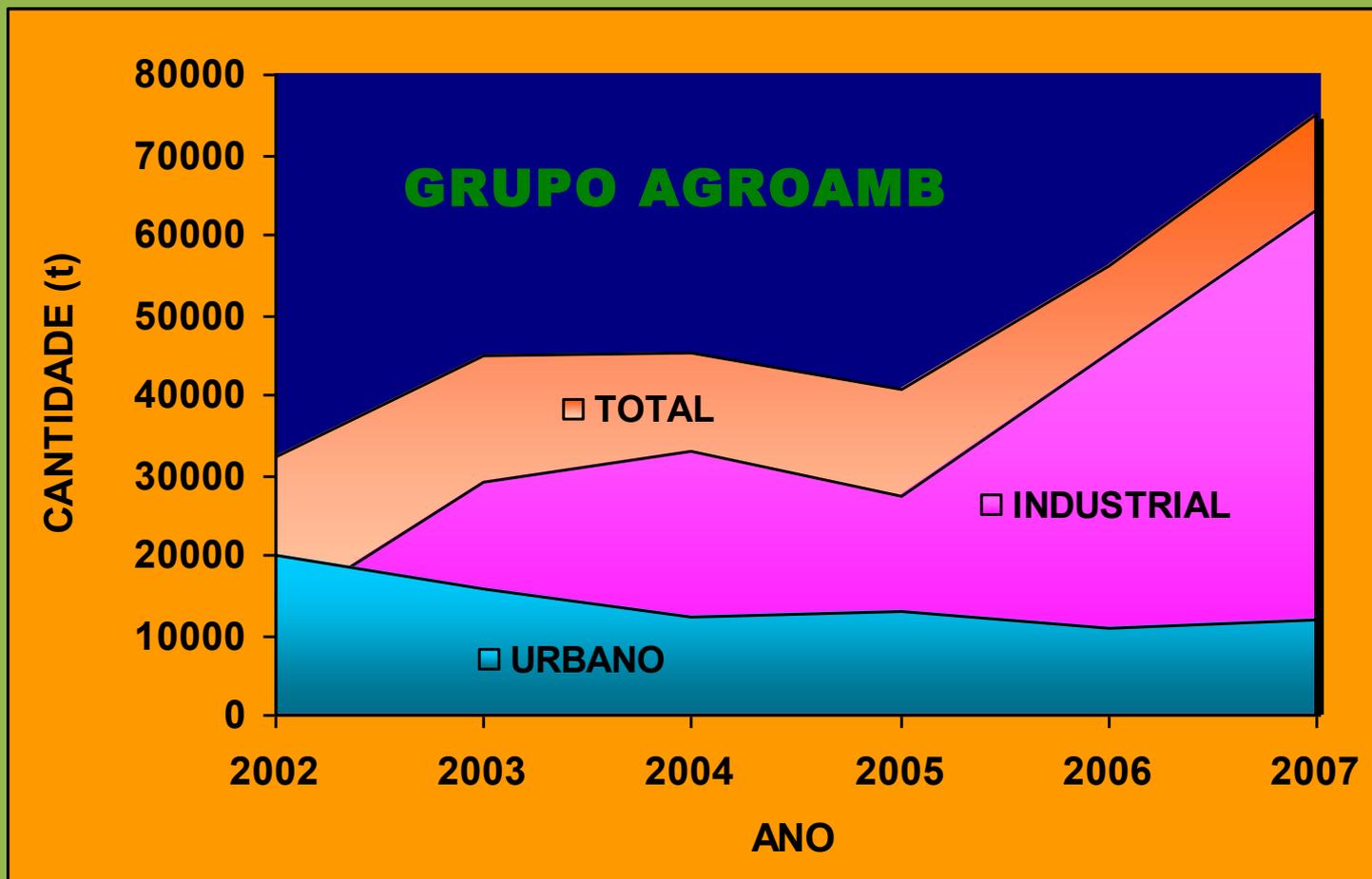
PLAN GALEGO DE INVESTIGACIÓN, DESENVOLVEMENTO E INNOVACIÓN TECNOLÓXICA [PGIDiT]. Código PGIDIT02TAM02E  
AVELINO NÚÑEZ DELGADO [DPTO. DE EDAFOLOGÍA E QUÍMICA AGRÍCOLA DA E. P. S. DE LUGO].

