

# Farm Woodland News



**Farm  
Advisory  
Service**

*The newsletter for participants in Farm Woodlands Schemes* • Issue Number 31 **Autumn 2018**

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Off-cuts

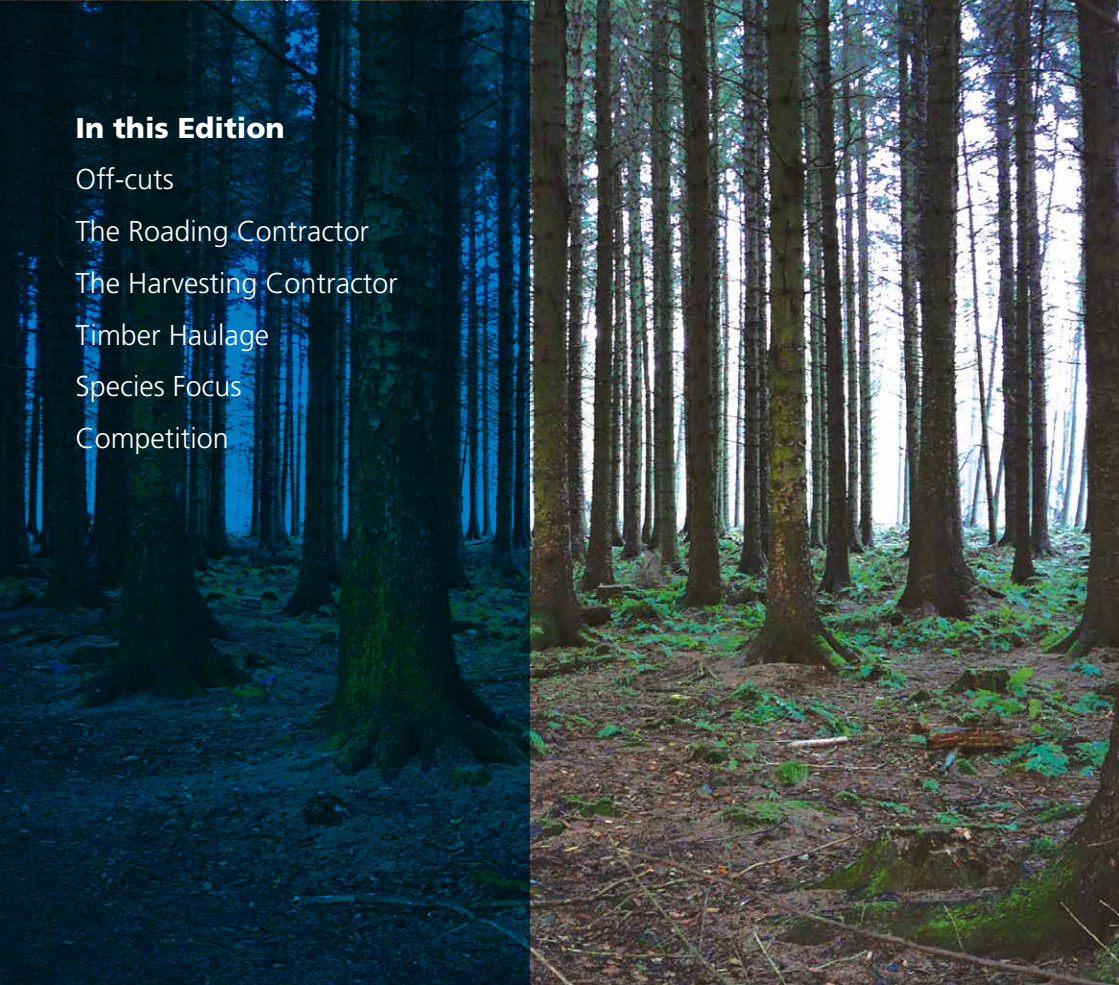
The Roothing Contractor

The Harvesting Contractor

Timber Haulage

Species Focus

Competition



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SRUC is a charity registered in Scotland, No: SC003712



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for Rural Development  
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*Welcome to Farm Woodland News, post-GDPR and still on paper!*

We're pleased to be able to continue to send FWN after receiving guidance that FWN would be exempt from the GDPR and should continue in its traditional format and delivery. This decision came about only after we contacted the readership about registering their interest in receiving FWN, rendering the GDPR registration process unnecessary. As it happened the web-service for this process only partially worked; many of you were unable to access the web-site, however we did receive your phone calls and emails. And it showed us just how many of you enjoy reading Farm Woodland News.

