

Planting Stock for Tomorrow's Forest

"What the Manager Needs"

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INTRODUCTION

When it comes to planting stock the forest manager is often no different to most other consumers. He is the person at the end of the line who must more or less accept what he gets and be prepared to live with the results. In the forest management sense this may mean above average establishment costs, understocked plantations and high filling-in charges.

There is general belief among forest managers that the condition of planting stock has much to do with eventual survival. When failures are critically examined certain factors are easily recognisable – insect damage, animal browsing, vegetation competition, and even climatic causes can be identified. The human factor, loosely termed, 'careless planting', can also be recognised. Once these factors are eliminated often the only remaining clue lies in the condition of the plant itself.

BACKGROUND

Two developments of recent origin have engendered an increased awareness of the need for improved plant quality among forest managers:

(a) *Increased Planting Programmes:*

For reasons outside the control of foresters we are now experiencing unprecedented annual planting rates, a most unlikely development if viewed in the atmosphere which prevailed almost a decade ago. (Table 1). Given the surpluses problem in the agricultural industry it is likely that planting rates will remain high and possibly increase for some time yet.

The area being reforested in recent years has increased substantially. In the state sector we are approaching a stage where

almost 40% of the annual planting programmes is taken up with reforestation; where the problems are usually different to those on new sites and generally more difficult to resolve.

Table 1: Planting Progress 1985-88, in the Republic of Ireland.

	(ha)		
	State	Private	Total
1985	6,288	764	7,052
1986	7,083	2,559	9,642
1987	7,956	3,201	11,157
1988	10,000	4,000?	14,000?

(b) *Change in Cultivation Practice:*

For the past 35 years, during which period about 75% of the state forest area in the Republic of Ireland was established, we have become conditioned to one common factor, that is – ploughing. Planting into upturned ribbons is a straightforward and relatively cheap exercise and rapid and early establishment is almost guaranteed.

However, time has overtaken this cultivation practice and we now realise that a technique which was, and still is, ideal for establishment purposes, is now causing major problems for the stability of our crops and an obstacle to harvesting systems.

In recent years there is a determined and consistent move towards cultivation systems which do not provide the ribbon-type planting position. Ripping and moling techniques on suitable sites are now rapidly replacing conventional ploughing. Mechanical mounding to provide 2,500 planting locations per hectare is another emerging cultivation feature. Both the increase in reforestation and the change in cultivation practice are shifting the emphasis from small sized plants to a greater demand for the larger size category of planting stock. Understandably these new demands have increased pressure on planting stock resources.

THE FUTURE

Facing into the years ahead there is now urgent need for both the nurseryman and the forest manager to liaise more closely and to ensure that their respective goals are clear. The forest manager must be ready to predict his likely planting stock demands well in advance and the nursery manager must be prepared to meet these demands.

RESPONSIBILITY OF FOREST MANAGERS

(a) *Quantity Requirements*: The manager must indicate his likely requirements. However, this is generally a matter outside the realms of local management, and more appropriate to over-all policy plans.

(b) *Species Requirements*: There is an obligation on the forest manager to indicate clearly his species preference for a given period of time into the future. We are familiar with the oscillations which occur between Sitka spruce and lodgepole pine and now, in 1988, Sitka spruce is probably at an all time high in the popularity ratings. While a single species might occupy up to 90% of total plant demand (State and Private) and a convenience for the nursery manager, it may not be the wisest path to follow in the broader national sense, particularly, as we are fast approaching an over supply of conifer softwood on the home market.

Increasingly Douglas fir is receiving preference on the suitable sites in the east and south at reforestation time. Norway spruce, a species now very much out of favour, surely deserves a rethink, especially on the classical frost-prone sites of the midlands where it is most suited. Norway spruce is a species that if managed correctly can yield attractive financial rewards early in the rotation as a stakewood resource, apart altogether from its value as sawlog timber and its superior finishing qualities.

In short, there is a case for the availability of choice and it is for the forest manager to recognise his requirements in this regard.

(c) *Size Categories*: The changes outlined above ought to indicate the likely size category requirements over, say, a two to three year period. While it may be difficult to predict the area of new land intake it is likely that the quality of acquisitions will continue to improve. Such sites, most probably, will be cultivated by systems other than ploughing and good sturdy plants will be preferred. Greater accuracy is possible in estimating future reforestation programmes and, again, the large size category is the likely preference.

