



European Regional Development Fund



Reactivation of resin harvesting activity in France

International Days from 29 to 31 May 2019

Municipality of Proença-a-Nova

CRPF Nouvelle-Aquitaine

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SOE2/P5/E0598

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

1. History

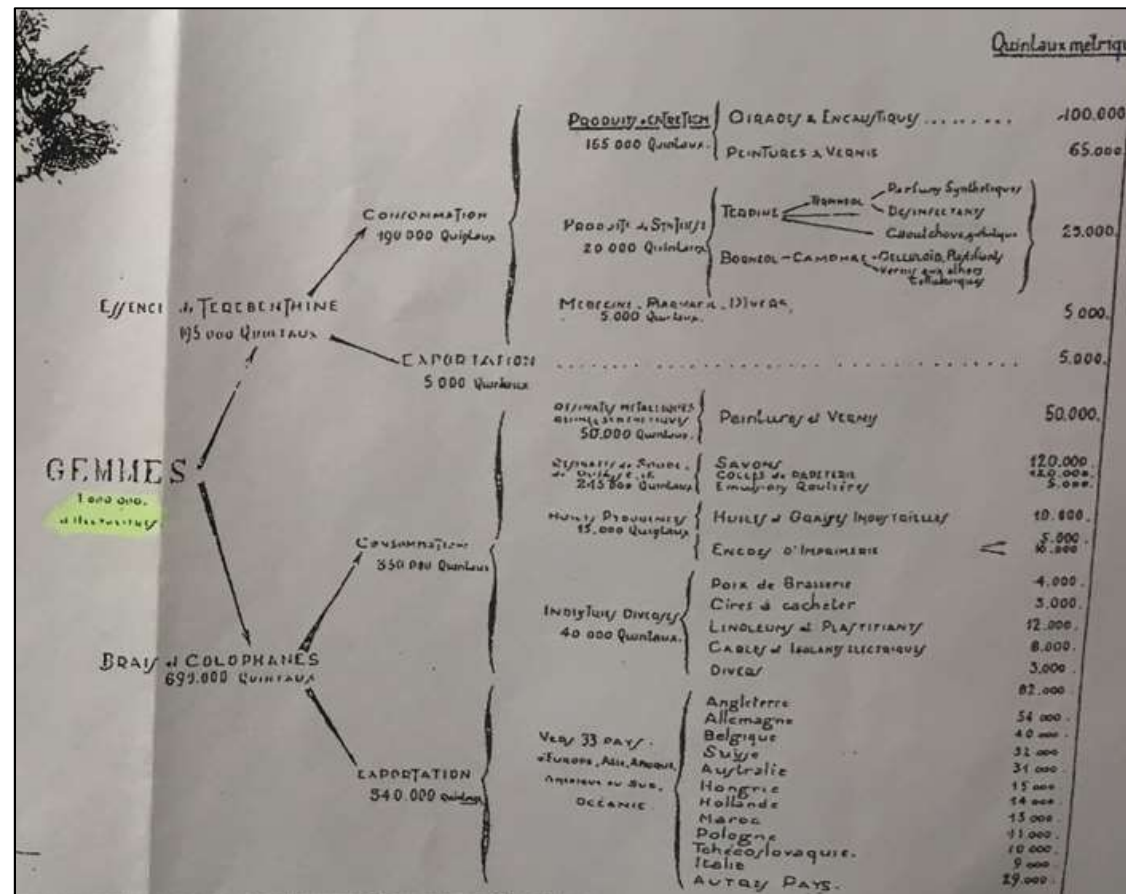
- No precise date on the beginning of gemmage in France, it was very common in the middle of the 19th century.



Most common Hughes harvesting method at that time

1. Historique

- The first harvest data date back to 1937:
- Annual production was 107,000,000,000 liters/year, or 144 l/ha/y or 134 kg/ha/y



- In 1969, a fall in world prices was observed. State aid has made it possible to support the gemmage activity.
- However, production gradually decreased until 1976. In 1977, 7 distilleries were closed, resulting in a 30% drop in production in just one year.
- The activity ceased in the 1990s.