It won't have gone unnoticed the amount of felling, thinning and timber transport on the roads. This is in response to a number of factors which have lifted timber prices by 30% in just the past 12 months. With so much activity going on and likely to continue we decided that it would be helpful if we produced an issue concentrating solely on timber harvesting. We interviewed a harvesting contractor and roading contractor to provide you with their insight as to what makes a job run well, as well as having a contribution from Confor's Timber Transport adviser, and an article on product categories and log specifications. With these insights you'll have a clearer idea of the practicalities of thinning/felling and help you prepare.

Thank you to all our contributors. Enjoy the read.

**Malcolm Young**  
SAC Consulting



**FC Guide for Harvesting Machinery on Peaty Sites**

A new technique for harvesting timber on peatland sites has been developed. The team at Forest Enterprise Scotland (FES) used a low ground-pressure excavator fitted with tree shears in tandem with a standard excavator-based harvester. Ordinarily, a large volume of roundwood would be laid down and topped with a layer of brash as a running surface for harvesting machinery, removing this timber from the final sale value of the crop. However, this new method allows three times the distance between brashmats, compared to standard working. This requires significantly less material to be sacrificed for the machinery to run on, and also reduces the environmental impact of the harvesting machinery on the peatland. Using this technique has the potential to make recovery of lower quality timber crops on peatland sites more commercially viable. Additionally, by reducing the volume of brash needed to float the machinery and leaving brash cleaner, the technique increases the potential for complete residue recovery to be an option on these sites, further improving the potential financial returns from harvesting.

**Ash dieback Chalara disease has been found on three new host species** in the UK, prompting the Forestry Commission to renew calls for landowners to report tree pests and diseases through the Tree Alert



portal. While the new hosts are shrubs and an ornamental tree (mock privet, narrow-leaved mock privet and white fringetree) rather than commercially productive species, the discovery highlights the need for anyone responsible for trees to remain vigilant and use the Tree Alert reporting system to provide vital information to the plant health sector.

The Observatree project also forms part of the tree health strategy, training volunteers to investigate suspected tree pests and diseases, and carry out tree health surveys across the country. The Tree Health Resilience Strategy, published in May this year and the first major publication to result from the UK Government's 25 Year Environment Plan, describes the proactive approach in which Tree Alert and Observatree will play an increasingly important role.

The strategy also highlights the increasing risks to plant health, with five new pests or diseases added to the risk register every month. These can be introduced to the UK by movement of goods through global trade, and climate change altering the geographical range of many pests and diseases, by allowing them to invade areas that were previously too cold. Undermanaged woodlands can also contribute to the problem, by creating an environment where pests and diseases can thrive and become established without being disturbed or detected.

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**Forestry and Land Management (Scotland) Act 2018** will replace the Forestry Act 1967 on the 1st of April 2019. This will represent the full devolution of forestry to Scottish Ministers and coincides with the 100-year anniversary of the Forestry Commission.

The responsibility for forestry will be taken up by two financially separate agencies. Forestry & Land Scotland will take over management of the national forest estate, currently the responsibility of Forest Enterprise Scotland (FES).

A second agency, Scottish Forestry, will replace Forestry Commission Scotland (FCS) as the regulator, setting national forestry strategy, promoting sustainable management, and issuing grants and felling licences.

Changes brought in by the new act will aim to update legislation to reflect modern practices and allow greater flexibility for future change by detailing the regulatory framework within secondary legislation, Regulations that are more easily amended.

There will also be a requirement for ministers to review forestry strategy at least every 9 years.

By bringing forestry into direct responsibility of Scottish Ministers it is hoped that forestry policy can become better integrated with related strategies and policies. The Forestry & Land Scotland agency is intended to take on a wider land management role than is currently the remit of FES, potentially allowing for strategy to be viewed at a landscape level.

Before being passed, the bill was amended following scrutiny and debate by the Rural Economy and Connectivity Committee. This was informed by a public consultation, which received significant input from organisations representing the forestry, timber and rural industries.

