SUST FOREST PLUS

SUMARIO

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Proyecto cofinanciado por el Programa Interreg Sudoe a través del Fondo Europeo de Desarrollo Regional

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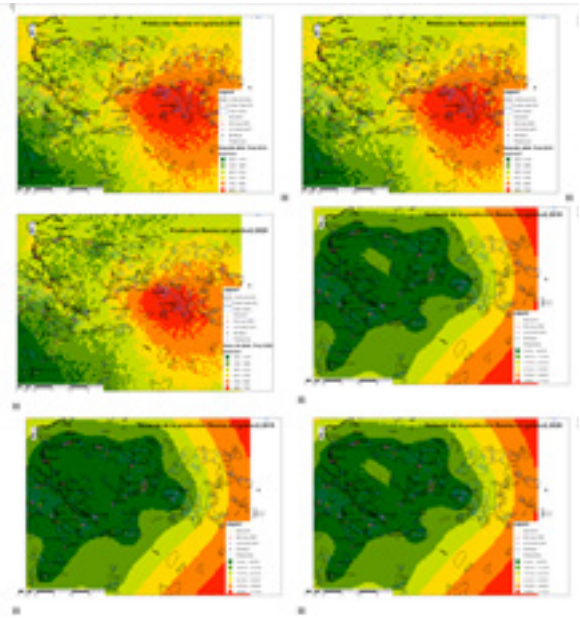
1. Resin production model based on dasometric and environmental variables for the Sudoe area

February, 22. 2021

The National Institute for Agricultural and Food Research and Technology (INIA) has carried out this study within the framework of the SustForest Plus project on the modelling of resin production per tree in the study area, using dasometric and environmental variables, obtaining models with a mean square error between 25 and 28% referred to the mean.

Of the covariates used in the cokriging, the resin obtained by drilling followed by the number of faces were the two variables that explained most of the variance of the resin variable mt.

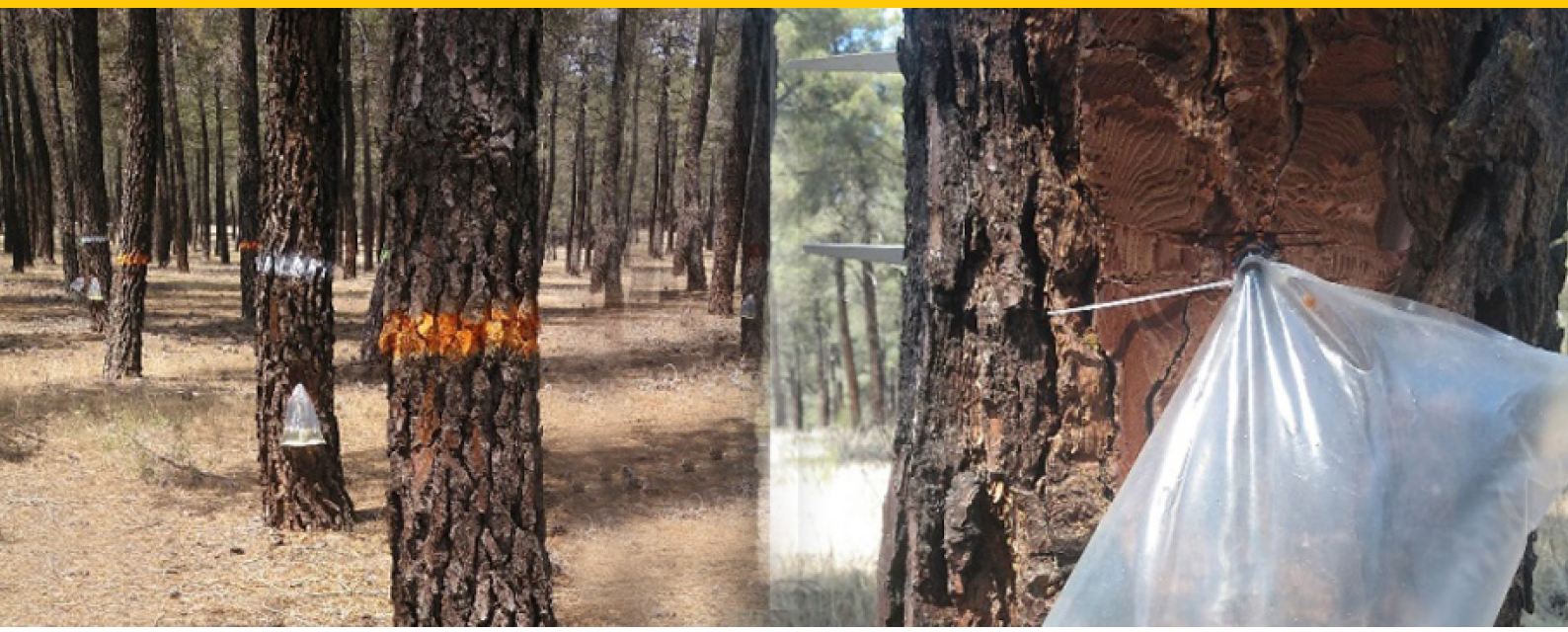
From the environmental variables analysed, orientation was the terrain variable with the greatest statistical significance. The results show a maximum of production on east-facing slopes and another on west-facing slopes, although the latter is less clear. The statistical significance is weaker when the 1998 and 1999 data are included and the East-West effect is not clear.