	1937	1969	1976	1977	1984	1988
Average annual production (in kilolitres)	100 000	25 200	11 100	3 500	2 450	1 230
Number of gemmers	?	?	1 100	472	223	92
Number of distilleries	?	?	11	4	3	1

- In 1990, the price of French resin = 6 F/l (world price of resin was 4 F/l)
 -
 - Observation of a negative effect of resin harvesting on wood production: estimated production loss of 15% (**Hughes system**)
 - Ungemmed stand produced an average of 4 m³/ha/year and a gemmed stand in the last 4 years produced only 3.4 m³/ha/year
 - (To be checked with closed cup process)
 - The income provided by the rental of the care for the forest owner did not cover the loss of wood production and additional management costs
- ➡ 204 F/ha - 90 F/ha of management = 114 F/ha or 17 €/ha for the forest owner

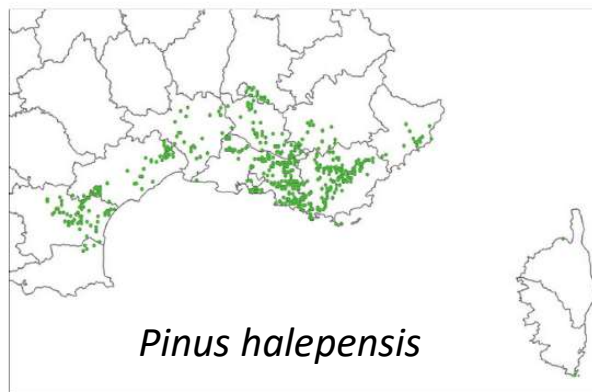
2. Current status of the sector and the available resource.

- Current state of the sector in France: industrialists
- DRT: 1st and 2nd transformation / valorisation of rosin and turpentine oil to diversify its production (99% tail oil in New Aquitaine).
- H. Reynaud & Fils: 1st transformation / production and marketing of essential oils including that of Landes Pine
- Annual consumption of 30,000 tons of resin (in 2013), exclusively supplied by imports.

2. Current status of the sector and the available resource

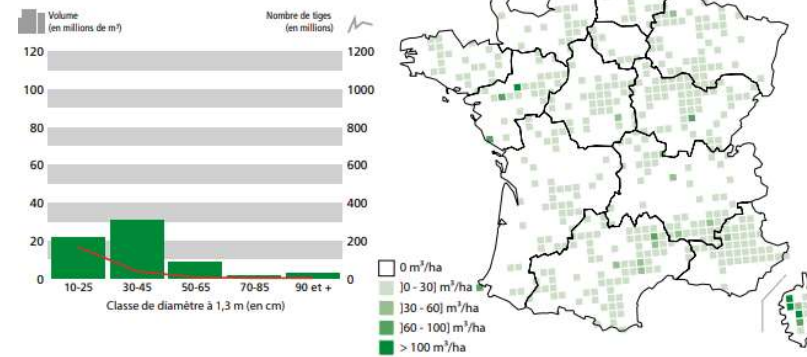
- The forest resource

Alternative species for resin production in France: Exploratory work



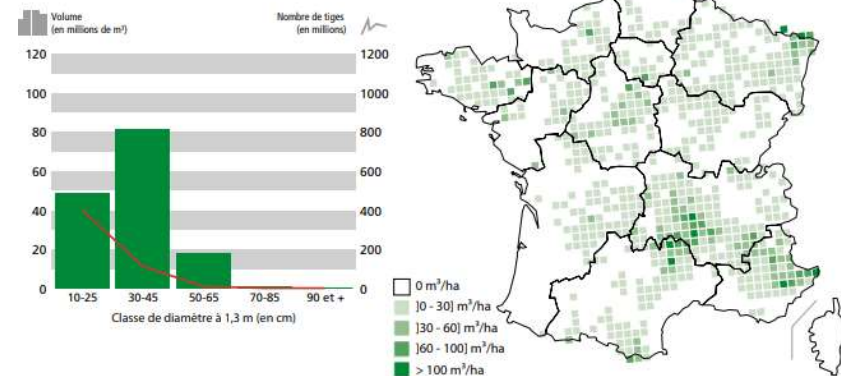
Estimate in the PACA region :
Volume: 14 million m³
Surface area: 145,000 ha.

Pinus nigra



Volume et nombre de tiges de l'essence par classe de diamètre*

Pinus sylvestris



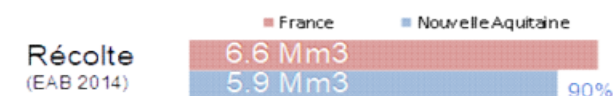
Volume et nombre de tiges de l'essence par classe de diamètre*

This species is very little used because of its low yield in resin (0,1 l to 1,7 l/tree/year)

2. Current status of the sector and the available resource

Maritime pine : A species for the future resin production

- Native tree, well adapted to poor soils
- Most planted tree in France: 34 000 ha in 2014/2015
- 44 million plants, 61% all forest plants sold in France