## The Roding Contractor

Leona Baillie SAC Consulting  
John Dewar J.M. Dewar Plant Contractor



Taking on the building of a new road may be one of the most daunting aspects of the harvesting process. Indeed, it can be an expensive business but with proper planning, and the right advice, there's usually a way to access even the most challenging sites.

We spoke to John Dewar, of J.M. Dewar plant contractors, who has been building forest roads for more than 40 years, to find out what's involved in building the infrastructure you need to harvest and extract your timber, and most importantly, how you can do this efficiently to maximise the financial returns from your wood.

If you're only planting trees now, and harvesting seems like a long time away, it's important to consider access at this stage. Think about how the trees could be reached from the existing infrastructure and don't plant right up to the edge of roads – allowing in air and light will help the road to dry out and remain in good condition. An accessible woodland is a valuable woodland.

### Planning the Job

The process starts by walking the site with the roding contractor. At this stage, it's important to understand all the constraints of the site, such as slopes, powerlines and watercourses, and explore all options for how and where you could extract and stack the timber. Involving all the relevant people as early as possible will help you find a solution that works for everyone, so consider

inviting the harvesting contractor, harvesting manager and/or forestry consultant to this first site visit. An experienced forest roads contractor will have a good understanding of harvesting but the harvesting contractor is the expert with experience of what infrastructure layout will work for their operations.

In considering all options, the landowner needs to balance the costs, including potential impacts on the rest of the farm or estate. For example, could you temporarily give over a field for timber stacking? Could the road be built in a way that would improve access to other areas, such as further forestry blocks to be felled at a later date? Agreeing the specification, as well as the route of the road, at this early stage is key. An existing track may be a helpful start but will likely need significant upgrading in order to stand up to 44-ton timber lorries running on it 5 or 6 times a day.

The materials required to build the road can form the largest part of the total cost. However, this can be significantly reduced if you have rock on site which is suitable for road building. Using local "as dug" materials can sometimes reduce build costs by half. Even if the material needs to be blasted or crushed, depending on the scale of the project, this is usually far cheaper than importing rock from a commercial quarry. The potential savings of using on-site material mean it can be well worth paying for a few hours' worth of excavator work

to investigate. The disruption of extracting material from a borrow pit is temporary and topsoil can be reinstated afterwards.

Slope, terrain and ground conditions will influence how and where you can build the road. To overcome steep slopes on larger sites, roads can contour up round the hill. Over shorter distances the lower part of the road could be built up and lengthened to reduce the gradient. Forestry Commission guidelines suggest a gradient between 2% and 8% is best, with short sections up to a maximum of 12.5%.

Where the terrain is rough, it will be time consuming and costly to break up large areas of rock. If it happens to be appropriate material for road building this could be economical. Otherwise, a longer route avoiding rocky areas will likely be more cost effective.

On soft ground, lowering the water table with drainage may be necessary before road construction, and an additional layer of larger rock in the road base may be needed. Peat is best avoided unless there is no other option. If peat is not too deep it can be dug out or drained, and the rock layer of the road can be floated on top of felled trees. On very deep peat there's a risk that any type of construction could sink. As trees grown on peat are likely to have lower than average value timber, it's important to weigh this carefully against the cost of extracting.

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In addition to the road itself, there also needs to be stacking space for the timber, a turning area for lorries, plus space for parking and fuel bowser storage. The harvesting contractor should be involved in planning the layout, estimating how much stacking space is needed for the size of woodland and number of different products being cut. They are also best placed to decide where the stacking areas should be to allow harvesting to run efficiently.

### Costs

Construction costs are calculated per linear metre of standard road, plus any additional work needed to deal with the specific challenges of the site, such as stripping away existing vegetation, cutting drainage, installing culverts or modifying the gradient. Typical road construction specification is 3.5m width ( $\pm 200\text{mm}$ ), with rock laid to a depth of 300mm. The source of the material used will have the biggest impact on the total cost of the job. For example, the price of imported material would need to be compared with the cost of hiring blasting and crushing equipment to utilise on-site rock. The baseline cost of bringing in such equipment may be prohibitive on smaller-scale projects. However, if there's a potential use for additional rock in the future, such as extending infrastructure to access further forestry blocks, scaling up material extraction could make it financially viable.

