

Trends in Plant Demand in the Forest Service

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ABSTRACT

Trends in plant demand during the period 1971-88 are shown and discussed with particular attention being given to total plant demand, major species variation and plant sizes. Plant production systems are briefly discussed.

INTRODUCTION

These are exciting times for forestry in Europe in general and in Ireland in particular. Private forestry has begun to expand, responding to the stimulus of EC and National incentives and to the realisation that the European Community is less than 50% sufficient in wood.

There are now greater opportunities for planting with the reduction in the production of several major agricultural commodities. There is a general and widely accepted appreciation of the exceptional potential for wood production in Ireland. If there is a necessity for further incentive, which I doubt, there is the eagerly awaited Forestry Action Programme from the European Community. The Government's commitment to forestry is evidenced by its decision to set up a commercial State Forest Company, Coillte Teo.

All of this points to an expanding balanced forestry industry in Ireland. One of the main effects of all these developments will be an increasing demand for good quality planting stock. I intend in this paper to confine my remarks largely to the State Sector.

TOTAL PLANT REQUIREMENT

Before looking at the future it is useful and interesting to look at the past. We can see (figure 1) that the total plant requirement in the Forest Service in 1971 was approximately

30 million. This figure dropped to 19 million by 1983 and then climbed back to 30 million in 1988. The reduction in plant demand from 1971-88 I attribute to a decline in new planting or afforestation during this period and also to a reduction in the stocking levels from 1975 onwards. The stocking level pre 1975 was 3,000 plants per hectare, after 1975 it was reduced to 2,500 plants per hectare.

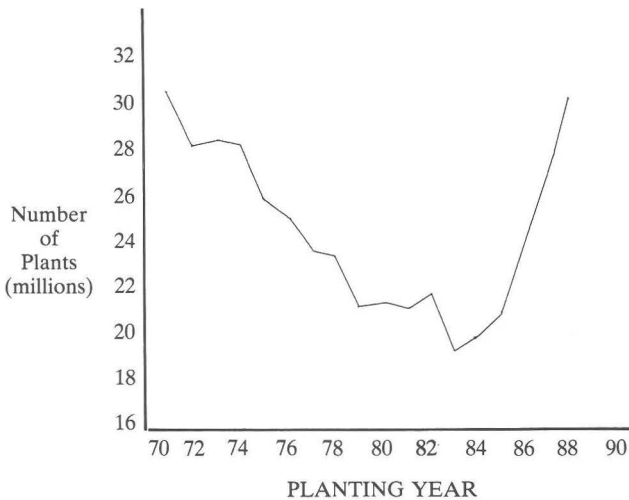


Figure 1 Forest Service plant requirement 1971-88.

The rapid increase in plant demand during the period 1984-88 reflects the enthusiasm and expectations which I referred to in my introduction.

Where the graph goes to from here is of course of great interest to nursery managers. This will depend largely on Government policy and the policy of the new State Forest Company. My own guess is that plant demand in the State sector will remain strong.

SPECIES COMPOSITION

As we have seen nursery managers have, understandably, a keen interest in the total plant demand figure. They are also interested in the species proportions or composition of that demand. It is useful to look at some recent trends. In figure 2 the demand for *Picea sitchensis* (Sitka spruce) and *Pinus contorta* (lodgepole pine) during the period 1971-88 is shown.

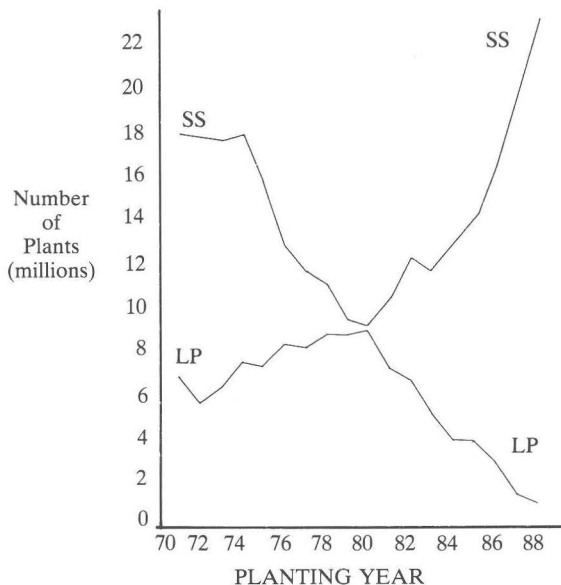


Figure 2 Sitka spruce (SS) and Lodgepole pine (LP) plant demand.

We can see that in 1971, 18 million Sitka spruce plants were required. This number fell to 9 million in 1980 and then rose to 23 million in 1988. Meanwhile during the same period lodgepole pine started in 1971 with a demand of 7 million this rose to 9 million in 1980 and has since fallen back to 1 million in 1988.

