Briefly . . .

Leaf Litter Effects

Experiments at the Welsh Plant Breeding Station have examined the consequences of tree leaf fall for the underlying pasture Agroforestry systems. They have shown that sycamore leaves suppressed both grass and clover growth, probably as a result of smothering. Larch needles, however, were less damaging – the needles, by settling at ground level, did not smother the sward and actually resulted in increased herbage weight and clover stolon length. This may have been as a result of nutrient leaching from the litter. Alternatively the larch needles, by settling at ground level, may have afforded some insulatory protection for overwintering stolons.

Timber Grower, Spring 1989.

'Glyphosate has minimal impact on ecosystems'

A new Canadian study represents 'the most complete assessment on the impact of a herbicide in a forest ecosystem anywhere in the world'. This is how Monsanto describes the results of a research project at Carnation Creek in British Columbia evaluating the impact of forest harvesting and other forest practices on salmon and salmon habitat.

The Canadian government – through its forestry, fisheries, environment and parks agencies – undertook a three-year study to understand the effects of glyphosate on a forest ecosystem after an aerial application of Monsanto's Roundup. It indicated a 'favourable environmental profile'.

Main findings were: rapid breakdown of the herbicide after spraying; unlikely that Roundup would affect aquatic organisms after use at recommended rates; neither glyphosate nor its major metabolite persisted in soil or leaf litter; it has a small transient effect less than that caused by soiled water variations; no residues detected in invertebrates or fish. Conclusion: Glyphosate 'has minimal impact on forestry and aquatic ecosystems'.

Forestry and British Timber, November 1989.

Eggs to Repell Browsing Animals

New Zealand's forest scientists are using eggs to repell rabbits and hares. This is not as far-fetched as it seems. Recent trials testing a range of animal repellents have shown that the following recipe gave considerable protection against browse on winter planted trees.

80gms egg powder
800 mls water
or
5 fresh eggs
600 mls water
150 mls acrylic resin
or
150 mls acrylic paint.

Egg powder: Mix powder with some water to form a paste and add remaining ingredients.

Fresh eggs: Beat eggs well. Add remaining ingredients.

Spray 20mls/tree immediately after planting. May need to re-apply in spring.

What's New in Forest Research, No. 162, 1988.

Improved Specifications for Rabbit Fencing

The need to protect young trees from damage has and will increase as a result of recent policy on broadleaved and farm woodlands in Britain. Fencing is a necessary but expensive protection measure.

Trials were conducted to establish specifications for wire netting rabbit fences that were cost-effective. Cost-effectiveness was measured in terms of price per metre and effectiveness as a rabbit barrier. Mesh sizes

of 31mm (hexagonal) 50 x 25mm (rectangular) were required to exclude all age classes of rabbit. Fence heights of 0.9m, the commonly accepted height, and 0.75m were equally effective, excluding more than 90 per cent of adult rabbits in enclosure trials and about 80 per cent in field trials. The 0.75m fence cost was 6 per cent less and therefore more cost-effective.

Forestry, Vol. 61 (4), 1988.

Nylon Stockings to Protect Against Pine Weevil Damage

The effectiveness of a stocking, constructed of nylon and cotton netting, in protecting containerised conifer seedlings against pine weevil attack was evaluated in field tests on 37 clear-cut reforestation areas in southern and central Sweden. The stockings significantly reduced pine weevil feeding on treated seedlings as well as seedling mortality. The protective effect of the stockings was similar to that of an insecticide (permethrin) treatment. In most experiments the survival of stocking-enclosed seedlings was satisfactory from a practical point of view, whereas untreated control seedlings suffered heavy mortality.

Scand. J. For. Res. 4: 1989.

Beetle War Continues

Spread of the great spruce bark beetle – *Dendroctonus micans* – is being contained within the area of its original infestation – most of Wales and the English border counties. 'No change to the scheduled area boundary is necessary', the Forestry Commission says.

But spruce timber movement will remain strictly controlled in several counties. 'An essential part of the overall control strategy', the FC's plant health branch says, 'is the "approved mill" scheme' in which only certain mills (now 61 in the scheduled area) can process spruce wood from infested stands under strict, laid-down criteria.

Research into the use of biological control to fight the beetle with the help of the predator *Rhizophagus grandus* will continue, the FC says. Field evaluation of promising chemicals to attract *Rhizophagus* will be conducted in 1989.

Forestry and British Timber, September 1989.

Tolerance to Sitka Spruce Roots to Waterlogging

Recent research by the Forestry Commission has shown that Sitka spruce roots were damaged much more by waterlogging in October than in November.

The practical implications of this research indicate that on wet sites deeper root growth, and an associated improvement in tree stability, might be achieved if drainage could delay re-wetting of the soil in autumn. The results also indicated features of the tree's growth which could improve rooting depth.

Fast root growth through spring and summer, and early cessation of growth so that roots are inactive when the water-table rises in the autumn, would enable roots to survive to greater depths. There is a possibility of screening clones for the desired growth characteristics.

Forestry Commission Research Information Note 154.

Hopper Modification For Grey Squirrel Control

A new modification to hoppers, used to contain Warfarin bait for squirrel control, has been developed by the Forestry Commission's Wildlife and Conservation Research Branch.

During the past two years, a modification – a flap-door fitted to the hopper's entrance tunnel – has been developed and tested. The flap-door is hinged at the top, made of clear perspex and has a magnet attached to its base.

The magnet gives an initial pull equivalent to a 300g weight which is sufficient to deter small mammals. The magnet overcame any possible resistance that a squirrel may have

had to a weighted door resting on its back while feeding.

