

**Overview of Québec's forests and policies  
in the context of forest nursery production**

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## Résumé

### *Aperçu des forêts et des politiques au Québec dans le contexte de la production de pépinières forestières.*

*Cette conférence a pour but de situer le contexte dans lequel les pépinières forestières au Québec sont appelées à fonctionner. Après une brève description des forêts du Québec, on fait un bref survol des principes des politiques forestières actuelles. Il ressort qu'il va être nécessaire de faire les traitements sylvicoles prévus, dont les plantations, pour maintenir la possibilité forestière et que le Gouvernement a prévu fournir les plants aux utilisateurs des forêts publiques aussi bien qu'aux producteurs en forêt privée. On conclut en soulignant qu'il y a des avantages considérables à prévoir des plantations dans la gamme des interventions sylvicoles non seulement pour régénérer les territoires qui se régénèrent mal mais aussi pour augmenter le rendement naturel des forêts ainsi que pour améliorer la qualité et la santé des forêts à long terme.*

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Mr. Chairman,  
Members of the steering committee,  
Ladies and Gentlemen:

It is a pleasure for me to be here today and I wish to thank the organizers of this conference for providing me with the opportunity to introduce the discussions of the next three days with a brief overview of Québec's forests and policies in the context of forest nursery production. As this will be a technical conference, I thought that it will be of interest to you to know more about the general context in which nurseries within Québec operate. Our situation may be somewhat different than others in Northeastern America but from what I know, there are many similarities too.

### 1. Characterization of Québec's forests

From Table I, we can see that the commercial forest zone covers about 46% of Québec's total area. This is the southern portion of the province, where the population lives. What is more surprising however, it is that, within that zone, close to 95% of the land area is forested.

That fact may help to understand why the forest industry is the dominant industrial sector in Québec with close to 85 000 direct jobs and a total value of shipments around 13 billion \$. It has been said that one job out of twelve in Québec depends directly or indirectly on the forest sector and one quarter of our total exports are generated by forest products.

Table I. Characteristics of Québec's forested area (thousand km<sup>2</sup>)

Total area of Québec:	1 667
Commercial forest zone:	764
composed of	10% water 5% urban and farming land 85% forest land
Accessible productive forest land	546
composed of	0.4% federal 87.9% provincial 11.7% private
Accessible productive forest land reserved primarily for timber production	318
composed of	80% provincial 20% private

Source: *Ressource et industrie forestières*  
*Recueil statistique - Édition 1988*  
Ministère de l'Énergie et des Ressources - 1989

Moreover, this overwhelming presence of the forest ecosystems in the inhabited portion of Québec explains their importance regarding other benefits derived from the forest such as recreation, wildlife habitats, water and air quality as well as soil stability. This is why also increasingly the forest sector is involved in the public debate on environmental issues. One cannot be concerned with the quality of life in this inhabited portion of Québec without being concerned with 95% of its land area.

Another conclusion one can draw from Table I is that the actual area used for timber production is only 50% of the total forest land in Québec and 60% of the total accessible productive forest land. If one is concerned with overly managed forest land for timber production, let us remind that a significant portion of the forest land is excluded from timber production right at the beginning and is set aside for other utilisations. Of course, these areas excluded from timber production are not always the best forest sites but they nevertheless all provide benefits in playing their role as forested areas in the Québec landscape.

From Table 2, one can see that the actual harvest is close to the annual allowable cut (including the allowable cut effect from basic silviculture) as far as softwoods are concerned, but there is much unutilized hardwoods in the province. Consequently, with the present situation there is limited room from expansion with softwoods while hardwoods are in

**Table 2. Timber production from Québec's forests**

Annual allowable cut (with basic silviculture) (million m <sup>3</sup> )			
	Private land	Public land	Total
Softwoods	4.7	26.8	31.5
Hardwoods	7.8	8.0	15.8
Total	12.5	34.8	47.4
Actual harvest (million m <sup>3</sup> )			
	Private land (1986-87)	Public land 1987-88	Total
Softwoods	5.2	24.7	29.9
Hardwoods	1.8	2.3	4.1
Total	7.0	27.0	34.0
Actual area harvested (thousand ha)			
	Private land (1986-87)	Public land 1987-88	Total
	35	270	305

Source: *Ressource et industrie forestières*  
*Recueil statistique - Édition 1988*  
 Ministère de l'Énergie et des Ressources du Québec - 1989

expansion with softwoods while hardwoods are in abundance. Combining area figures from table 1, we can deduct that the average yield is 1.0 m<sup>3</sup>/ha.year for softwoods and 1.5 for all species.

If we consider the area harvested each year, studies have shown that about 70% can be regenerated naturally by using various harvesting methods. I don't think that we have reached that goal yet but we are fast moving towards it and I am confident that it would be attained soon if not this year. That leaves about 90 000 ha to be reforested each year. As the harvest may grow a little in future years, these areas would probably increase, requiring then close to 100 000 ha of reforestation, without taking into account backlog areas, former farming land, and areas devastated by fire. Another conclusion we may draw from this table is that the area harvested each year is less than 1% of the accessible productive forest land reserved primarily for timber production or 0.4% of total forest land.

## 2. Québec's forest policies

In December 1986, the National Assembly adopted unanimously what is known as the "Forest Act" that instated a new forest regime in Québec. This act

refers primarily to public lands.

The Forest Act is based on few key principles (Table 3):

- Public forests will be managed according to the sustained yield annual allowable cut; the harvest could not go higher and appropriate silvicultural treatments to maintain the AAC will be performed;
- Public forests will be managed so as to take into account all the various resources of the forest and making sure that the productive capacity of the forest land for these resources is not hampered by timber harvesting;
- Public forests will serve as a residual supply source of timber for industry and whatever supply any industry may get from public forests will be according to an evergreen agreement called a "Timber Supply and Forest Management Agreement". A cornerstone of such an agreement is the attainment of timber production objectives by the holder if he wants its agreement to be renewed every five years for another twenty-five years.

