

Tree damage control in a cork oak forest



APFC - Coruche Private Forest Landowners Association

Keywords

NWFP

Scale

Context

In the cork oak, as in other trees, the protective function of the bark is often interrupted with the opening of wounds that expose the bark or the wood tissues.

Whenever there is a wound, the most superficial cells die, starting in the cells below (alive and intact) the recovery process. As the healing tissues consolidate, new changes develop. In reality, trees do not heal wounds, keeping them forever inside the woody tissue, but compartmentalized with new tissues in order to maintain the functional integrity of the structures.

Objective

Reducing the amount of damages in the cork oak forest is very important in terms of the sustainability of this ecosystem. Although some of the wounds may have a natural origin (e.g. lightning), most of them have a human source linked to the management operations. The cicatrisation rate of the wounds differs from tree to tree, according to wound size, the tree vitality and the time of the year (5). The establishment of simple recommendations for the forest managers to identify the potential risks associated with the operations and consequences of these wounds can contribute to increase the cork oak vitality.

Results

Wounds are potential entrance places for pests and fungi. They decrease the cork oak's resistance to fires (inside the wound the lack of cork or less thickness in the healing area decreases the temperature control inside the tree, thus reducing the protective effect on the woody tissues), make subsequent extractions difficult (the presence of different cork thicknesses entails greater risks of ripping out the cambium) and devalue the cork, as the produced boards are smaller and a higher amount of small pieces of cork is obtained (less valuable). Also, the wounds can have a negative impact on the tree vigor due to the provision of resources for cicatrization.



Recommendations

- Restrict pruning to young trees (more vigorous to close the cutting wounds);
- Ensure clean, smooth and inclined cuts (facilitate healing);
- Disinfect the cutting tools (products without chlorine);
- Do not start extracting cork out of season (cambium can blister);
- Ensure close professional monitoring during of pruning, extraction and control of vegetation operations;
- In case of accidental wounds, regularize the broken area by cutting (allowing the healing tissues to develop);
- In open wounds, avoid the extraction of cork in the surrounding area;
- Avoid the use of healing products (they maintain humidity and conditions favourable to fungi and interfere with the formation of scar tissue).



Impacts and weaknesses

Comparative studies carried out on cork oaks with and without debarking wounds, revealed a decrease in the diameter growth in the nine years following the extraction in the injured cork oaks. It was also found that the beginning of the annual spring growth suffered a delay of one month in relation to the cork trees without wounds, the same happening with the period of greatest growth (June-August) (4). The cork produced also had a decrease of 13% in thickness, corresponding to smaller growth rings when compared to the rings of cork oak without wounds (4). The growth in diameter by the wood component also had a reduction in the 1st year because of the presence of wounds (4).



Future developments

The use of healing products on the harvesting wounds is not consensual among technicians. More studies and results dissemination need to be done in order to advice best practice in this issue. Also the development of mechanical harvesting will contribute for decreasing the debarking wounds. Additional work is needed in order to allow mechanical harvesting in the branches, as nowadays the machinery is only suitable for the trunk.



Most of the tree damages are promoted by improper debarking (out of season, forcing the cork detachment) or by mechanical operations badly done, where simple rules can be implemented to prevent those injuries. Credits: UNAC

Further information

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About INCREDIBLE Project

INCREDIBLE project aims to show how Non-Wood Forest Products (NWFP) can play an important role in supporting sustainable forest management and rural development, by creating networks to share and exchange knowledge and expertise. 'Innovation Networks of Cork, Resins and Edibles in the Mediterranean basin' (INCREDIBLE) promotes cross-sectoral collaboration and innovation to highlight the value and potential of NWFPs in the region.



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