- ▶ **PROXECTO "O ESTUDO DO EMPREGO DE BIO-RESIDUOS NO CULTIVO ROTACIONAL DO MAÍZ E RAY-GRASS ITALIANO"**

PLAN GALEGO DE INVESTIGACIÓN, DESENVOLVEMENTO E INNOVACIÓN TECNOLÓXICA [PGIDiT]. Código PGIDT01MNAM01E  
ANTONIO RIGUEIRO RODRÍGUEZ y ROSA MOSQUERA LOSADA [DPTO. DE PRODUCCIÓN VEGETAL DA E. P. S. DE LUGO].

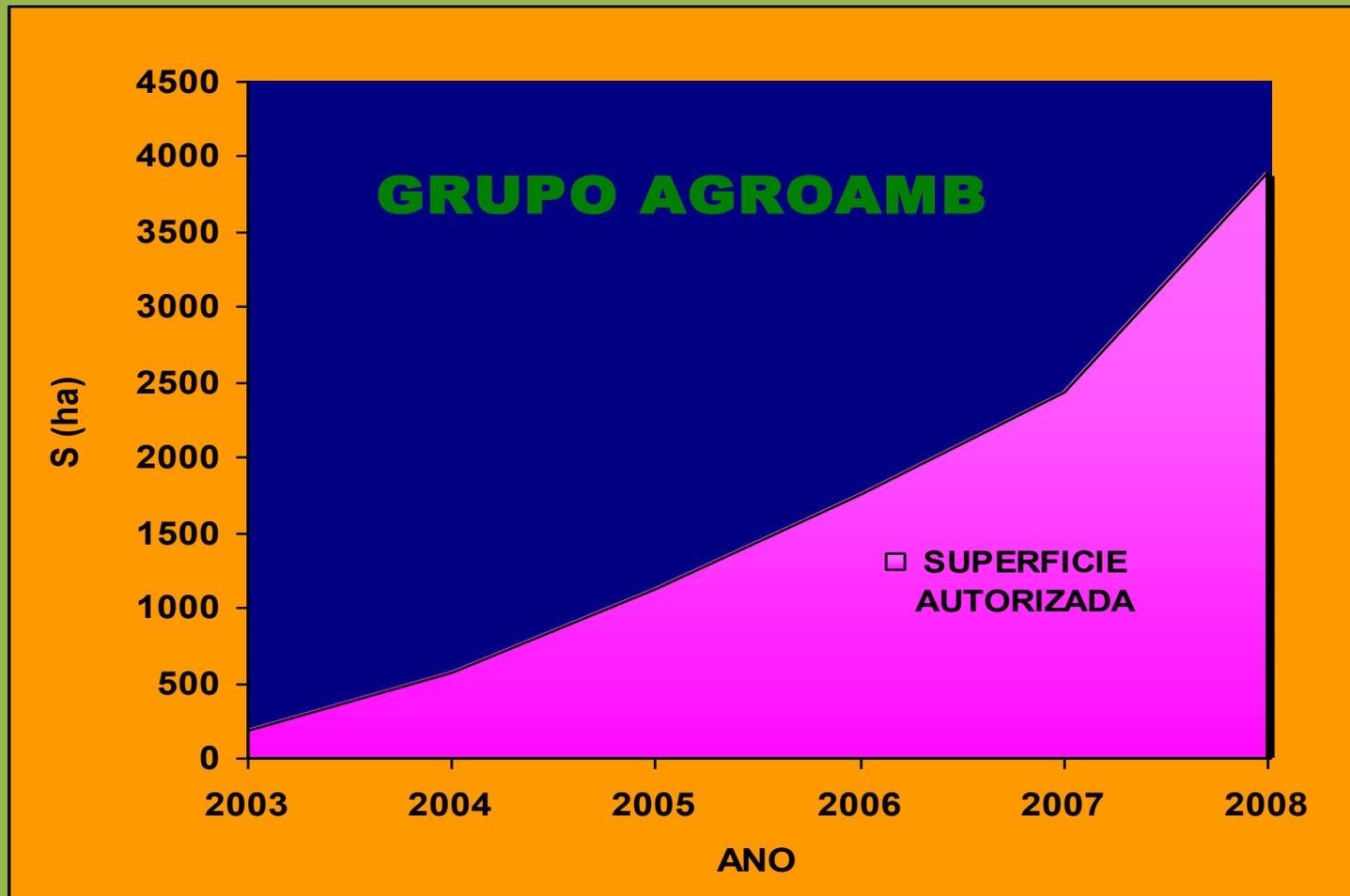
Qué fai Agroamb?