Share of maritime pine/French forests

En France	En Nouvelle-Aquitaine
6%	29 %

5%	23 %
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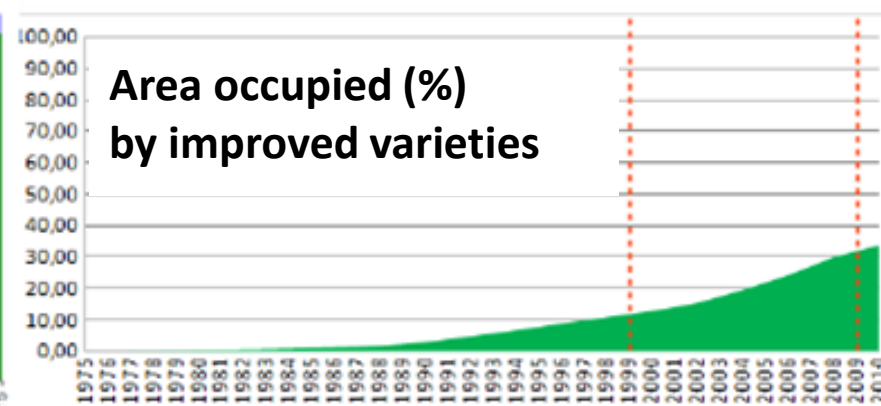
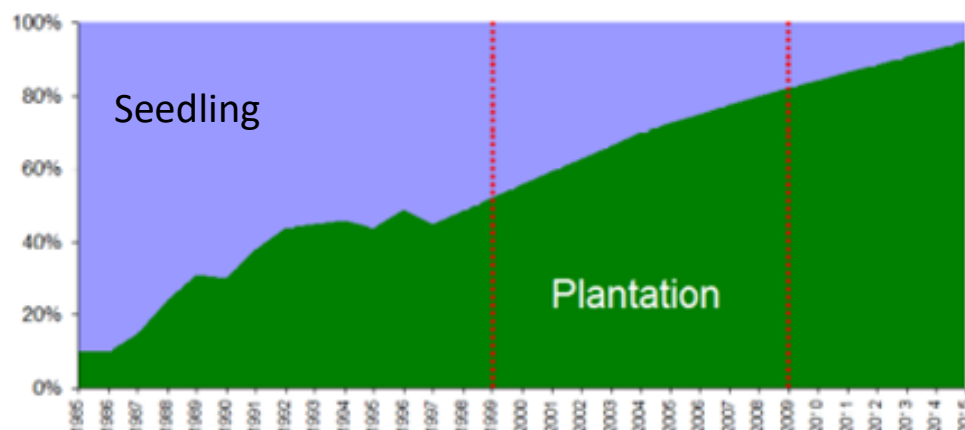
18%	58 %
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2. Current status of the sector and the available resource

Storms and reconstruction

Maritime pine	MARTIN 1999	KLAUS 2009
Destroyed volume	23 millions de m ³	37 millions de m ³
Destroyed area	150 000 ha	210 000 ha
Construction area	88 000 ha	205 000 ha (Objectif/en cours)

- Renewal of the age classes of the massif: rejuvenation
- increase in genetic progress through planting instead of seeding
- Greater consideration of risk in management



2. Etat actuel de la filière et de la ressource disponible

Distribution of forest species and climate change



Current situation (2007)