### Timescale

It's best to start putting the wheels in motion 18-24 months before you want to harvest to allow for unforeseen and bureaucratic delays. For any new forest road Prior Notification needs to be submitted to the local authority and if the new road will join a public highway

planning permission is required. Existing junctions with public roads may need to be modified to create a bell mouth suitable for timber lorries. When building a road on softer ground conditions there needs to be bedding in time before lorries start to use it. This can mean paying for a road many months before seeing an income from the timber but rushing road construction risks creating expensive problems and delaying harvesting, which delays timber payment. While much of the road construction process can continue in wet weather, heavy downpours raise the risk of water pollution. Drainage and silt traps need to be checked and cleared regularly, and work must stop if sedimentation of watercourses is happening. A well-built road can last decades if it is properly maintained. The lorry drivers should monitor the road's condition on each visit and flag any necessary repair work long before the road deteriorates. However, landowners should check road condition regularly and everyone using it has a responsibility to look out for problems.

Potholes are best dealt with as soon as they start to form; once they open up and allow water to seep in this softens the formation, eventually causing the road to collapse. Maintaining a camber is also important for water run-off and, where possible, a centre camber is preferable to a cross slope camber which is less stable for high-loaded lorries. Keeping on top of vegetation encroaching on the road, particularly over the longer term, can be more efficient than having to clear it once established. In rainy weather, a layer of wet vegetation on the surface of the road can reduce grip enough to stop lorries running. Roothing contractors should aim to prioritise repair and maintenance work during harvesting to minimise delays and disruption to the timber lorries.

One of the most common types of damage is caused by a forwarder using band tracks running on the road. This results in the surface being torn up, with the road potentially becoming impassable for the lorries and creating a source of silt pollution.

This usually happens when the layout of stacking areas and benches isn't suitable so it's important to discuss and agree the site layout with the harvesting contractor before any work starts. Once you've invested in building a forest road it is worth the annual cost of maintenance to keep it in good condition for future use. A good road will aid restocking and helps make thinning and clearfell operations of the future crop more financially appealing.

Building a road for lorries all the way into the wood may not be the only option. If there is too little space for a turning area and stacking space within the wood, it may be better for the forwarder to extract the timber further, to where access for lorries is easier. The cost of the forwarder will increase with the extra distance it needs to travel but the cost of the road will be reduced. If problems with the road arise once harvesting has begun anything that stops the lorries running efficiently will cost you money – the longer timber sits at roadside the more it dries out

and the lower the value when it goes across the weighbridge. While there's always a risk of unforeseen events, most potential problems can be anticipated and planned for. Try to find a trusted local contractor who has experience on similar sites. Share with them all the information you can about your land and explore all the options.

### Key points

- Plan ahead as early as possible
- Include everyone in planning from the start
- Consider all options – the best solution may not always be a road right into the wood
- Doing work up front is usually better than dealing with problems once the road is being used
- Finding roading material on site is worth the effort
- Don't forget to apply for Prior Notification or Planning Permission in good time

## DID YOU KNOW?

A landmark in UK cross laminated timber (CLT) construction has been reached with the completion of the world's largest CLT building in London. Dalston Works is a 10-storey residential building using 3,852 cubic metres of CLT, with just a fifth of the weight of an equivalent concrete construction. Concrete production is associated with high carbon emissions, while using CLT means the carbon in the timber is locked up for the lifetime of the building. Using CLT also allows the construction process to be less polluting, with large sections prefabricated offsite, it's estimated that concrete construction would have required nearly 600 more deliveries to the site. Using the relatively lightweight CLT made it possible to build directly above London underground tunnels and allowed the architects to include two more floors than would



have been possible with conventional construction methods. Hackney Council's "timber first policy" supported the use of CLT in the development, reflecting the increasing use of engineered timber products in construction globally.



## The Harvesting Contractor

**Leona Baillie** SAC Consulting  
**Davie Dick** Dick Brothers Ltd

If you have some mature woodland, current timber prices mean it's a great time to harvest. But what's actually involved in turning your trees into cash? Davie Dick, of Dick Brothers Ltd, has been in the business of timber harvesting since 1975 and shared with us some of his advice.