Prediction of mt resin by cokriging using resin obtained by drilling in 2019 and 2020 as a covariate. Orientation auxiliary variable. The last three images correspond to the variance of the prediction in the years 2010, 2015 and 2020.

Factors influencing resin production

The use of Landsat bands as auxiliary variables provides information on what factors may be influencing resin production. A significant correlation has been found with the red and green bands, positive and negative respectively, which seems to indicate higher production per tree at lower densities. The inclusion of these auxiliary variables is not improving the model in terms of prediction, but it is providing useful information.



2. Methodological guide for early assessment of resin production en *Pinus pinaster*

February, 22. 2021

After the tests carried out in 2019, it was concluded that the three-hole method yields a resin production that does not differ significantly from that obtained with traditional methods and could therefore be an option for accurate prediction of the productive capacity.

The National Institute for Agricultural and Food Research and Technology (INIA) has finalised the drafting of this Guide which will be used to carry out an early assessment of resin production in Pinus Pinaster. This action is carried out within the Interreg Sudoe SustForest Plus project.

Given the correlation between the yields obtained with the drill treatment, it seems to be an applicable method for the early assessment of resin. From a practical point of view, it is more interesting to use radial drilling for early evaluation due to its simpler execution.

Resination by drilling

- Resination by drilling has a number of advantages over traditional methods:
- Volatile substances of industrial value do not evaporate, so the quality of the obtained wood increases, and with it, it is to be expected that its price will increase.
- The production of the tree is not influenced by the skill of the resin producer.
- The number of impurities is drastically reduced, reducing the need for filtering in the factory and making resin processing cheaper.
- The number of revisits to the tree can be reduced or limited to monitoring the resin level in the bags. This can increase the yield of the resin maker who could increase the number of trees in his stand.
- The resin obtained by radial drilling methods has proved to be the dasometric variable that best explains the variability of the resin obtained by traditional methods. Given the correlation between radial and tangential drilling production and the ease of execution of radial drilling, it is interesting to use the latter method of execution as a method of early resin selection.

Institut Européen De La Forêt Cultivée

3. Study of international market developments in the pine oleoresin sector published by the INSTITUT EUROPÉEN DE LA FORÊT CULTIVÉE (IEFC)

February, 22. 2021

The Institut Européen De La Forêt Cultivée (IEFC) has published an interesting article on the evolution of international trade data for oleoresin and the first transformation products rosin and turpentine. One of the objectives of the SustForest Plus project is to provide a clear view of the evolution of the international market for European players in the pine oleoresin sector.

This article by Armand Clopeau (IEFC) reports on the outlook created in this market due to the health crisis caused by the COVID-19 pandemic, the evolution of resin production, the behavior of the international market for this product and future prospects.

