



## INTEGRATING POLLARDS IN A FARMING SYSTEM

### PRODUCTIVE “WORKING TREES” WITH MULTIPLE ENVIRONMENTAL BENEFITS

#### BEST PRACTICE OBJECTIVE



**Pollarding trees optimizes renewable biomass production and facilitates local production of firewood, woodchips, timber and fodder. Pollarded trees have an increased lifespan and they better resist wind and drought. Their hollow trunks, and even the branches and roots, are also great biodiversity habitats. It is adaptable to a wide range and uses, contexts and heights!**

#### THE ESSENCE OF THE PRACTICE



Pollarding trees is a traditional and widespread practice found throughout the world. The technique involves reducing the height of the tree (usually a deciduous tree) without reducing the bole, by removing its upper branches. A young pollarded tree will produce for centuries if properly managed.

A pollard can be created on an existing tree, natural seedlings, planting or by cutting (especially with willows and poplars). The average diameter when pollarding for the first time is 5 to 10 cm, the dormant buds on an old tree with a larger diameter will be less active and the tree will be more sensitive to drying out and sunburn.

It is recommended to carry out more frequent pruning cycles on a young pollard to reinforce the base. The tree's response to pollarding depends primarily on the species to be considered: plane tree, ash tree and country maple are the easiest to pollard. The first year the dormant buds are often activated on the whole trunk. After the spring shoot, they can easily be removed by hand before becoming woody.

The pruning must be done by someone with experience, and with professional tools. The way it is undertaken depends on the wanted shape and the purpose of the pollarded tree. However, one of the most important principles during pruning is to cut primarily above the final section to not damage the young pollard's head.



The evolution of a pollarded oak over time – from left to right: January 2012, May 2012, November 2012 and December 2013, (Dominique Mansion)



### TOOLS AND MACHINERY



The equipment needed is simple and cheap: pruning saw or Japanese hand saw, billhook, pruning shears-lopper. Extended handle tools are useful for works-at-height without using a ladder. An axe can also be used if it is handled properly.

The use of motorized equipment (tree pruner, chainsaw) is of course possible (with precautions taken and proper protection). No mastic or other protective material are applied to the notches.

Mechanization is developing, using cutting shears mounted on articulated arms. Developed for forest operations, many types of these tools are on the market, and they are not all adapted to the thick crown of a pollard.



Different tools and machines for pollarding – from left to right: manual pruning on foot with chainsaw, elevated pruning with an aerial bucket, mechanical shears, (Dominique Mansion).

### PERIOD OF TIME AND PERIODICITY



The pollarded trees traditionally pruned by billhook or by axe were harvested every 7 to 9 years for logs, firewood, charcoal... Pollarded fodder trees are pruned every 3-5 years to maximize the foliage. It is estimated that, depending on species and uses, pollarding cycles can range from 1 to 15 years.

Pollarded trees are usually harvested during winter (vegetative rest). However, some of them are made during summer like the harvest for fodder. In the past, pollarding was undertaken during the descending moon period for most of the species.



### ECONOMIC DATA



The investment in money and time will depend on the management you choose: manual or mechanized.

Manual management will require low investment since tools are rather cheap: €100 for professional hand saw or pruning shears and around €700 for a chainsaw. The total investment is usually around €1,500. However, time needed to practice the pollarding will be high, at least 2 hours per tree.

If the operations are mechanized it is the opposite: machines can range from €20,000 to €50,000, however work is done much faster. In some places, there are companies that can undertake this operation as service providers.

A study showed that over a production cycle of 9 years, a 100-year old pollarded ash tree can produce between 1300 to 1700kg of dry biomass (i.e. trunk and branches). On the basis of the market demand for wood biomass (around 50€ per cubic meter in 2017 in France for ramial chipped wood) pollarding can be a profitable practice.

### PRACTICAL EXAMPLE



Currently in many places, fodder availability is a true source of concern, especially during very dry episodes in summer. One alternative to mitigate this issue is the implementation of fodder trees such as white mulberry trees, to harvest their leaves during summer, when grass cannot grow. These trees can be planted and managed in various manners; however, several farmers chose to plant them directly in their fields and pollard them.

This is the case of Christian Plagnes, a sheep and cattle breeder with 94 hectares in the mountainous region of Lozère in France: "I kept pollarding the white mulberry trees on my farm dating from the silkworm production times, one hundred years ago, and continued planting some to compensate the fodder lack appearing since 2003 in summer. I harvest them every 2 years, to balance the feed rations over the summers. This practice could be a true alternative to give more resilience to pastoral systems facing climate change."



Pollarded ash trees in a pasture, region of Marais Poitevin, France, (Dominique Mansion)



Illustration photography, PxHere



A handbook was published in French and English for the 2nd symposium on Pollarding that took place in France in March 2018:

<http://www.agroforesterie.fr/pollard-practitioners-small-guidebook.php>



Agforward innovation sheet about pollarding:

[https://www.agforward.eu/index.php/fr/1910.html?file=files/agforward/documents/leaflets/26\\_Farming\\_with\\_pollards.pdf](https://www.agforward.eu/index.php/fr/1910.html?file=files/agforward/documents/leaflets/26_Farming_with_pollards.pdf)



A book about pollarding by Dominique Mansion, written in French:

<https://editions.ouest-france.fr/les-trognes-arbre-paysan-broch-eacute-9782737365652.html>



Pollarded willow tree before and after | <https://youtu.be/AzrWVOPrhe8>



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