



LIFE Lugo + Biodinámico

At the forefront of sustainable urbanism



**Establishment
of a chestnut
plantation ('Souto')
with traditional
Galician selected
varieties.**



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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 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 Souto (plantation of grafted chestnut trees) was established in 2017. Five different Galician varieties (De Parede, Ventura, Negral, Branca and Garrida) were grafted on hybrid rootstocks resistant to "ink disease". The souto is divided in three plots comprising a total area of 3.6 hectares (36000 m²). The planting density is 100 trees per hectare.





VARIETY	PRODUCTION DATE	CHESTNUT	PRODUCTION	CHESTNUT CONSERVATION
De Parede	Medium	Small	High	Very good
Ventura	Early	Small	Medium	Good
Negral	Early	Medium	High	Very good
Blanca	Late	Medium	High	Good
Garrida	Late	Large	Low	Good



Chestnut trees and climate

Chestnut trees (*Castanea sativa* Mill.) are deciduous, very long-lived (can live up to 1000 years), and reach 25-30 m height in natural conditions. When trees are planted for wood production, the trunk is straight and long, and the crown is narrow; otherwise, when planted for fruit production, the trunk is shorter and the crown is dense and wide.

Chestnut tree grows well in temperate climates, from sea level to 1300 m. Although it withstands intense winter cold, it is very sensitive to late spring frosts and soil waterlogging. Chestnut trees need at least 700 mm of annual rainfall, with 100-150 mm of rain during the summer. Hot summers favour chestnut production.



The soil in the soutos

Chestnut trees remarkably improve soil conditions. They are typically siliceous (they develop well on acid soils, such as granite, slab, slate, quartzite and sandstone), and need deep, loose, fresh and well-drained soils. However, they are very sensitive to floods, both permanent and periodic. Excess water in the soil prevents the development of roots, leading to tree death. In addition, excess humidity in the soil favours the attack of fungi, such as *Armillaria mellea* (Vahl.) Kummer, or the fearsome 'ink' disease (*Phytophthora* sp.). As a measure to prevent these problems, good drainage must be ensured.



The soutos wealth

The main product from the soutos of chestnut trees is the chestnut fruit, an essential food in Galicia for centuries. In our region, this remarkable autumn fruit has its own chestnut party, the so-called Magosto.

Chestnut trees are also important for their wood, of excellent quality, suitable for construction, carpentry and manufacture of furniture.

Chestnuts are also used to obtain many other valuable products, such as flour, liqueurs, jams, dyes obtained from their leaves, honey produced by bees which collect pollen from their inflorescences (candles)...

Finally, we should not forget, of course, the high landscape, ecological and environmental value of chestnut trees. As an example, a wide variety of species of mushrooms, many of them edible mushrooms, grow in the soutos of chestnut trees. We can find boletus (*Boletus edulis*), chantarelles (*Cantharellus cibarius*), beefsteak fungus (*Fistulina hepatica*) and even, in areas of Mediterranean climate, the appreciated *Amanita caesarea*.



Formation pruning

During the first years after the establishment of the soute, it is necessary to perform training pruning on our chestnut trees. Pruning operation basically consists in the shaping of the productive part of the tree, to create a stable and balanced structure, and to assure in the future the maximum production of chestnuts.

When pruning, one must take into account the following recommendations:

- **Prune** on rather cold and dry days, in order to limit, as much as possible, the attack of fungi through the wounds.
- **Keep** pruning tools, pruning shears and razors in good condition, always well sharpened, so that the cuts are clean, avoiding tears and promoting healing.
- **Disinfect** tools when passing from one tree to another, to avoid transmission of diseases, especially chestnut cancer, caused by the fungus *Cryphonectria parasitica* (Murril) Barr.
- **Protect** the cuts by applying a mastic with fungicide, which seals the wounds until they heal and prevent the attack of fungi.

1) Application of mastic in the cutting area



2) Disinfection of pruning tools



Phases of plantation establishment:



1. Dibbling previous to the plantation

2. Placement of the plant in the hole

3. Newly planted soute of chestnut trees

4. Flowers (candles)

5. Burrs

1



2



3



3) Low pruning



4



5

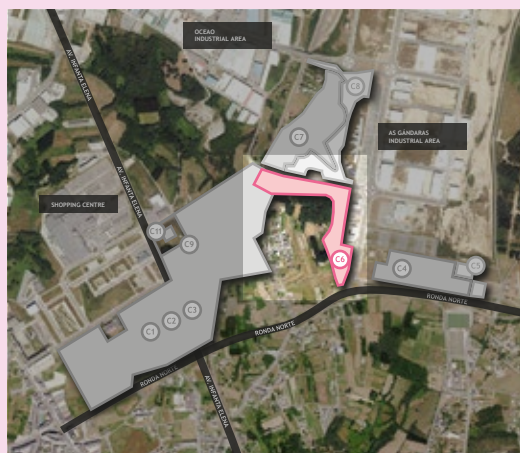


Programme of actions



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URBAN PLANNING ACTIONS



C1

Urban Design Solutions Catalogue



C2

Strategic plan for ecological infrastructures:
Special Biodynamic Plan



C3

Detailed planning of residential climate
comfort zones (RCCZ)

DEMONSTRATIVE ACTIONS



C4

Hardwoods



C5

Energy crops



C6

Souto. Chestnut trees of traditional varieties



C7

Restoration of a wetland - NALI
(Natural Area of Local Interest)



C8

Arboretum

C9

Urban agriculture



C11

Impulso Verde Building

Impulsed by:



Concello de Lugo

Financed by:



Concello de Lugo



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DE LUGO

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Project partners:



POLITÉCNICA



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