NURSERY MANAGER'S ROLE (as seen by the Forest Manager)

On the understanding that the forest manager has clearly indicated his requirements the onus now passes to the nursery operation. The man in the field will expect to receive in due course fit plants for his particular end use.

The Forest Service Operational Directive 2, of 1985, provides a definition of a fit plant:

- “(i) A straight stem with a definite leader.
- (ii) Well balanced foliage with a good fibrous root system.
- (iii) A specified height to provide for size above ground when planted.
- (iv) A specified root collar diameter to provide for sturdiness.
- (v) Age must not exceed a specified maximum.”

The Directive allows a maximum tolerance of 5% deviation for each of the size categories.

Plant Handling in the Nursery: It is not proposed to advise nursery people on how this might be carried out. However, it is an important aspect of the entire handling operation. As managers we would wish that plants, at all stages of handling, (nursery and forest) would receive the attention that they deserve, and perhaps the bagging or boxing of stock for transport is a step in the right direction.

Plant Culling: Bearing in mind the 5% tolerance, the need to cull does arise from time to time to segregate in the field, perhaps for reasons of shortfall, on size or quality. Forest managers would hold the view that the nursery must do whatever culling is necessary to conform to the standards as laid down in the supply agreement. Apart from the extra expense on the manager's side there may be wasted transport charges on planting stock which nobody requires.

Also, on occasions, managers are obliged to take a size category below what was originally requested, on the understanding that inferior planting stock can be nurtured along with suitable herbicide control. This may be partly true but, again, it does shift the burden to the consumer. It may be worthwhile for field managers to inspect their nursery stock allocations in advance of delivery.

The nursery must surely be the more suitable environment and the appropriate location for the attainment of predetermined standards in planting stock.

AVAILABILITY AND DESPATCH OF PLANTS

The handling of bare-rooted planting stock, from lifting in the nursery to planting in the forest, is confined to the dormant season. Any upset in the lifting schedules may seriously affect

planting progress in the forest. As an increasing proportion of our planting programmes is now being undertaken by contract arrangement a guarantee of supply will be an important feature of future agreements. Any development which will ensure continuity of supply, such as cold-storage facilities, at nursery or elsewhere, is to be welcomed.

The elements of handling in the dispatch and receipt of plants are also an important aspect of co-operation. The produce of the nursery must get to the forest in as fresh a condition as is possible. It is also essential that delivery arrangements get priority at all stages. Ideally, plants should be transported direct from the production area to the receiving forests.

CENTRALISED DIPPING FACILITIES

From time to time the effectiveness of routine preventive measures for the control of the large pine weevil, *Hylobius abietis*, is called into question. With the increase in reforestation programmes this aspect of management is certain to receive greater attention in the future. Consideration should be given to the concept of centralised dipping facilities, and nurseries appear as the obvious locations for such operations.

CONTAINERISED STOCK

The use of bare-root planting stock has been the norm in Irish forestry. Only recently have containerised plants become available in commercial quantities. The use of containerised stock has many advantages:

- (i) it is a rapid method of raising overall planting stock numbers,
- (ii) it allows for a quick response to any change in species preference,
- (iii) in situations of scarce labour resources the extension of the planting programme into the summer months may be a sensible approach.

The use of containerised stock is a new experience for most forest managers and it requires considerable advance planning. Unless there is adequate provision for all the elements of handling and irrigation, the entire exercise may become quite expensive. (Appendix 1).

As Irish winters are not as severe as those experienced on the mainland of Europe planting operations can generally proceed without much hindrance from November to the following March

or April. Consequently bare-root stock is likely to continue as the preferred form of supply for the foreseeable future. However, much field research still remains to be done on the general use of containerised stock under Irish conditions and forest managers must be aware of the supply options and have the versatility to respond to rapidly changing circumstances.

CONCLUSION

The recent increases in planting programmes and the changes in cultivation practice have resulted in changing demands on nursery stock. It must be appreciated that a production unit, working in, perhaps, three-four year cycles cannot respond overnight to a new situation.

With the new awareness on the quality and the need for care in the handling of plants, greater liaison between the producer and the consumer is essential.

The forest manager must be clear about his future needs and, in good time, convey his requirements to the nursery sector. The nursery manager must then set about to meet these demands.

APPENDIX 1

CONTAINERISED STOCK

Advance planning is required to ensure:

1. Prepared Planting Site.
2. Adequate Access for:
 - (a) Delivery from supplier,
 - (b) Distribution to planting site.
3. Efficient Handling Systems.
4. Adequate Watering Facility.
5. Protection Against Vegetation, Vermin, etc.