Forest plantation scenario: easy, flexible post-planting care

The forest plantation scenario involves planting densities sufficient to compensate for the loss of a proportion of the seedlings, which will at least temporarily protect and train the best formed plants.

These densities are on average around 1 100 seedlings per hectare.

This scenario combines costly establishment with relatively cheap post-planting care.

The traditional forest owner

« **Portrait** » *: traditional forest owner spend limited time at the plantation due to other professional activities or because they have a large area to manage. They are not only interested in trees and in many cases do not live on the site. In other case the work is subcontracted to a company.*

Why?

- As most of forest owners are less available for post-planting care, the number of interventions must be reduced; they are concentrated at the start, then spaced out in time.

- The duration of maintenance is reduced through rapid canopy closure, which also makes it possible to create a forest environment quickly.

- Stem formation and high pruning operations are reduced and facilitated by a high-density phase in a forest environment.

How?

- Planting densities can be between 900 and 1300 seedlings/ha or even higher (up to 1800). Lines are spaced to fit the width of mechanical maintenance equipment. Future extraction rides should be planned.

- It is possible to establish a single main species or several in a mix*. One or more accompanying species* can be used to reduce costs (partial substitution of the main species by cheaper ones), improving the growth and shape of the main species (through lateral shading and nitrogen fixation) and with less susceptibility to deer damage (unprotected).

- Seedlings should be stocky, sturdy and well balanced and the seed origins must comply with regulations* (all possible labels for the main species). Selected material (wild cherry cultivars, seed nurseries for hybrid walnut, wild cherry and service tree seeds, etc.) can be chosen for a limited amount of precious tree seedlings to be favoured later.

- The most sensitive main species are individually protected against animal damage. If this is insufficient, we recommend fencing off the plot.

- Maintenance, trimming and pruning are performed every year for 3-5 years, then in the course of 1-3 interventions at 3 to 6 year intervals to complete the pruning of designated stems.

Type of production

- In the forest environment it is possible to obtain sufficiently long (x 6 m) quality logs.

- The timber can be harvested over several felling stages, taking care not to open up the stand too quickly (this, however, reduces the growth rate and increases the age of maturity).

- Coloured timber with a small proportion of sapwood can be obtained.

- For precious hardwoods under regular treatment, 40 to 60 trees are felled for the final harvest at 50 and 70 years of age (the diameter varies between species).

Possible variants

- Biomass (short-rotation fuel wood) production can be combined with timber production by alternating lines or strips of species intended for each form of production. For example a line of noble hardwood trees (maple, wild cherry, walnut, etc.) can be alternated with one or more lines of fast-growing species to accompany them (alders, willow, etc.). The latter are harvested after their role of protecting and training the main species has been fulfilled (at around 10-12 m in height).

- Do not establish pure single-species stands of expensive species and/or trees sensitive to game damage (excessive establishment and protection costs!)

- Do not trim and prune too early, too often or too many stems (it is not necessary and this would nullify the benefit of dense spacing).

- Do not open the stand too soon in order to maintain the effect of density (“compression”) in forming the future trees.

** see sheet «Composition of the plantation»*

Forest Plantation scenario: medium or high density planting

Types of intervention

In the plantation, **trees are firstly cared for overall to ensure that they are properly established, then left a few years to look after themselves.**

When they begin to differentiate, special care is applied 2 or 3 times only to a decreasing number of stems identified in advance (see diagram) among which are those of the future mature crop **

The sequence of operations is as follows:

- at least one intervention per year during the first 3 to 5 years (up to a height of ± 2 m) with:

• maintenance to ensure that the seedlings have a good start by eliminating or reducing competition from herbaceous or possibly semi woody plants (bramble, broom, etc.). Climbing plants are eliminated (clematis, honeysuckle, etc.).

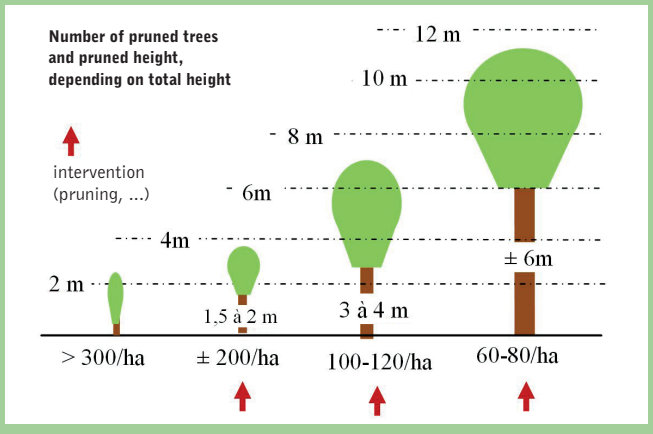
• checking animal damage protection that may have been put in place when planting.

• in the course of this intervention, also check that there are at least 300 sturdy stems/ha*** of the main species with no major defects in form. These should be chosen from rows other than those to be felled for future harvesting rides. If there are not enough well-formed plants, existing ones must be pruned to shape to obtain the required number.

- Subsequently, when the height of the most sturdy trees*** has reached 6-8 m, **about 120 sturdy, well-formed stems per hectare are pruned to about 3-4 m high.** Among the stems selected, up to 6 m of the defective ones are pruned if necessary. Some competing neighbouring trees can be felled at the same time and left on the spot.

- when the height of the strongest trees reaches 11-12 m, 60-80 stems per hectare are pruned up to 6 m.

«Forest plantation» (2,5m x 2,5m) : wild cherry scattered in a mapple stand, after the first thinning.



Two prunings may be sufficient after the first maintenance interventions: about 6 - 8 m high, then up to 12 m .

*** **Future stem:** saplings must be well formed (straight, with slender, well-distributed branches, no forks or upright branches, or easily eliminated if they occur) and sturdy (above average growth rate, dominant terminal shoot) that can produce a log of marketable quality timber in this location.*

**** **Sturdy stem (tree):** individual height (and girth) at least equal to the average height (average circumference) of trees in the plantation (on an identical site).*

Post-planting interventions initially concentrate on the first ± 4 years (maintenance), then spread over 2 or 3 interventions (trimming and pruning) every 4 to 6 years until 6 m long pruned logs can be obtained. This scenario can withstand interruptions or management delays.