### Planning the Job

The first step is to have a harvesting contractor look at the site and discuss access and constraints. With large-scale commercial forestry blocks, the necessary infrastructure is usually already in place but on smaller estates and farm woodlands road construction may need to happen before harvesting can begin. Timber stacking areas, or benches, and a turning area will also need to be planned so it's best to have a site meeting with the harvesting and roading contractors together right from the start. This is crucial to ensure that the layout of the site infrastructure allows harvesting to run efficiently and construction is financially viable, given the expected value of the timber. Road

construction is discussed in more detail on page 4. It's advisable to have a timber sale agreement between seller and buyer signed by both parties. This sets out the products to be cut, the price, a deposit, as well as site-specific limitations such as maximum amount of time for logs to be stacked, condition of site on completion, details of hazards, and agreed mitigations if problems arise.

The contractor should advise on the size of area needed for stacking timber. This depends on the size of the woodland and the number of different products to be cut, as each category of timber needs to be stacked separately. Choosing a suitable location for benches is also crucial. They should allow the forwarder to access the stack from within the wood, without needing to run on the road, and the timber lorries to pull up alongside.

If lorry access to the wood isn't practical it may be worth considering using a field as extraction route or for stacking. The disruption will be temporary and, provided you plan ahead and arrange for the

harvesting to take place at the right time of year, operations shouldn't leave lasting damage. It's important to consider what time of year will be best for harvesting operations. Allowing time for the infrastructure to be built in good time will avoid any delays with construction causing delays to harvesting. You should also consider how forestry operations will fit around other seasonal activities such as lambing, silage recovery, game shooting, even the Royal Highland Show!

While you can't control the weather, it's best to be prepared for potential disruption, particularly if harvesting through the winter months. Work needs to stop in high winds that prevent the harvester operator maintaining control of where the trees will fall. Putting in good drainage before work begins will minimise problems with runoff and silting of watercourses but these need to be monitored, particularly during wet weather, and maintained throughout the job.

An experienced contractor will likely have worked on similar sites before so have a good idea of problems that could arise and how to deal with them. While there's always the risk of unforeseen events, identifying potential issues before they happen will allow you to include a budget contingency.

### Machinery

A pair of standard machines – one harvester and one forwarder – have sufficient capability for most sites. For more complex sites, combinations of different machines and equipment might be needed to access the whole crop. Band tracks can be fitted over wheels to tackle the rough terrain of a harvesting site and floatation tracks can be used on soft ground conditions. On steeper or softer ground, smaller and lighter, or fully tracked, low ground pressure machines might be more suitable. Skyline and winch systems can be used to extract timber from extremely steep areas. These high cost operations are only financially viable for high value stands but do allow even the most inaccessible areas to be harvested.

A small proportion of trees may need to be felled by hand. For example, a medium sized harvester might be able to handle all the trees in a crop except those around the edges, which tend to be larger in diameter and have thicker branches. Bringing in a chainsaw operator to fell and de-limb the edge trees may be more efficient overall than using a larger harvester which is overkill for the rest of the job. Handcutting may also be the best approach to felling areas of very steep ground that aren't large enough to justify bringing in specialist machines.

### Costs

Working rate is usually calculated for a pair of machines on a weekly basis, and includes costs of diesel, breakdown and repairs. In real terms, the cost depends on how the challenges of the site affect the team's production levels – how much timber the team can cut per week. Getting a realistic estimate of this will weigh up the cost per ton against the predicted sale value.

### Technology

The harvester head measures the diameter, length and taper of each stem as it cuts and, based on the previously cut trees, the computer in the cab works out what the best possible combination to maximise high value products cut from that tree.

However, the operator's skill and judgement is necessary to assess the straightness of the stem and decide whether to agree with the computer's suggestion or override it to avoid cutting a log that isn't straight enough for the sawmill to accept.

Details of every log are recorded by the computer and this information gives the harvesting manager real-time updates on progress, as well as the volume and types of timber products being cut. By knowing what is actually being extracted the harvesting team can be instructed to prioritise different products to maximise the total value of the crop.

