

Growing Saleable Timber

By MALACHY SHARKEY *

THE prime purpose of forestry is the economic growing of trees for the production of timber. The Forester (and in this article he represents all those engaged in or responsible for the growing of commercial trees) must never lose sight of this fundamental fact and all his efforts must be relentlessly directed towards its attainment. I emphasise this because the practising forester is so preoccupied with normal day-to-day routine work that this primary objective could easily be lost sight of, while the long interval between planting and harvesting the timber crop tends to further obscure the issues. The forester must guard against these inherent dangers, which are further increased by the fact that in present-day forestry activities, especially in those controlled by the State, the trend is towards specialisation in different aspects of forestry with collective rather than individual responsibility—all within a veil of anonymity peculiar to a State service. Moreover the forester's education and training, however complete, tend to concentrate on the growing of trees through the study and manipulation of the natural sciences, until the danger arises that the growing of trees becomes an end in itself somewhat divorced—as indeed is the environment of the forest—from the more hard and prosaic facts of the economic utilisation of the timber crop. This is not to detract from the technical merits of our foresters or to say that the forester must take short-cut methods in the practice of his profession or become entirely preoccupied with matters of utilisation. It simply means that the forester not only grows timber but must grow good quality timber, always envisaging the end product and maintaining a constant economic awareness with the merits of his activities measured by a 'will it pay' yardstick.

Background to Problem.

Production of timber is subject to all the economic laws applicable to production of any other commodity even though the commodity in this case is basically a raw material. The severity of the economic test which timber growing must withstand is further aggravated by the fact that timber is an international material, enjoying for the most part free universal markets, with its price structure moving within defined ceilings. In this setting the forester takes on the responsibility of producing an important material at an economic cost in a quantity which will meet anticipated demand and of a quality which will satisfy an exacting public. Moreover, he is further obliged to render a satisfactory sales service and to present his produce in a manner which will encourage consumption and thus ensure his own economic survival.

This is surely a formidable undertaking for a forester—whether State or private—although quite definitely the obligation is more exact-

* Mr. Sharkey is Managing Director of Irish Forest Products Ltd.

ing for the State Authority in so far as it is working in public trust—financed from public funds, and therefore carrying a heavier responsibility for the efficient fulfilment of its complex task.

It must be recognised of course that the forester is subject to circumstantial limitations in the pursuit of his ideal towards quality at low cost. First of all consideration of site and soil suitability determine to a large degree his range of species, although on this point one could enter deeply into arguments on the merits of planting unusable or low-value species or afforesting unprofitable land. As well the length of rotation required for the production of commercial timber precludes the possibility of an apt analysis of consumer requirements, as to some extent fashions in timber usage change.

Compelling Circumstances.

These circumstances however in no way absolve the forester from pursuing a high quality code aimed at securing long-established timber quality features such as low knot-content, straightness, high form factor, high ring density in softwoods and general suitability. Rather do they necessitate an all the more conscientious effort to ensure that the anticipated requirements of the future will be fully met so that the produce of the forest will be saleable. Nor is it relevant to state that the trend in usage is towards reconstituted forms of wood with the heterogeneous composition of timber reduced to the homogeneous matter of the modern pulp, fibre or chipboard. In fact the increase in production of synthetic board mainly comes about from technical advances in the utilisation of forest "waste"—thinnings, sawmill slabs, and tops and branches of both hardwoods and softwoods—and be it noted that from 1912 to 1956 the total world exports and imports of sawn softwoods has risen from 5,381,000 standards to 6,061,750 standards, despite competition from substitute materials. Even allowing for maximum development of pulping and other forms of synthetic timber processing it would be the height of folly to convince ourselves that the defibrator has solved the economic problems of Irish forestry.

In any case the national and international price structure of general timber and pulpwood necessitates the discriminate channelling of graded produce to the most profitable outlets. The prospects of getting an economic price for low-grade timber of saw-log size sold as pulpwood cannot be entertained nor can it be assumed that the selling price of the better grade saw-logs will profitably carry, or in other words subsidise, the unprofitable disposal of large quantities of lower grade forest logs.

Quality Facts.

Perhaps one should further qualify this responsibility for aiming, where possible, at quality by admitting at the outset that large areas of our forests will never produce anything but low grade timber, or timber

doubtfully marketable other than for pulping and low-priced usage. An immediate eliminating factor in this respect is the question of tree species. For instance it is difficult to envisage such species as contorta pine or japanese larch being commercially acclaimed in an easily saturated market or a highly competitive international market, while others of our presently-favoured species such as the silver firs and some of the pines, may not find an easy clearance in the sawn timber market. A particular species may have much individual merit in its timber qualities, but its selling prospects must be realistically viewed in the light of all the circumstances which are likely to prevail at the time of its wholesale marketing. For instance the present exclusive demand for homegrown spruce ominously illustrates this point with the prospect that the more plentiful spruce becomes the more difficult it will be to sell other species. It therefore must be accepted by the forester that in order to ensure even reasonable prospects of economically marketing all his produce, he must keep a keen eye on the overall 'supply and demand' structure which obviously dictates that high quality in the timber intended for sawmilling is a challenging obligation.