Climate scenario B2 : 2100
Hypothesis: average
temperature rise of 2.4°C



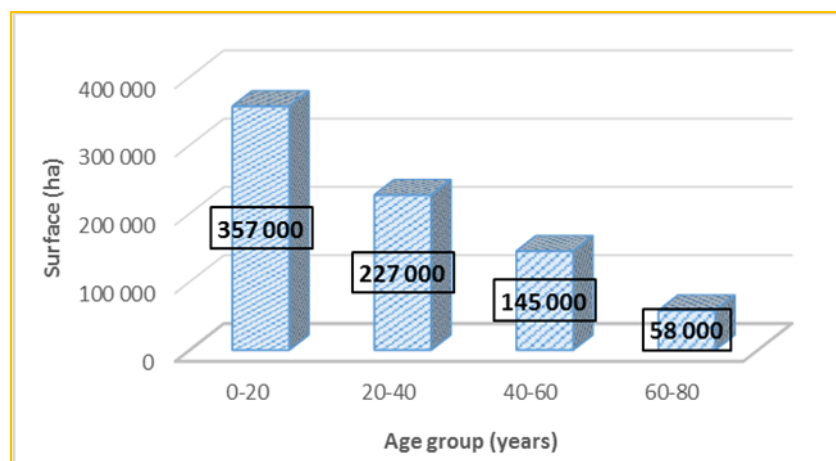
Climate scenario A2 : 2100

		% actuel	% 2100 B2	% 2100 A2	
Montagnard	Groupe 1 (Pin cembro)	5.2	2.3	1.0	Blue
	Groupe 2 (Aulne incana)	4.1	3.0	2.4	Light Blue
	Groupe 3 (Sapin blanc)	6.3	0.1	0.3	Cyan
Plus continental	Groupe 4 (Hêtre)	22.4	3.2	1.2	Green
Atlantique nord	Groupe 6 (Châtaignier)	35.6	17.4	16.4	Yellow
Atlantique sud	Groupe 7a (Pin maritime)	17.2	45.9	30.8	Orange
Méditerranée	Groupe 8 (Chêne vert)	9.1	28.1	47.9	Red

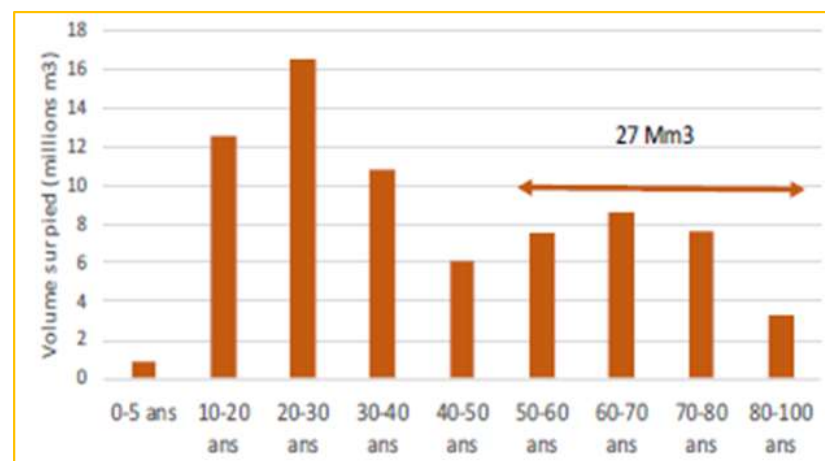
Proportion of territory covered by the biogeographic areas at present and under both scenarios: A2 and B2

3. What is the potential for resin harvesting in France (surface area, volume of resin product)?

Area (data for 2010)



Volume (data for 2016)



High potential for harvesting maritime pine resin :

- 200 000 ha of maritime pine over 40 years old
- 27 million cubic meters of maritime pine over 50 years old (33 million cubic meters of maritime pine over 40 years old).

An innovative harvesting method developed by Holiste: the Biogemme method

- Resin harvesting in a high quality resin silo, without impurities
- Gemming 4 to 6 years at last lightning or before clear-cutting of the stand (average age of trees between 45 and 50 years)
- 1 tree produces an average of 3 litres of resin over the season (from June to October)

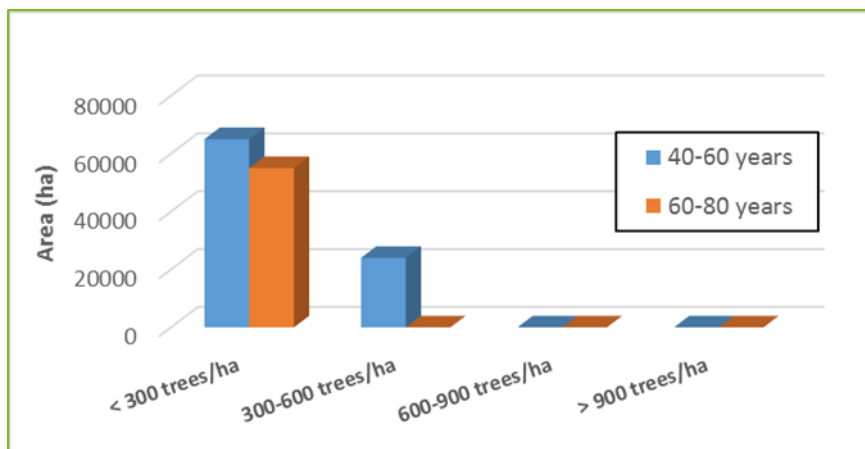


Holiste collected 20 tons of resin in 2017 by using 2 gemmers.