- Silvicultural operations on public forests will be performed by industry according to governmental overall planning and standards, except for backlog areas where the government takes responsibility. A basic assumption is that all stands will need to be regenerated, either naturally or artificially at least to their pre-harvest stocking. Seedlings will be provided by the government as it has been the practice for some years on private lands.

The Forest Act contains many more provisions but for the purpose of this conference, these are the most significant.

**Table 3. Key principles of the new Forest Act in Québec**

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1. Sustained yield management of public forests
  2. Multiple use management of public forests
  3. Residual role of public forests in timber supply
  4. Evergreen timber supply and forest management agreements with industry
  5. Dominant government role in planning and goal setting for public forests
  6. Dominant industry responsibility in performing silvicultural operations
  7. All stands need to be regenerated and seedlings are provided by the government
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**Table 4. What reforestation is useful for**

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1. Regenerate forest areas
  2. Increase yield of forest
  3. Improve quality of forest
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### 3. What is the future for forest nursery production in Québec?

It may be a simple and easy conclusion to say that nurseries will need to produce seedlings to be able to reforest that 30% of the area harvested each year that we cannot regenerate naturally. But is it the only objective of reforestation : compensate for lack of natural regeneration ?

Over the years, we have seen the pendulum swing widely concerning the perception of reforestation, not only with the public but also with forestry professionals. Some twenty years ago, many were overconfident on the natural regeneration process of forests, assuming that it would be the same in the mechanized harvesting operations of today as it was in the manual operations of yesterday. This proved to be false and, in Québec, studies had shown that, without adjustment to mechanized harvesting systems, adequate natural regeneration would cover only 45% of harvested areas.

Then ten years ago, in view of the lack of regeneration there was a strong movement towards massively increasing reforestation efforts. The focus was so much on this activity that, in many peoples' mind, silviculture came to mean reforestation. During that period seedlings production increased significantly in Canada. In Québec, this increase was almost eightfold from 35 to 250 million seedlings per year.

More recently, the pendulum has swung the other way by the introduction of new harvesting methods to protect the advanced regeneration or to encourage it after harvesting. Now people sometimes seem to think that natural regeneration is always better than reforestation and that if we could do without any reforestation, it would be a much better forestry. To me, the pendulum must come back in the middle ground where there is place for all aspects of silviculture.

Let us review the instances where reforestation may in my view be appropriate as a management tool (Table 4), one among others however.

- Reforestation is useful to regenerate areas that after a severe disruption (harvest, fire, agricultural use, insect or disease outbreak) don't regenerate naturally in an adequate fashion. This is required not only for timber production but also, and I would say sometimes especially, to regenerate damaged forest ecosystems in view of multiple use forest management. And I am not mentioning also the use of reforestation as a way to fix atmospheric carbon.
- Reforestation is also useful to increase the natural yield of the forest areas. If the average yield in Québec is around 1.5 m<sup>3</sup>/ha.year at 60 or 70 years, standard plantations can easily more than double that and have a yield of 3.5 or 4 m<sup>3</sup>/ha.year at 50 years. This is what has been used in allowable cut calculations.

However, with genetics and intensive plantation management, specialists tell us that we can double the yield of a standard plantation and obtain 8 to 10 m<sup>3</sup>/ha.year with a rotation as short as 30-35 years. One has to realize that this is 6 times more than the yield of the natural forest and close to 2.5 times the yield of standard plantations. And due to shorter rotation the allowable cut effect is also immediately enhanced. Actually, short rotation plantations are with thinning and fertilization one of the few ways to increase the AAC in the short term.

Such a situation opens up many very interesting opportunities for the forest owner or the forest manager. In these days when the additional wood supply is often limited and remote, and when the demand for the forest land use for other purposes than timber production is increasing, the implementation of such plantations on only 15% of the harvested areas would give a significant margin of manoeuvre. If, for example, 15% of the harvested areas each year (that is half of the total reforested areas) over an average rotation of 65 years were managed that way (remembering that this represents less than 5% of the total forest land area and 10% of the production forest) the annual wood supply would be enhanced over time by over 14 million m<sup>3</sup> (close to 30% of what it is now in total or 45% of the softwood AAC). Or alternatively large areas could be devoted to other uses than timber production. Moreover, in both cases, if these plantations were close to mills, the average cost of wood delivery would be significantly reduced, thus improving the competitiveness of the forest sector.

- Reforestation is also indicated when one (always in accordance with the ecological tolerance of the site) wants to improve the species composition of a forest site for whatever purpose: species less vulnerable to insects or diseases, species more in demand by industry or for other uses (e.g. wildlife), species or seedlings that will need less use of pesticides, etc. One can expect that such an objective of reforestation will be more and more present as integrated forest management is implemented. In this context, we may see more and more some supplementary planting done in naturally regenerated areas; interestingly reforestation will then be used to diversify the forest composition.

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## Conclusion

The future will be more complex than the past. If forest managers are to respond to the increasing demands that industry and the public put of the forest and its multiple resources, we need to realize that all the tools of forest management including reforestation would need to be fully used.

But we can expect reforestation to evolve also. It will need to be not only site specific but also objective specific. Therefore, from you nurserymen, we will need quality as much as quantity as well as diversity in seedlings size and species. You probably realize better than myself the challenges ahead of you and I trust that this conference will prove another step in being able to meet these challenges.