Full article: http://www.iefc.net/marche-de-la-gemme-de-pin-en-contexte-de-crise-sanitaire/

4. Work begins on the SustForest project for the development of a guarantee mark

February, 22 2021

The driving force in the natural resin value chain is the demand for derivatives and products in which derivatives are embedded. European natural resin faces global competitors and substitutes that threaten the sustainability of the sector. Its environmental, socio-economic and technological values need to be strategically promoted and differentiated.

Once this need has been detected, the SustForest Plus project has started the action for the development of a European resin guarantee mark as part of the Plan for the promotion of European natural resin as a technological and sustainable product, which the project has marked as another of its actions.

European natural resin

The guarantee marks of origin are instruments perfectly adapted to the objective of 'integrated territorial development' through the value chain, which operate a kind of 'reconversion' of traditional forestry activities, such as the extraction of natural resins, into others of greater added value, linking them to the industrial sector and the end consumer. SustForest Plus aims to develop the basis for the creation of a label that differentiates natural resin from European forests from other products on the market, other extra-EU sources and other substitute products, through an action involving representatives of all the links in the value chain of the European resin sector.

The Strategy for the Sustainable Use of European Natural Resins (ERNE) is conceived as a territorial sectoral strategy that will allow European natural resin producers to act in a coordinated way through a territorial network of joint management to plan, improve and articulate the supply of products in a competitive way vis-à-vis extra-EU sources.

In addition, the strategy will enable the sector's representatives to present their objectives to public decision-makers, and will serve as an instrument to promote the integration of the natural resin sector in regional, national and European policies.

The ENRE strengthens and brings together the European Network of Resin Territories, RETR, where the brand will be of preferential application, contributes to the revaluation of the resin industry and to consolidate the activity of this group of workers, and encourages the promotion of European natural resin as a technological product integrated in the new bioeconomy.

5. Paper on the effects of resination on the physical and mechanical properties of Timber accpted at the world Congress in Timber Engineering

February, 22. 2021

The International Conference on Timber Engineering, known as WCTE, is an international benchmark event that aims to disseminate the latest knowledge generated from the research of world experts from the private and academic sectors in timber engineering. This event will be held in Santiago de Chile from 9 to 12 August 2021.

The Cesefor Foundation, a partner of the SustForest Plus project, will participate in WCTE with a paper on the effects of resination on the physical and mechanical properties of Pinus pinaster subsp Mesogeensis.

It has been studied whether there are significant differences between Pinus pinaster wood subjected to resination and Pinus pinaster wood that has not been subjected to resination. Specifically, on the mechanical properties of bending strength, modulus of elasticity and density.

The importance of this study is motivated by the viability of this resinated wood for its structural use, in the same way that non-resinated wood is used. In the same way, if there were significant differences between one and the other, it would open a new field of industrial uses of resinated wood, which would appreciate more certain mechanical properties.

In the future, this study could allow the inclusion of resinated Pinus pinaster wood in the current structural wood regulations, i.e., once the tree has been resinated, its wood could be used to generate beams or elements that form part of wooden structures. Not having this study would exclude this wood for structural use.