Arising from Irish climatic and growth conditions we must also from the outset recognise that Irish timber will always carry certain inherent disadvantages due to its more rapid growth, relatively wide ring growth and consequently lower density, high moisture content at the pre-milling stage, a tendency towards coarseness, and comparative immaturity even at the end of its rotation. Since sawn timber mainly retains the qualities of the tree whence it came it is incumbent on the forester to eliminate as many as possible of these defects or to compensate to the utmost for the defects which he cannot eliminate.

From the beginning the forester can influence the quality of his produce commencing with the selection of the land, choice of species, density of spacing, thinning, pruning, and length of rotation.

Selection of Land and Species.

In selecting the land for planting, the forester must be satisfied that all the land will at least produce an economic crop and that a reasonable proportion of the land is of a type which will produce high quality timber. Similarly the trees selected should be of a species which will produce quality as well as quantity. While of course the forester must, to a large extent, be guided by silvicultural considerations in selection of species, he must always display a keen appreciation of his obligation to make forestry pay by tempering matters of silviculture with a strong leavening of commercial considerations. It is at this stage that the forester displays his business sense and sets his productivity gauge which determines the final financial success or failure of his enterprise,—even though he himself may not be present at the final reckoning.

Planting Distances.

Density of planting spacing has a far-reaching effect on quality and indeed it is difficult to understand how wide spacing can be justified under Irish growth conditions. At best it must be regarded as a matter of short-sighted expediency. While there are less transplants required per acre at 6 foot or 7 foot spacing there are also less prospects of a future quality crop. In the final analysis the unit of measurement of timber is not the acre but the cubic foot—the value of which will be greatly influenced by the quality.

The ills of wide spacing are all the more serious due to the fact that the temptation to save transplants is strongest when planting good-type land, which is relatively in short supply and which should be regarded as our main reservoir for growing quality timber. On the whole these soil types are generally accessible so that the argument of unsaleable thinnings cannot be sustained, especially as there is a good prospective demand for thinning produce. There is no need to go into detail on the results of wide spacing; suffice it to say that wider ring growth and heavier branching are encouraged with a tendency towards lower-grade stem formation and general roughness. While no doubt branch suppression would commence when crowns eventually meet, the age at which pruning can commence is delayed and the smaller number of trees per acre will unfavourably affect the range of selection in thinning. There is no saving in the long run with wide spacing as every forester knows and if we are to emulate the efforts towards quality of timber exporting countries we must adhere to spacing rules which are internationally recognised and which create growth conditions more closely aligned to those of the world's virgin softwood forests whence the bulk of high grade timber comes.

Thinning.

The merits of heavy and light thinning have been more keenly debated in recent years than any other forestry subject and the diversity of opinions—each convincingly substantiated—(if this is not a paradox) proves beyond doubt that in this important matter we have not yet left the 'trial and error' stage. An acceptable generalisation is that heavy thinning tends towards low-quality timber and that light thinning helps quality—though here I must leave the terms "heavy" and "light" undefined. In any case the forester must not be carried away by the bountiful prospects of early heavy returns through heavy thinning at the complete expense of quality. Knot-content and ring density are the most important quality factors in sawn timber and are mainly influenced by the grade of thinning. What merits has a large tree with two rings per inch, rapid taper, heavy branch supply and general coarseness?

In converting there is heavy waste due to taper, with a tendency towards cross or short-grain in the sawn scantlings, while above the first 15 feet of bole the timber is hopelessly rough. Heavy knot-content and

low density are particularly harmful when artificial drying by kilning is practised, resulting in knot holes, twisting, and sometimes cellular collapse and in our moist climate drying timber by kilning must be regarded as an essential part of processing for future wide scale consumption. From my own experience a much greater outturn is got from the more slender, cylindrical tree. Having grown in close formation not only are knots less plentiful but the individual knots are smaller and the clean bole is utilisable for practically its full length with little converting waste.

Pruning.

The forester's attitude towards pruning is more than anything indicative of his attitude towards quality and on no account should pruning be regarded as a nuisance operation, for while it does not increase the volume of the tree it unquestionably increases its value. While pruning may not be always essential for all species in all circumstances, even in close-grown plantations with natural branch suppression high pruning will still further improve the quality and enhance the value. Pruning should always accompany heavy grade thinning unless all prudence is to be thrown to the wind. If the forester is so rash as to adopt wide spacing at time of planting, he must more completely rely on the pruning saw for quality, while with species of naturally strong and persistent branch habit such as the pines, and to some extent douglas, pruning is always essential. The adage of "losing a sprat to catch a salmon" aptly applies to the matter of pruning where a small cost, expended at the right time, results in an ensured sale and greater profit.

