



## Valorisation and energy use of precommercial thinning products in forest stands of Aleppo pine (*Pinus halepensis*) regenerated after forest fires.

### Introduction

The objective of the group is the energetic valorization of the forest residues that are generated when carrying out clearings in Aleppo pine forests. After the forest fires that affect the Mediterranean area, the masses of Aleppo pine usually regenerate spontaneously in very high densities, and it is necessary to carry out clearings to increase the resilience of the mass. 2A- Improvement of the economic results of the aforementioned actions and, therefore, the overall results of the farms, generating a product that can be used for the energy self-supply of the farm, for sale in the local or international market. 4A-Return the ecosystems of the burned forests in a state of greater resistance and resilience against climate change and greater biodiversity both of forests included in Natura2000 zones, mountain municipalities, and others. Make feasible and, therefore, be able to carry out clearings on regenerated Aleppo pine, which increases its growth and the role of CO<sub>2</sub> sink in these forests. At the same time, it allows concentrating the productive potential of the plot in a number of morphologically selected trees, reducing in the future Obligatorio / Mandatory the carbon footprint derived from logging, logging and transport of wood from forestry operations. To valorize the waste generated by thinnings, wood and branches of small dimensions, are not currently usable to increase the performance of clearing actions that are urgently needed in the Mediterranean peninsular arc. Analyze the different current technologies for the collection and extraction of biomass of small dimensions and define the conditions of applicability. Define the type of forest biomass that can be generated by thinning (small-sized wood) and analyze the physico-chemical characteristics and properties as fuel. Analyze the availability, stock and location of forest stands of Aleppo pine in the post-fire regeneration phase.

### Lessons Learned

Improvement of the economy process of exploitation of the regenerated masses Aleppo pine for its use as biomass: it improves the performance of exploitation, reducing of the number of work phases and means to be used, Improve the returns of mount with stock of regenerated post pine fire carrasco: it is promoted and favored the use of this type of masses, Raw material market opportunities are facilitated, the forests are valued with better development and capacity of trees after thinning actions Environmental improvement of the

forests: the ecosystem is improved by lowering densities of Aleppo pine and encourage the entry of light to the undergrowth, the risk of fire is reduced by reducing the amount of fuel with a high flammability, the carbon balance is improved by being able to replace the use of fossil fuels for renewable fuels and neutral balance The environmental quality of rural territories is improved: the environmental quality of rural territories is improved, the intangible values of the forest are favored by promoting biodiversity, an improvement in the quality of the landscape is promoted, by not abandoning forests (prevention of fires and elimination of pests, as well as mitigation/adaptation to climate change There is a social improvement of the people, owners, producers and processors of raw materials: the social perception of concern is improved for improvement and management of the forests, the creation of a market with high impact on rural populations, generating rural employment direct in all phases of management, Improvement of the territory: the creation of new activities related to the biomass utilization, the adoption of alternatives to fossil fuels is facilitated, promotion of the relationship between different sectors related to the exploitation and use of the forests.

Figure 1: "Meeting in the forest"



Figure 2: "Meeting in the office"



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### Further information

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**Funded by the European Union**

Funded by the European Union (Grant n. 101086216). Views and opinions expressed are however those of the authors only and do not necessarily reflect those of the European Union or REA. Neither the European Union nor the granting authority can be held responsible for them.





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