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## Safety

Before work begins, a site-specific risk assessment should be done with the operators. In areas with poor mobile phone coverage, workers may carry GPS enabled devices which allow them to check in at regular intervals and make SOS calls if necessary. The risk to members of the public will vary depending on the location but it should always be assumed that people may approach the area. In any location, warning signs need to be displayed around the harvesting site and in areas of heavy recreational use banksmen may be required to divert walkers, cyclists and horse riders, or direct the operator to stop work while they pass through the risk zone. Many people visiting forests may not think of them as dangerous work sites, or appreciate the extent of the risk zone around operating forestry machines: two tree lengths plus the length of the boom from forwarders; 200m from the harvester head. If public footpaths run in close proximity to the harvesting site, it may be best to put up signs directing them to a safer alternative route.

Signs should also be placed around timber stacking areas to warn people of the risks. In high use locations consider taping off the area as an extra deterrent to anyone tempted to climb on the stacks. Avoiding stacks becoming too high helps to reduce the risk, with a general rule of thumb that the stacks should be no higher than the length of the logs in the stack.

Extraction routes should avoid passing under overhead powerlines where possible. If harvesting within two tree lengths of overhead powerlines, these will need to be temporarily shut down while the surrounding trees are felled. Arranging this with the power operator well in advance is essential to avoid delays to harvesting.

## Keeping the Timber Flowing

Usually the pair of machines will be run by two operators who work together regularly.

The number of lorry loads to be extracted per week should be agreed at the start of the job but the harvesting team need to keep in regular contact with the haulier and harvesting manager and notify them of any delays or changes to production rate. This will help to avoid timber sitting at roadside too long or lorries leaving the site below capacity. Half-full lorries can also be avoided by being realistic in the number of products to be cut. For example, cutting 10 different products from a small woodland would be impractical, as each type needs to be stacked and transported separately. Towards the end of a job, reducing the number of products being cut will avoid leaving small volumes of multiple products for the last lorry runs.

For heavy duty machines working on rough terrain, mechanical problems and breakdowns are inevitable. Operators should be able to deal with common issues themselves, although if parts are required delays will depend on the distance to the nearest supplier. For more major problems, contractors may have specialist mechanics on-call to respond quickly and minimise downtime.

The harvesting contractor will need to plan how to work across the site in order to maintain a wind-firm edge on the side of the prevailing wind as the risk of windthrow increases once the crop has been opened up by felling.

The current demand for small roundwood for biomass also means that existing areas of windthrown trees may be worth extracting. The process is slower than harvesting standing trees, particularly if the trees have fallen in different directions. The time and difficulty of extracting windthrown trees needs to be carefully weighed against the potential value of the timber.

For thinning operations, specialist machines that are narrower and more manoeuvrable may be available. Operator skill is needed to avoid damaging standing trees, particularly when using a selective approach to remove

trees of low stem diameter, rather than just entire rows.

Agree at the outset how you want the site to be left at the end of harvesting, bearing in mind the obligation to restock the site, or an equivalent area (if agreed with the Forestry Commission), within 5 years. A good harvesting contractor will keep the site as tidy as possible throughout operations. All branches and non-merchantable timber (stem diameter less than 7cm) should be collected into brash mats, which are used as running surface for the machines within the wood. This leaves the rest of the site clear for restocking. Complete residue recovery can be financially worthwhile, removing all brash, debris and un-merchantable timber for the biomass market. Experienced contractors will be able to find a solution to most problems but it's crucial that all the involved parties work together and

communicate clearly and openly from the start. Listen to the advice of the experts and weigh up the pros and cons of all the options. All jobs can be done but you need all the information to decide what is realistic and financially viable, given the value of the timber.

## Key points

- Make sure the site location of stacking areas works for the harvesting contractor
- Identify potential problems on the site early on, and plan solutions
- Most sites can be harvested with the right machinery – but be sure the value of the timber makes it worthwhile
- The harvesting team should maintain regular communication to keep the lorries running
- Harvested sites must be restocked

## Timber Haulage

Roland Stiven *Timber Transport Forum*

Hauliers are an indispensable link in the timber supply chain and with forests harvests forecast to rise by 25 per cent in the next decade, the sector will continue to grow.

Timber hauliers are a breed apart, working in remote, challenging terrain, on roads not designed for heavy traffic, in conditions far removed from mainstream haulage. They carry a low-margin raw material in a market where haulage costs can make or break the viability of a harvest.