The whole purpose of pruning is lost if it is not carried out in time, that is before the tree is more than 4 inches or 5 inches diameter, as the aim is to produce a tree so that its longitudinal section will have as large an area as possible free from buried branch stubs, which in the sawn timber appear as knots. Pruning of trees a few years before sale or when the tree is more than 6 inches diameter is merely a form of deceptive window-dressing which in the long run militates against the forester's best interests, helping as it does to perpetuate a prejudice against Irish-grown timber, and indeed cancelling out in advance the possible sales appeal of genuinely pruned timber.

High pruning (up to 20 feet) at present costs about 4d. per tree, which, if commenced before the crop is 25 years old (on selected final crop trees only) amounts to approximately 2/8d. per tree at 5% compound interest to the time of felling. In an average tree of 50 cubic feet the first 20 feet contains approximately 50% of the total volume so that the additional cost of pruning is little more than 1d. per cubic foot—surely a small cost which will be profitably recouped.

Length of Rotation and Log Size.

Length of rotation not only affects production costs but also has a bearing on quality, selling prospects, and selling price. To ensure an economic return from his investment, the forester must sell his timber at a suitable age and size, the determining of which is not a mere chance or arbitrary matter, but rather must be governed to a considerable extent, by the customer's requirements. Without pretence to fully appreciating the relationship of age of tree to density of the timber, it can be generally accepted that the timber from the mature tree is superior to that from the very young tree with a progressive variation in important quality features relative to the age. The timber from over-aged Spruce however has a tendency to brittleness while the length of rotation is a serious quality consideration where there is a danger of attack by heart-rot fungi.

Provided a tree is of millable dimensions and reasonably mature, size as expressed by diameter or girth has little if any influence on the quality of the sawn scantling,—timber from rougher central core excepted—but a uniformity in size with logs running 12 inches to 20 inches in diameter is preferable to over-sized logs which impede economic handling and conversion.

Quality Pays.

The question is sometimes asked "does it pay to grow quality timber?" Apart from the fact that quality is an initial requirement to ensure reasonable prospects of wholesale marketing of future timber crops, the forester must realise that quality is a positive selling factor, expressible in higher price per cubic foot—a price differential which in the end may prove a decisive item in the forestry Profit and Loss account.

The effects of quality extend far beyond the forest ride or sawmill yard. It affects the costs of the box manufacturer, or building contractor, as reflected in the time variations of a carpenter sawing or driving a nail through knotted or otherwise rough timber. Similarly with planing or painting a soft or absorbent surface, while the consequences of splitting, warping or collapse must also be considered. Even in less exacting timber outlets, quality affects handling costs to an unsuspected degree. Pitwood preparation and grading cost less if the quality is right. Even in the mines the cost of handling and erecting a good-type pitprop is less, not to speak of its durability. In the pulp-mills the cost of peeling and grinding straight cylindrical billets of small knot content is lower, with less wear and tear on the machine parts and a higher quality pulp resulting—all helping the sales prospects on a competitive export market. Moreover, the density of the pulpwood is of major economic importance as production costs are greatly affected by the relationship of fibre to moisture. Similarly with fibreboard, chipboard and woodwool manufacture. There is no need

to stress that all these factors react on the sale price of the standing timber.

Private Forestry.

In all this lies a special opportunity for the private forester and estate-owner whose planting enthusiasm is sometimes dulled by the questionable prospects of selling his timber in markets probably glutted with State forest produce. The fact that he generally has a better soil-type, capable of growing in quantity more readily saleable species such as spruce, hemlock or ash, supplies an initial advantage which can be confidently exploited by keen management and silvicultural practice aimed primarily at quality.

Conclusion.

To my mind the idea of quality in timber production needs constant reiteration as it is our attitude to matters of quality, production costs, and marketing methods that determine whether forestry is paying or whether it is just another subsidised industry. The greatest dilemma which plagues the business manager is the prospect of over production or the accumulation of unsaleable stocks and the forest "factory" is no less beset with these serious risks. On no account can the forester entertain the idea that what he grows must be used or develop a "take it or leave it" attitude. He must supply what the consumer wants not what he thinks he should want. Scientific research into technical qualities of timber may be essential, but the real test is the consumers' attitude. "The customer is always right" is an adage which can be temporarily ignored with impunity, in a sellers' market, but which has a more pungent significance when viewed in the light of a future buyers' market and a probable European Free Trade Area with foreign timber continuing to freely compete with our homegrown, while the optimistic hopes of clearing surplus native timber stocks by exporting, run the risk of being soberly shattered if we cannot compete on quality and price.