The decline in Sitka spruce plant demand during the period 1971-80 is attributed in part to the overall decline in plant demand and in part to a preference for lodgepole pine reflecting the quality of land being acquired for new planting. The rapid increase in Sitka spruce plant demand during the period 1981-88 is attributed to a general increase in the planting programme during this period, an improvement in the quality of land being acquired and an extension of the use of Sitka spruce on to ground formerly planted down to lodgepole pine due to new fertiliser prescriptions and the introduction of nursing mixtures.

Another way of looking at this information is shown in figure 3, where the plant requirement for each of these species is shown as a % of total plant demand. It is interesting to note that the combined total of both species represents an approximate constant demand of 85% of total plant demand during the period 1971-88.

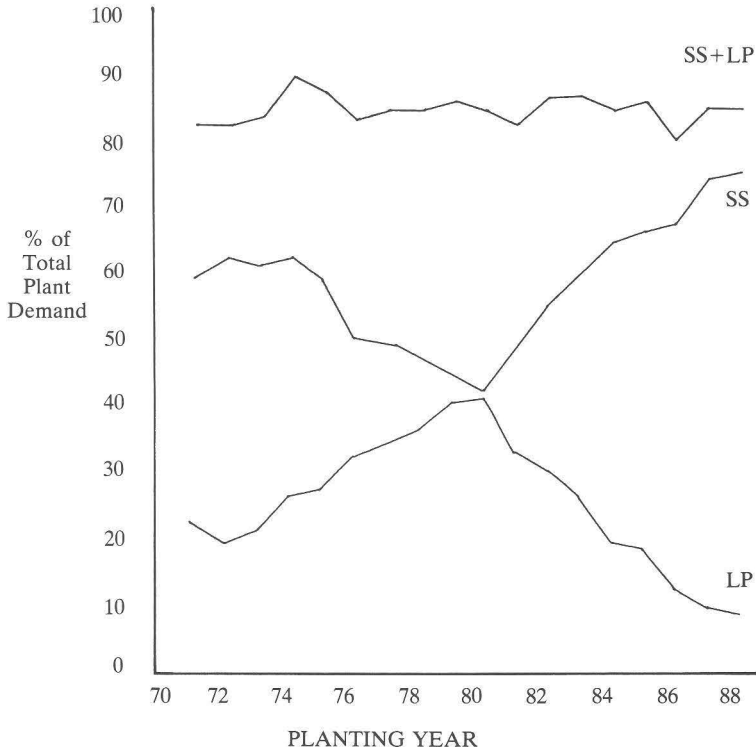


Figure 3 Sitka spruce (SS), Lodgepole pine (LP) and SS+LP as a percent of total plant demand.

While this struggle for supremacy between Sitka spruce and lodgepole pine has been going on the progress of numerically less important species has perhaps been neglected. *Pseudotsuga menziesii* (Douglas fir) during the period 1971-80 represented between 2-3% of total plant demand, from 1984-88 this has increased to 4-5% reflecting an increase in reforestation. *Picea abies* (Norway spruce) started the period at around 3% of total plant demand it dropped to 1% and has now recovered to 2%. The demand pattern for Norway spruce reflects a number of influencing factors. Firstly there has been a tendency to show preference for the higher yielding Sitka spruce, secondly there has been a dramatic swing away from Norway spruce as a Christmas tree plant in favour of *Abies procera* (Noble fir) and finally, operating in the

other direction there is renewed interest in Norway spruce as a producer of high quality sawlog material.

Broadleaves have dropped from around 5% of total demand in 1971 to 2.75% in 1988. This drop is attributed to the decline in amenity planting, with current planting concentrating on wood producing broadleaves only. Present policy now is to allocate 3% of State planting to broadleaves and to increase this by annual increments of ½% over the next few years.

PLANT SIZES

The nursery manager apart from wanting to know the total plant requirement also needs to know the species proportions of the total plant demand. Finally he needs to know the size or sizes of plants required. For many species only one size of plant is required, but for Sitka spruce in the Forest Service two sizes are recognised – size I: 31-65cms and size II: 20-30cms.

Here again it is useful to look at the pattern of plant demand during the period 1971-88 (Figure 4).

