THE SILVICULTURE AS A TOOL FOR HIGHT QUALITY WOOD PRODUCTION

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1. Introduction

High quality wood production on specialized plantations is a field which has been strongly widen on the last three decades, mostly promoted by the market which shows an insatisfied demand and atractive prices and also due to the increasing restriction to fine wood extractions on tropic forests.
That is how on european countries like Italy, France, Belguim, Germany or Spain, there have been rised plantations with different fine species in some cases with public support and in others, supported by private iniciatives.
In this way, Bosques Naturales S.A. is a company stablished in 1996 pioneer in Spain on this kind of plantations and that currently manages more than 1200 Ha of hybrid walnut (*Juglans* Mj209xRA) and cherry tree (*Prunus avium*).
The plantation model was 6x5 for the walnut and 5x5 for the cherry tree, applying agronomic techniques based on shortening the rotation of these species on their natural environment.
In the 10 years old Spain plantations it can be observed that media growings are higher than those registrated in France at the same age, (Villanova et al. 2010) but we must continue to advance on the best silviculture to apply because these practises have largely condicionated the wood quality..

Intensive plantation in Spain. Regular density 5x6 metres

The management without competition among trees for many years. It involves costs for the management of the vegetation cover competition and the application of prunning to obtain knot-free trunks.

2. Materials and Methods

This work evaluates several silvicultural treatments on density regulation, with a new management in Spain of the genus *Juglans* for wood production from intensive plantations.

The trial localization is on meander of the Ebro River on the Municipality of Castejón de Navarra.

Reference information:
Elevation: 260 above sea level
Coordinates: N 42º 10´ 40´´
W 1º 40´ 10´´
Soil features: Cambisol mollico/ Haploxeroll páchico
pH: 8,2
Climate: Mediterraneo genuino.

The origin mass is a population of *Juglans* Mj209xRa with 5000 individuals on 1Ha, that was established on nursery model on 2001 and that has been kept without management in high density until June 2010.

Localization of the plantations managed by Bosques Naturales S.A.

Detail of walnut trial at Castejón de Navarra.

Picture of years(2003-2009) Evolution of trial without management.

Picture of year 2010: Selective thinning.

Picture Gis: Preselected trees.

The study was sets up to move forward on the knowledgement of competition management. A traditional selective thinning has been done for other broadleaves species.

The mass was characterized by measuring the DBH with a caliper Haglöff which registrated the information, and the height with a dendrometre Vertex.

In June 2010, two hundred individuals were chosen for their interesting characteristics to produce future high quality wood and three treatments were applied:

Fell: There were eliminated the feet that had direct competence with the crown of the selected tree.

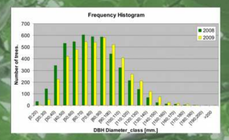
Girdling: two girdles, separated 30 cm and 1 cm depth, were done with chain saw.

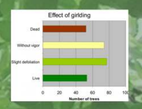
No treatment.

3. Results and Discussions

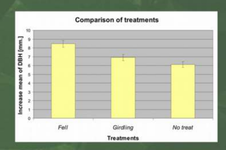
Dasometric variables

Year	Mean DBH(cm)	Ho (m)	G(m2/Ha)	DG (cm)
2008	7,28		22,13	7,81
2009	7,70	13,10	23,89	8,21
Inc	0,42		1,77	0,40





Treatments, from a silvicola point of view, have been proposed to promote some elite feet and reduce the posibilities of wind throw by avoiding the abrupt opening of the tree crowns (Peri et al., 2002) and by limiting the epicormic sprout shoots and damages for light blow on the remaining mass. (Reque 2007).



NO TREATMENT

GIRDLING

FELLING

4. Conclusions

- On the process of domesticating a forestry specie to produce high quality wood on intensive plantations, genetic improvement programs are basic but on the other hand it is necessary to go forward simultaneously towards the knowledgement of the better silviculture to apply.(Murillo 2003)

- It is needed to know very well the type of wood thal will be produced and the market niche towards the production is directed.

- Some trees were affected by roots fungi however mostly of then kept healty despite the high density of trial.

- Preliminary results on small diameter wood transformation, seems to demonstrate that intermediate explotations on high density plantations can be economically profitable.

- The results on the answer of trees to the clear selection are premature.

Working model

Selection of plus trees. Based on characters of growing, resistance, and wood quality.

Cloning diferent genotypes.

Evaluates the best quality station. Soil and climate

Define the best selviculture to apply

Look for wich is the industrial target towards we are leading plantation.

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