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URBAN PLANNING ACTIONS

Strategic Plan for Ecological Infrastructures:

Detailed Planning of Residential Climate

DEMONSTRATION ACTIVITIES

Urban Design Solutions Catalog

Special Biodynamic Plan

Comfort Zones (ZCCR)



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USC

POLITÉCNICA

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At the forefront of sustainable urbanism

Energy crops in urban areas: highly energy-efficient biofuels



LIFE Lugo + Biodinámico is a European project promoted by the Concello de Lugo, pioneer in eco-sustainable planning in medium-sized cities, taking advantage of the use of own natural resources and boosting the green economy. Among the measures to be developed are the construction of the first public building built with Galician wood, the design of the first multi-ecological neighbourhood in Spain and the elaboration of a catalogue of sustainable urban solutions, exportable to other European cities.

In addition, informative spaces will be created for the scientific community and society in general with plantations of tree species and autochthonous shrubs that demonstrate their potential for the development of sustainable urbanism.

In the industrial estate of As Gándaras (Lugo), a demonstration plot is established in 2017 of the capacity that the urban environment can have to produce, efficiently, part of the biofuels it uses, especially for thermal use (heating and hot water-DHW).



The production of renewable energy through sustainably managed energy crops can have the following environmental advantages that contribute to reducing the greenhouse effect:

- Reduction of sulphur emissions.
- Reduction of particles in suspension (dust).
- Neutral CO₂ emissions without contributing to the greenhouse effect.

Miscanthus x giganteus

Fast growing perennial gramineae that can reach 4m in height. Non-invasive species as it does not produce viable seeds and its propagation is only vegetative.

Miscanthus x *giganteus* has low water and fertilization needs and a high capacity to fix CO_2 .

Miscanthus x *giganteus* is used in the manufacture of paper, building materials, as a nitrogen fixer, in the recovery of media altered by pollutants, but its main use is the production of energy, having a calorific value of 17 MJ kg⁻¹- 20 MJ kg⁻¹.



Sprout Miscanthus x gigantus



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Trees with straight boles and easy to reproduce by cuttings. Its rapid growth and high rate of transpiration make it one of the most effective tree species in fixing atmospheric carbon.

Poplar plantations for energy purposes are made at high density in order to reduce the cost of planting and subsequent harvest.

Poplar energy crops are harvested in vegetative stop, when the leaves have already fallen to the ground, with rotations of 2 to 4 years.



Poplar Stake



Poplar Sprout