



Multifunctional use of chestnut forest in Galicia

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The chestnut plantations are the most profitable to be carried out in the Atlantic climate zones of Europe, as it shows the existence of Protected Geographical Identification labels for their fruits, which have a good market and are very appreciated in European countries, Asia and South America. Today, a well-managed chestnut stand called "soutos" can annually provide products worth more than 6000 euros per hectare, something very difficult or practically impossible to achieve with any other type of agricultural, livestock or forestry product. In addition to its economic importance, chestnut stands have a great ecological, landscape, genetic and cultural importance. Galicia has a great history of chestnut production because it was the main source of carbohydrates until the 19th century, when the potato crop became widespread and the appearance of the disease of the ink destroyed those chestnut stands located at low altitudes and climate with oceanic influence, circumstances that favor the expansion of the fungi that cause the disease. The development of hybrids resistant to this disease has allowed the increase of plantations in Galicia since the middle of the last century, increasing significantly in recent decades. At present, two different types of chestnut stands coexist in Galicia, some old, in areas of high altitude and more continental climate (i.e. Ancares / Caurel) and others in lower localities (recent plantations). Traditional chestnut forests are formed by centuries-old trees of about a hundred different varieties, which ensures chestnut production and resilience against unpredictable climatic events (ie wind, frost, climate change ...).

The chestnut trees need regular pruning or renewal of cups every 30 years to ensure the production of fruit, sometimes they are accompanied by pruning of new grafts with varieties of greater acceptance in the market. Traditional chestnut harvesting in areas with a steep slope and difficult access is being abandoned in many cases. In these situations it may be interesting to introduce local and rustic animal breeds, such as "porco celta", which are adapted to mountain conditions and which produce quality meat that is exported to countries such as Japan. On the other hand, the new tree plantations introduced thanks to the rural development measures in the lower areas do not produce chestnuts in abundance until 8-10 years, so, given that the planting frames are very broad (10x10 m example) can be introduced silvoarables or silvopastoral practices, for example with rustic native breeds of sheep or cow. In the silvoarables practices can be cultivated with the chestnuts in the first years of establishment of the Souto medicinal and aromatic plants, fruit trees, cereals, oleaginous, forage plants or other crops. In Portugal it has been shown that the combination of sheep and chestnut production reduces the use of pesticides as a way to prevent damage to the fruit. The chestnut tree is also an important honey plant and with it ectomycorrhizal mushroom producers of quality and commercially important mushrooms are associated, such as *Boletus edulis*, *Cantarellus cibarius* and *Amanita caesarea*.



Figure 1. Livestock production under chestnut.

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