In most cases the haulage is contracted by the timber buyer; a sawmill buying the sawlogs with the smaller material going for board manufacturing, biomass or paper. So, a single forest harvest may be hauled by various hauliers going to different destinations.



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The standard vehicle is a 44 tonne 6 axle articulated HGV with skeletal trailer. Fitted with a timber crane, it has a 26-tonne payload. The alternative 'wagon and drag' is a 6-wheel rigid lorry with a drawbar trailer and timber crane with a payload of around 24 tonnes. The wagon and drag is a couple of meters longer but follows the curves better on narrow roads and is less likely to cut across the verges.

The minor local roads leading to forests in rural Scotland are from an era before modern haulage and have limited capacity for repeated heavy loads. Roads built over peat are particularly fragile. Forest roads built of locally won stone can also be relatively weak particularly in wetter weather.

Increasingly, the timber haulage fleet is moving towards a more road-friendly configuration with more, or wider, wheels. Typically lorries have twin wheels on both drive and trailer axles rather than the 'supersingles' favoured by the mainstream haulage. You also see timber trailers fitted

with single, wide 'formula one' type tyres.

Vehicles fitted with tyre pressure control systems can adjust the tyre pressures to suit the situation while the vehicle is in motion. Lower tyre pressures give a larger footprint on the ground providing better traction and reducing the potential for damage to roads. The Timber Transport Forum's 'Tread Softly' publication provides more detail.

Timber lorries can access most rural roads unless there is a formal weight restriction, but the Timber Transport Forum has a voluntary agreed routes map that highlights roads where the council should be consulted, prior to timber haulage, to ensure any road constraints are taken into account.

The access off the public road into the forest can also be an issue, particularly for smaller farm woods. It is vital that these are workable and safe. Any improvements to an access require consents from the roads authority and, on a classified (A,B,or C) road, also need planning permission.



The forest road and the turning, stacking and loading areas need to be well thought out and well-constructed. Stacking and loading timber at roadside should be avoided wherever possible. If essential, the necessary permissions and traffic control measures need to be in place. The Forum's 'Loading Timber from Roadside Forests' sets out the regulations and good practice.

There are always scenarios where it remains unfeasible for lorries to reach the forest due to low bridges, weak bridges or low underpasses. Building alternative infrastructure may be costly but the alternative of shuttling small loads out on a tractor and trailer and double handling onto a lorry also adds significant cost.

With 7.5m tonnes of timber on the move each year, secure loading is vital to protect the public and the driver in the cab. The 'Road Haulage of Roundwood Timber Code of Practice' goes into detail on how the pins, headboards and straps work together to prevent movement of the load.

For many rural communities the timber lorry is their primary experience of the forest industry. Sharing limited road space requires care and attention and timber hauliers are well aware of the importance of this.

The industry is working with councils and national government to target investment in localised road widening, passing places and junction improvement but with around 40,000km of minor road in Scotland there is always more to do.

When planning timber haulage, take advice on forest accesses and in-forest infrastructure, talk to the council about road constraints, ensure hauliers are aware of any constraints that have been identified and, where appropriate, keep your neighbours informed about what you are doing.

The Agreed Routes Map and relevant guidance can be found on [www.timbertransportforum.org.uk](http://www.timbertransportforum.org.uk)

## DID YOU KNOW?



The world's first autonomous, fully electric timber haulage vehicle has been unveiled by Swedish company Einride at the Goodwood Festival of Speed.

The T-log uses cameras, radar and LiDAR technology to build a 360° view of its surroundings, allowing it to navigate forest roads and be remotely controlled by an operator hundreds of miles away.

Intelligent software will operate whole fleets of T-log vehicles, using live traffic information to plan haulage schedules and routes to optimise battery life and efficiency.

Each vehicle will be able to carry 16 tons of timber and run for 120 miles on a single charge, without the air pollution of a diesel lorry.

Einride's first vehicle, the T-pod, was launched last year and supermarket Lidl has already signed up to use the autonomous electric trucks to supply its Swedish warehouses, while several global companies are said to have registered an interest in the T-log.

# Timber Quality - A Product of its Environment

Douglas Priest SAC Consulting



First thinnings are now therefore more likely to cover their costs or to generate a small income. A first thinning is where approximately 20% of the crop is removed by the creation of 'racks'; these are lines of trees that a harvester will fell through the crop, usually two rows wide, and creating access routes for future thinnings.