Hoppers with flap-doors have the potential to eliminate the risk of poising small mammals and their predators and should make the use of Warfarin more acceptable as a control measure for squirrels.

Forestry Commission Research Note 153.

Using Low-Quality Timber

A new technology that converts low-quality timber resources into new wood and fiber composite materials is under development by Bernard C. Sun of Michigan Tech University's School for Forestry and Wood Products. The copolymerisation process uses plentiful subsawlog-grade timber resources to make a composite material that is strong, durable, and decay-resistant.

The product has the strength and physical properties of aluminium and plastics but requires only a fraction of the production costs. Estimated raw material costs are 10 percent of those for aluminium and 40 percent of those for scrap steel. Additionally, the material's short production time and the absence of air and water pollution as byproducts of the production process make it a preferable alternative to currently available technologies.

Jour. of Forestry, Vol. 87(ii), 1989.

Gripping Fencing Idea

The demand for an easier, quicker and more effective alternative to wire twisting when erecting stock fencing and three years of development work has led to the Gripple system from Estate Wire, based at Birley Vale Close, Sheffield.

In filmed tests, a professional erector using Gripple fencing completed the entire joining and adjusting of two lengths of fencing in just 10 seconds. His average time when twisting together eight joints was 10 minutes.

The new wire jointing device is cast in one piece. The wire to be joined is pushed in through either end of the Gripple and is locked into place when either end is tensioned. Any wire from 1.2 to 3.2mm can be joined including high tensile wires and two wires of differing diameters.

Mr. Hugh Facey the inventor of the device was a finalist in the 1989 Prince of Wales Awards for innovation and production.

Forestry and British Timber, September 1989.

Irish Oak Comes of Age

Archaeologists and historians have long dreamed of being able to date objects exactly. Now, seasonal growth rings of Irish oaks can be used to give an exact calendar year date for many sites and artifacts, as well as providing information on historical events such as, ancient volcanic eruptions and on climate.

Scientists in Queen's University Belfast working with Irish oak samples constructed a tree-ring chronology stretching back as far as 5289 BC precisely. The process involved matching tree-ring patterns on oak timber samples of increasing age. Timbers for 18th century building provided the link from the modern tree-ring patterns. Further links from these timbers provided a chronology back to the mid 14th century. Samples from the extensive urban excavations in Dublin provided another link to the 10th century. The timber crannogs dated back to 855 AD. It was discovered that English and German chronologies dated exactly with the Irish chronology.

Using trunks from early Christian sites it was then possible to extend an archaeological chronology back to 13 BC. Links were made from there to bog oak and the year 5289 BC. German chronologies extend it by a further 2,000 years to 7200 BC.

Samples of oak from every 20-year period of the last seven millennia were isolated from the chronological record and radio carbon dated. The data were used to derive an internationally accepted radio carbon dating to be used by archaeologists worldwide. With this calibration it is now possible to date archaeological sites and artifacts with greater precision. It is also possible for the chronological record to very accurately date

historic buildings, and climatic changes that have occurred over the centuries.

Technology Ireland,
May 1989.

Stihl Have Edge on Chain

Metallurgical engineers at Stihl chainsaw's research and development centre at Stuttgart, Germany have produced a cutting edge for chain which, it is claimed, will cut ten times longer than normal chain before needing to be sharpened.

The new chain 'HMC' (hard metal chain) follows the company's 'Oilo-matic' chain construction system but, in addition, each cutting edge has a tip of precision-ground carbide. 'Unlike normal chainsaw chains which must be frequently sharpened using a special file, HMC will last ten times longer before sharpening is necessary on special workshop grinding equipment', Stihl say.

This new chain is being manufactured at its own chain factory in Switzerland for Stihl and any other type of chainsaw using 3/8in .063 gauge chain. 'This innovation in chain development will be welcomed by all users of chainsaws, particularly professional foresters and local authority contractors', they add.

Forestry and British Timber,
February 1989.

Storage of Acorns

The seeds of oak are very sensitive to low moisture contents and reduced germination can be expected from spring sowings of poorly stored acorns.

Research by the Forestry Commission into the storage of *Quercus robur* acorns over the winter period has shown that, if at all possible, the moisture contents of the seed should not fall below 40%.

Germination percentage can be significantly improved for acorns with a wide range of moisture contents by rapid imbibition, brought about by soaking in water at +2°C for 48 hours.

If it is known that a significant amount of drying has taken place before acorns have been received, a preliminary soaking before sowing is likely to be beneficial. Similarly if sowing does not take place immediately, then the same soaking procedure coupled with bagged storage (loosely tied polybags kept at +2°C) is likely to prolong storage life.

Forestry Vol. 62(i), 1989.

Forests to Offset the Greenhouse Effect

Analysis of the relationships between forest and climate suggest that plantation forests may offer a means for postponing by 3 to 5 decades the buildup of atmospheric CO_2. This would give sufficient time for society to develop alternative energy sources to carbon releasing fossil fuels. An estimated 465 million hectares of fast growing plantations in the temperate zone, established at a cost of at least $372 billion, or $186 billion (tropics) would be required to sequester the 2.9 billion ton annual increment of carbon in the atmosphere. The area required is about 1.5 times the total currently forested land in the US, or 10% of the current area of forest worldwide.

Journal of Forestry,
July 1989.

Stump Treatment is Vital

A recent review of all information available from observations and experiments, conducted in Britain over the past two decades, suggests that the present low level of Fomes annosus in British plantations will only be maintained if stump treatment is continued.

The review concluded that the cost of stump treatment was fully justifiable. It recommended that all conifer stumps greater than 2.5cm in diameter should be treated immediately after felling with an effective chemical or biological agent to prevent infection by spores.

Forestry and British Timber,
May 1989.