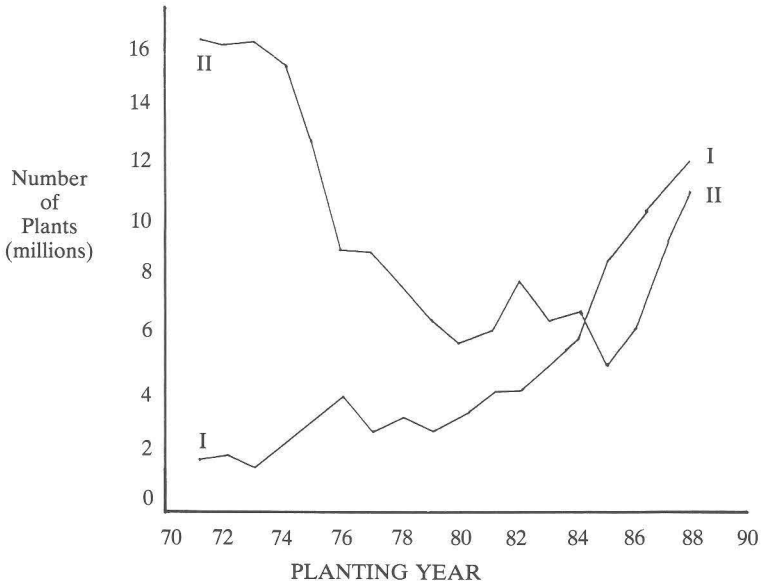


Figure 4 Sitka spruce plant demand by grade.

In the early seventies size II plants were mainly required reflecting the preponderance of new planting on ploughed ribbons. The size I plant demand was modest reflecting the low level of

reforestation. In the late seventies and early eighties there was a decline in the demand for size II plants mirroring the decline in new planting during this period, while during the same period the demand for size I plants gradually increased reflecting increasing reforestation. In the late eighties the demand for size II plants increased. This increase is attributable to the extension of the use of Sitka spruce onto western peats and more recently onto Bord na Mona cutaway bogs. There has been a rapid increase during the same period for size I Sitka spruce. This is due in part to increasing reforestation and in part to new site preparation techniques in new planting areas resulting in the need for size I plants on those areas.

DISCUSSION

We can look back over the period 1971-88 and examine the changes in plant demand that have taken place. We may also suggest reasons to account for these changes. Such an analysis will not tell us of course what the Forest Service plant requirement will be in the future, particularly when we look at the variation in plant demand over the past 20 years or so. Planting targets for the future, as I have referred to earlier, will be a matter for the Government and the new State Forest Company.

In the present climate it seems reasonable to assume an annual planting programme of not less than 10,000 hectares over the next decade or so. Reforestation should account for from 3,000-5,000 ha of this assumed planting programme. Sitka spruce will remain the dominant species representing not less than 75% of total plant demand. The demand for bigger size I Sitka spruce is likely to increase with increased reforestation. The demand for Douglas fir is likely to increase steadily but not dramatically, as will the demand for wood producing broadleaved species such as *Quercus robur* (Pedunculate oak), *Fraxinus excelsior* (Ash) and *Fagus sylvatica* (Beech).

The position with lodgepole pine is less clear. Its use in mixture with Sitka spruce has yet to settle into any pattern. The possibility that using containerised South Coastal lodgepole pine may reduce the incidence of basal sweep is something that will also effect the future of this species.

It is therefore reasonable to assume with a certain degree of confidence what is going to happen in the medium term vis-a-vis species proportions and plant sizes. The big imponderable, the size of the planting programme, remains. Being optimistic by nature I would tend to go for growth. If the State planting programme does not reach expectations, there will be, I am sure, sufficient

development in the private sector for Forest Service Nurseries to develop market share in that sector.

PLANT PRODUCTION SYSTEMS

My main concern today has been to look at trends in plant demand. I would like to turn briefly to plant production systems. You have heard or will hear more detailed accounts of various systems from other speakers. It is sufficient for me to make some general observations.

In the Forest Service we produce plants under a conventional bare-root production system. I expect that this system will continue to be operated for the immediate future at least. We are currently rationalising our nursery estate, reducing the number of nurseries from 14 to 5. Each of the five retained nurseries will have a production capacity of from 6-10 million fit plants annually.

We are also looking at the suitability of containerised planting stock for use under Irish conditions. I have already mentioned this in the context of lodgepole pine South Coastal production.

Precision sown production systems developed by the New Zealand Forest Service and currently being evaluated by the Forestry Commission in Great Britain are also of interest to us. These systems would appear to have advantages with species which are poor root regenerators such as Douglas fir, larches and pines.

Finally we must note the developments in clonal coniferous forestry which are on the horizon. I could imagine a system utilising a proportion of vegetatively produced clonal material planted in a matrix of conventionally produced bare-root stock.

SUMMARY

I have shown the variation in plant demand over the past two decades, variation in total plant demand and variation in the species proportions within that demand. I have emphasised the difficulties that this creates for the nursery manager.

To put this into today's context seed is now being sown in our nurseries which will determine the plant availability for the planting year 1991. Provision has been made for a 10,000 ha planting programme, with a contingency for an additional 2,000 ha. The species proportions have been kept broadly in line with recent trends in demand.

Whether this will be sufficient, too little or too much, or whether the species proportions are right, only time will tell.