## ☀ EVOLUCIÓN RESIDUOS XESTIONADOS



Qué fai Agroamb?

## ☀ EVOLUCIÓN SUPERFICIE XESTIONADA



# O Procesado e a Reciclaxe de Biosólidos

Cómo?

☀ Provee ós agricultores e gandeiros con servicios e produtos de calidade

☀ Provee ás Estacións Depuradoras de Augas Residuais e as Industrias Agroalimentarias unha solución *todo nun*.

# O Procesado e a Reciclaxe de Biosólidos

## Cómo?

☀️ **Provee ós agricultores e gandeiros con servicios e productos de calidade**



- **Aforro de 1,5 t de CO<sub>2</sub> por ha (para una dosis 164 kg N<sub>disp</sub>/ha)**
- **Fertilizante - Recuperacion de solos - Cultivos Enerxéticos - Dixestión Anaerobia con recuperación enerxética** ↑ **Créditos CO<sub>2</sub>**
- **Aplicación agronómica de biosólidos.... non eliminación**
- **Producción dun recurso, transporte, entrega e valorización todo iso realizado por Agroamb.**

# O Procesado e a Reciclaxe de Biosólidos

## Cómo?

☀️ Proveen ós agricultores e gandeiros con servicios e productos de calidade

➤ Información agronómica detallada realizada por técnicos cualificados.

➤ Dixeridos, Estabilización Alcalina de biosólidos, obtendo un recurso con tódalas garantías.

➤ Todas ás aplicacións realízanse en consonancia coa lexislación e a información nutricional necesaria para o cultivo, sistema M.I.N.A.S.



# O Procesado e a Reciclaxe de Biosólidos

## Cómo?

☀️ Proveen ós agricultores e gandeiros con servicios e productos de calidade

- Todos os biosólidos son entregados nas fincas segundo as condicións da Consellería do Medio Rural e o Código de Boas Prácticas Agrarias.
- As pilas de almacenamento son situadas e *civilizadas* para minimizar a emisión de olores e de desprazamentos incontrolados



# O Procesado e a Reciclaxe de Biosólidos

## Cómo?

☀️ **Provee ós agricultores e gandeiros con servicios e productos de calidade**

- **Equipamento especial para a aplicación a baixa altura no terreo**
- **Os produtos son aplicados segundo as necesidades do cliente**
- **Información nutricional detallada sobre a aplicación realizada, e así levar un mellor control dos aportes fertilizantes na explotación**



# O Procesado e a Reciclaxe de Biosólidos

## Cómo?

✳ **Provee ás Estacións Depuradoras de Aguas Residuais e as Industrias Agroalimentarias unha solución *todo nun*.**

- **Tratamento del fango totalmente integrado na instalación do cliente**
- **Secado e Estabilización Alcalina**
- **Custos fixos do Reciclado (lodos depuradora, subprodutos, etc.)**
- **Garantizados os estándares de calidade e respecto ó medio ambiente, e a lexislación vixente**

