Briefly . . .

Heat Pumps in Timber Drying

Traditionally, about two-thirds of timber drying in Ireland has been carried out in approximately a dozen larger sawmills using fuel-fired boilers.

However, in recent years drying by the dehumidification process using electrically driven heat pumps has become popular.

The main advantage of heat pump dehumidification drying lies in the fact that the latent heat of the moisture evaporated from the timber, is not expelled, but recovered and re-used for the drying process. In contrast the conventional 'heat and vent' kiln wastefully vents this heat in the stream of moisture-laden air, which is then replaced by ambient air of variable and uncontrolled quality and which, additionally, requires energy to raise it to the kilning temperature.

Results from a study of kilns fitted with heat pumps indicated that drying times were the same as those experienced in conventional 'heat and vent' kilns and target moisture contents were easily obtained even in thick section timbers.

Considerable savings in energy are possible with the heat pump drier system, varying from 73 per cent for the hardwood species to 85 per cent for the softwood.

The kilner can now increase this energy cost saving by wise selection of the optimum tariff, by maximising the use of cheap night rate electricity and in scheduling loads to avoid the maximum demand tariff.

Technology Ireland, June 1990.

A Possible Indicator of Shake in Oak

Shake in oak has been correlated with environmental factors, particularly the severe fluctuations in soil water availability that occur upon freely draining sites. However, scientists working at the Oxford Forestry Institute have found that certain individual trees possess inherent qualities that predispose them to this defect.

An investigation into the problem demonstrated that sessile and pedunculate oak, with larger than average sized earlywood vessels, are likely to have a greater predisposition to shake. Other wood characteristics such as ring width and width of earlywood appeared to have no influence.

External visible characters such as, branch angle, epicormics, buttressing, bark characteristics and time of flushing were looked at in relation to vessel size but only time of flushing had any relationship.

The reasons for the correlation are thought to be complex and are now the subject of further investigation. However the results from present research are encouraging and indicate that time of flushing can be a reliable indicator of vessel size for 85% of the trees investigated, and consequently of a predisposition to shake. It should therefore be possible to mark the latest flushing trees for removal in thinnings during the spring so that by the time the thinning stage is reached most shake-prone trees would be removed.

Forestry, Vol. 63, No. 4, 1990.

Predicting the Productivity of Sitka spruce

An understanding of the effects of climate and soil conditions on tree growth is an essential basis for predicting timber yields and planting limits. Prediction of the productivity of forest land has become increasingly important in various aspects of forest management, including land aquisition, investment decisions and choosing appropriate silvicultural practices.

Researchers working at Edinburgh University have developed statistical models that can predict general yield class for sites in Scotland. Using the models they have found that general yield class decreases by about 3-4m^3 per hectare per year for each 100m increase in elevation due to the effects of

increasingly adverse climatic and soil conditions. Yield class and elevation were found to be closely correlated at most sites but the relationship varied widely between sites. Values of general yield class at any specific elevation were higher on inland and southern sites than on coastal and northern sites. The elevation of the planting limit also varied between sites ranging from about 600m in the south and inland areas to 300-350m on coastal sites.

The geographical distribution of the variation in productivity is similar to the patterns of both growing season temperature (accumulated temperature) and windiness (tatter rate). These meteorological indices proved to be closely correlated with yield class and can also be used as a basis for predicting productivity.

Forestry, Vol. 63, No. 2, 1990.

Messy Loggers Welcome

Foresters in Oregon and Washington are trying something different: "new forestry." The principle is this: Instead of stripping harvested areas down to the bare ground (for easier replanting), a mess is left behind. Old standing trees, hollow sun-bleached trunks called "snags" and debris from undergrowth and fallen timber remain after the loggers leave. The old trees encourage genetic diversity by adding their own offspring to the new plantation; the snags offer hidey-holes for squirrels and owls; the ground litter in time decomposes and fertilises the whole process.

New forestry, a variation on techniques employed in Germany for two decades, has caught the attention of west coast foresters because of cuts in tree harvesting made to save the endangered northern spotted owl. The technique is seen by its advocates as a way to permit tree-cutting while not wiping out animal species. New forestry, they say, mimics the natural process that occurs when a forest regenerates after a storm or fire.

Perhaps. Test plots employing new forestry are under development on national forests in Oregon and Washington. But it will be ten years before its efficiency is known. Its detractors grouse that new forestry will reduce timber harvests and increase accidents.

Even new forestry's proponents concede that it will not be a panacea for an industry traumatised by a fierce new desire to preserve forests. But clear-cutting as it has been practised for the past 50 years has left many of the west coast's forests of fir, redwood and cedar ugly checkerboards of barren land that take years to turn green. Its side-effects – erosion, wind damage to adjacent stands, sun-warmed waters in salmon-spawning streams – make it difficult to justify the practice any longer.

The Economist, September 1990.