3. What is the potential for resin harvesting?

Estimated resin production potential of maritime pine in France (based on 2005-2010 data) with Biogemme method

Area of maritime pine for 2 age classes and by density class (2005 -2010 data)



Density classes	Average density (trees/ha)	Total area for 2 age classes (ha)	Number of trees
< 300 trees/ha	150	120 000	18 000 000
300 – 600 trees/ha	450	24 000	10 800 000
TOTAL			28 800 000

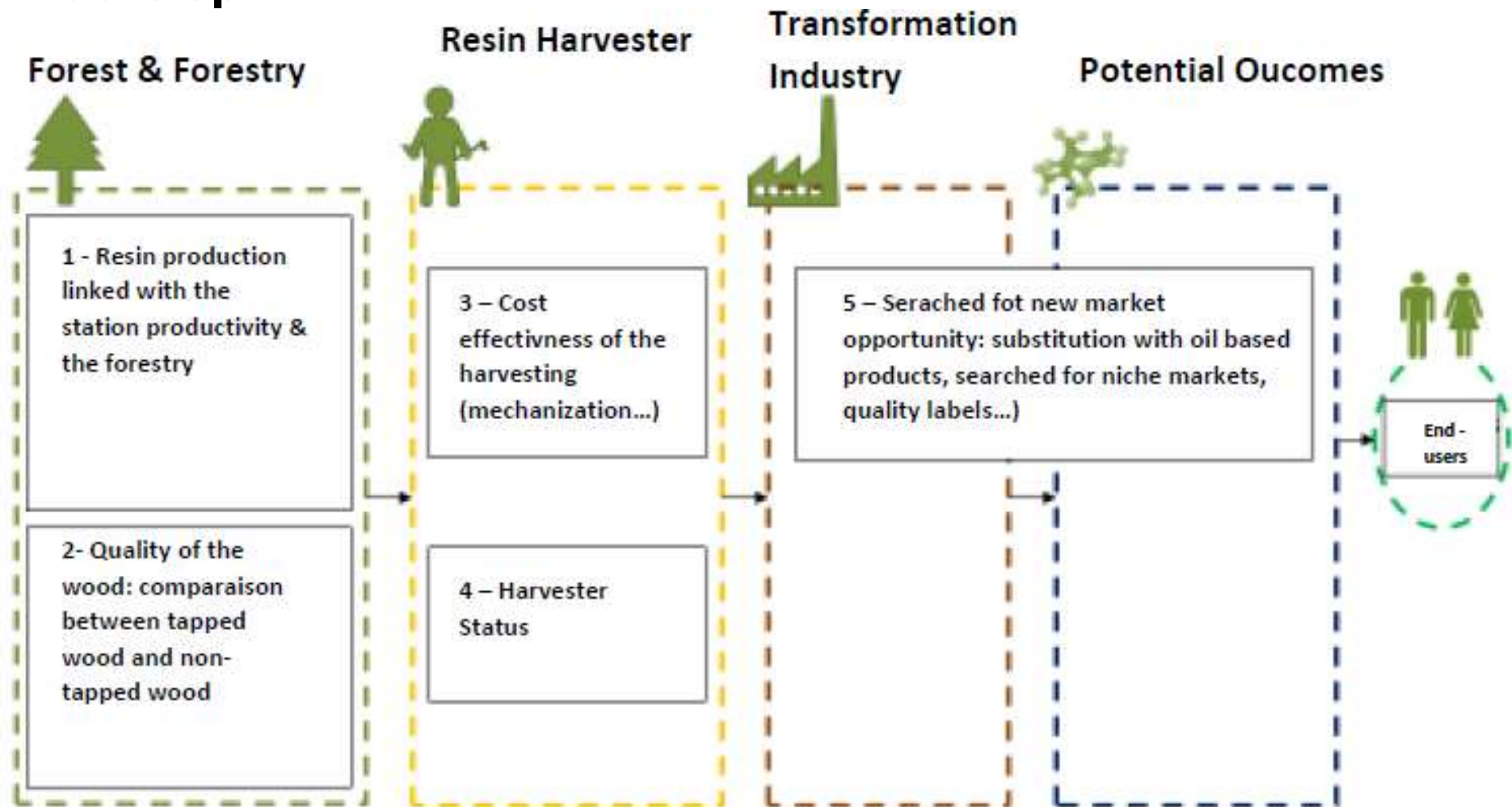
Average resin production per tree (Kg) 2,8

Average resin production per tree (L) 3

Total resin production estimated over one year : 80 640 000 kg or 86 400 000 l

- Total production of maritime pine resin estimated over a year is 80 640 tons or 560 kg/ha
- Estimate far from the annual resin production observed in 1937 (107 000 00 liters) but significant improvement in yield per hectare (134 kg/ha).

4. What you expect from the project : Five results to develop



Thank you for your attention

**Interreg
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