# O Procesado e a Reciclaxe de Biosólidos

## Cómo?

✦ **Provee ás Estacións Depuradoras de Aguas Residuais e as Industrias Agroalimentarias unha solución *todo nun*.**

➤ **Planta fixa e móvil de secado de lodos para garantir un procesado e produción continua**



# O Procesado e a Reciclaxe de Biosólidos

## Cómo?

✦ Provee ás Estacións Depuradoras de Aguas Residuais e as Industrias Agroalimentarias unha solución todo nun.



➤ Planta móvil e fixa de procesado con estabilización alcalina.

# O Procesado e a Reciclaxe de Biosólidos

## Por qué .....

- **Custos baixos:**
  - merma na calidade dos produtos e nos procesos
  - son inaceptables

- **Os agricultores están suxeitos ó poder de compra dos grandes distribuidores e as grandes superficies – restrictivos protocolos de produccion**

- **Gandeiros e agricultores teñen alternativas á hora de obter fertilizantes.**





# O Procesado e a Reciclaxe de Biosólidos

Por qué .....?

**Agroamb elabora e suministra productos para ...**





# El Procesado y Reciclado de Biosólidos

**....asegurar a máxima calidad en todo o proceso!**





# O Procesado e a Reciclaxe de Biosólidos

Por qué .....?

Finalmente... a razón pola que nosoutros facemos todo isto é para que os nosos clientes obteñan

**Beneficios  
Medioambientalmente  
Sostibles!!**

## ☀ Referencias a estudios:

### ☀ CETAL. Centro Tecnológico Agroalimentario de Lugo.

- Colaboración para a validación dun novo método de transformación de Material de Categoría 2.
- Mellora na eficiencia das EDARI's mediante o uso do cal, e a utilización agrícola dos lodos.
- Estudo sobre a viabilidade e implantación dun sistema MINAS (*Netherlands*), sobre a xestión dos aportes de N e P na agricultura.

### ☀ ADEME. Agence de l'Environnement et de la Maitrise de l'Energie.

Célula de vigilancia sanitaria veterinaria sobre la aplicación de lodos de depuradora

## ☀ Referencias a estudios:

- ☀ **BIOCYCLE. Advancing composting, organics recycling & renewable energy. “BIOSOLIDS AND GLOBAL WARMING: EVALUATING THE MANAGEMENT IMPACT”.**

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**Outras opcións de valorización:**

**Norma Técnica**

**ITER / 01 / 08**  
***“TECNOSOLOS”***

## ☀ Valorización:

- Biodegradables (M.O., macro e micronutrientes).
  - Inertes (Soporte, estructura) .
- ☀ Fixación do C no solo, e naqueles casos na biomasa.
  - ☀ Recuperación de solo mais que unha fertilización.
  - ☀ Substitución de materias naturais e limitados (turba, terra vexetal,...).
  - ☀ Diminución dos gases de efecto invernadoiro fronte vertedura, incineración e compostaxe.

## **\* USOS:**

- **Recuperación de zonas degradadas por canteiras, minas a ceo aberto, etc.**
- **Recuperación de solo en áreas fortemente erosionadas: incendios, escorrentías, solos con escasa capa superficial vexetal e de solo. Ex.: Reforestación, Áreas recreativas.**
- **Selado vertedoiros: creación da cuberta vexetal.**
- **Viais e o seu contorno.**
- **Infraestructuras solos industriais.**

## ☀ PROHIBICIÓN:

- **Rede Natura 2000 e áreas protexidas, singulares ou de elevada sensibilidade. Ex. Turbeiras, marismas,...**
- **Pradarías e pasteiros naturais.**
- **Marxes de ríos e cabeceiras.**
- **Fontes e pozos.**
- **Bosques climáticos.**

**¡Gracias por su tiempo!**

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