6. New model of collection wheelbarrow

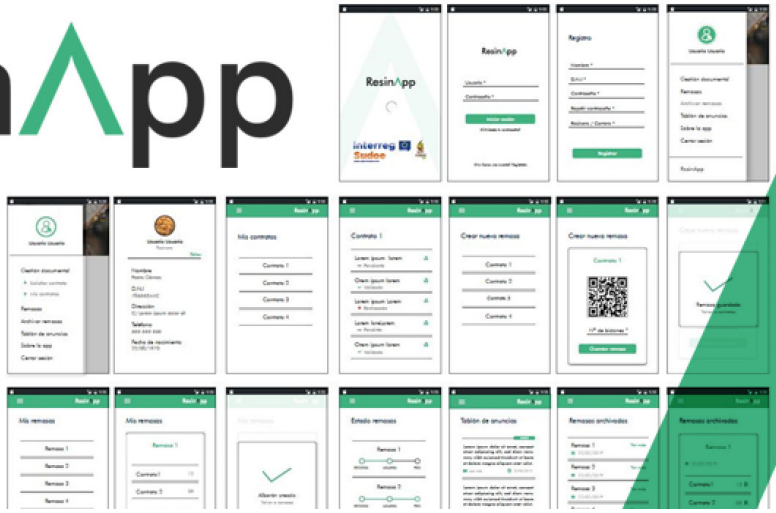
February, 22. 2021

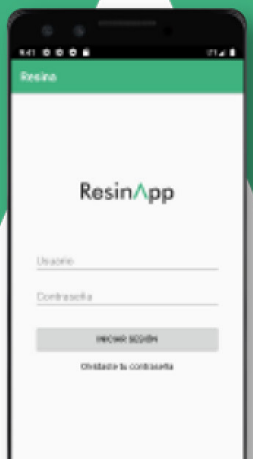
Within the specific objective of the SustForest Plus Project, which aims to “Improve the quality of work of resin workers, thus generating stable and quality employment in rural areas of the Southwest European region”, an electric collection wheelbarrow has been designed based on the HR5 model.

The HR5e model has been equipped with a system for emptying the resin pot using an electric motor. The implementation of the electric system instead of the two-stroke engine of the previous model shortens working times and improves ergonomics and safety. These improvements will translate into greater profitability of the resin extraction activity and will help the sustainability of the resin extraction profession.

The prototype incorporates an electric motor that acts on the front wheel to facilitate the movement of the resin collector on sloping terrain during resin collection. The adjustable configuration of the rear wheels of the wheelbarrow is intended to absorb the irregularities or imperfections of the terrain that are common in resin stands.

ResinApp





7. ResinAPP for digitasation of natural resin collection processes and forest-industry

February, 24. 2021

The SustForest Plus project has developed a traceability system based on a client-server software application in a web and Android environment, which allows real-time documentation of the route of the resin from its extraction in the forest to the factory where the first transformation will take place.

This product traceability facilitates the accreditation of the origin of the resin and serves as a business management tool for first transformation companies, facilitating the monitoring and closing of transactions between resin producers and companies.

The ResinApp system allows the processing companies, through their forestry managers or transporters, to control and manage the resin consignments in the forest at the time of loading, generating electronic delivery notes based on a QR code printed on the barrels of resin in order to control the traceability of the product up to the weighbridge in the factory.

The company's administration receives the data of all the shipments of each resin producer in real time on a server, which will allow it to monitor the information of the transactions and incorporate it automatically into its accounting and management system.

This product contributes to the specific objective of 'Valorising the natural resins of the SUDOE as a technological raw material in the new European bioeconomy', accrediting the effective link between the sustainably managed forest and the processing industry.

For more information about ResinApp please contact directly tecnologias.informacion@cesefor.com

EVENTS HELD

5 resin innovation ideas for the future as a result of idiForest
Collaborative networks on resin as a raw material for the bioeconomy

UPCOMING EVENTS

16-17 March 2021. Harnessing the potential of non-wood forest products for Europe's green economy.

13-14 April 2021. Inter-regional workshop on innovative bio-based resin derivatives

12-13 May 2021. 1st Pine Chemicals Brazilian 3D Virtual Meeting

SCIENTIFIC PUBLICATIONS

Does resin tapping affect the tree-ring growth and climate sensitivity of the Chinese pine (Pinus tabuliformis) in the Loess Plateau, China

Traumatic resin ducts induced by methyl jasmonate in Pinus spp

Site conditions exert more control than genetic differentiation on modulation of secondary growth and climate sensitivity of Pinus pinaster

Resin tapping potential of Atlantic maritime pine forests depends on tree age and timing of tapping

Genetic variation in resin yield and covariation with tree growth in maritime pine

OTHER SECTOR NEWS

Segovia 25/02/2021 Villa y Tierra tenders 30 resin harvesting lots worth more than 174,000 euros

Soria 11/02/2021 The resin sector consolidates its position in the province

Castilla y León 13/01/2021/ The Junta de Castilla y León and the Resin Board are looking for solutions to the sector's problems.

Segovia 27/11/2020 The province calls for a project for the future of the resin sector

Soria 22/11/2020 The Provincial Council receives 30 applications for the promotion of the resin sector in the province

Teruel 31/10/2020 The resin campaign closes with the lowest price in recent years

Soria 18/11/2021 New lifeblood for the resin sector

Castilla y León 17/10/2021 Resin as an axis to fix population in rural areas

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