Typically only one or two products are cut, the main one being chipwood with perhaps some pallet wood, due to small tree size and a lack of space within the forest for processing trees and for separating different products. It may be possible to cut a short log or fencing posts, but this is dependent on local markets.

There is also an argument to cut chipwood only, the reduced income from timber can be off-set by a reduced working cost from the contractor as the timber can be harvested and extracted more quickly. Subsequent thinnings (also known as matrix thinning) are carried out every 5-10 years following the first thinning, depending on how well the crop is growing. As the remaining stems increase in volume, and the working space is increased (by removal of poorer quality stems) it is possible to cut a wider range of products which leads to an increased return. Having an increased average diameter leads to better options for products (see table below for specifications) to be cut and means the operator can cut higher value products.

Upon clearfelling a well managed forest the log content should be in excess of 50% of the crop (in some cases over 70%) as all poor quality and small trees have been removed and the trees with best form (straightness, taper, girth along with absence of rot and heavy branching – the exception being edge trees) are all that is left. The production rate of the machine is higher in

The importance of managing your woodland to maximise saw log volume is something that cannot be stressed enough. With biomass prices the strongest they have been in recent years there are fewer and fewer reasons to leave woodland un-managed. Much of the value of the timber in your woodland historically was dependent on your location in relation to markets (i.e. haulage distance).

In the event that you were isolated from larger markets the value of your timber would be impacted.

Now it may be possible to negotiate sales directly with neighbours who use woodchip boilers, saving on haulage costs to the point that lower value chip material could have a net return price similar to other higher value products which have to travel further to market. (Net return is the net price offered for the purchase of the produce after harvesting and haulage cost have been deducted).

clearfells compared to thinning which will be reflected in the working rate.

However, a large number of products will lead to an increase in working cost; it is important to bear this in mind as it may be worth cutting fewer products for a better return.

Typical product categories and sizes.

Product	Length	Diameter
Fuelwood	3m	40cm+
Chipwood	2m or 3m	7cm – 40cm
Palletwood	2.5m	14cm – 28cm
Fenceposts	1.7m, 2.65m	7cm – 15cm
Strainers	3.1m	16cm – 24cm
Sawlogs	3.1m, 3.7m, 4.3m, 4.9m	16cm – 50cm
Oversize Log	3.1m, 3.7m, 5.3m, 6.2m	30cm+

\*Other lengths of products may be requested by sawmills, the above are the most common lengths for each product.



In an ideal world the first cut (butt) from each tree felled would be a sawlog. Sawlogs might not be cut for the following reasons:

- Taper – sawmills will not accept a significant taper between each end of the log; it is common to cut a 'clog' to remove flared butts and bring the diameter into line with a sawlog, alternatively a length of fuelwood can be cut to achieve the same outcome, although this reduces the length of stem available for cutting a sawlog.
- Branching – for more open grown trees heavy branching can be an issue as it will mean there are knots in the wood. Sawmills will accept knots up to 2 inches but prefer not to have large amounts of knots.
- Metal – as the butt is the part of the tree most accessible it is possible that metal may be present from fencing (or worse still, tree-houses). If suspected to be present then the first cut could become fuelwood or chipwood – but any mill reserves the right to reject timber containing metal as it can damage equipment.
- Rot – should the tree contain significant rot the length would become chip or fuelwood. There may be signs of rot whilst the crop is standing such as drought crack, a confirmation of the presence of rot is made by the harvesting operator who can see a cross section of the trunk following felling.

In mature, well managed crops, it is possible to cut three, or even four, logs from the butt end before the diameter falls into the pallet, or strainer category.

Taper and branching are still a concern for palletwood and strainers. In the case that either of these are an issue then the stem may be cut into chipwood. Material under 7cm diameter is deemed non-merchantable and is left onsite as a brush mat which provides floatation for machinery in

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order to reduce ground damage. It is possible to recover this brush material, chip it at roadside and have lorries collect it from site, this is dependant on the area, quality of brush and access to the site, to be cost effective.

Fencing posts can be cut from the top of large trees but branching can often prevent this. More commonly they are cut from younger

crops where the average diameter of the trunk falls within the range detailed in the table above.

The information stated in the text and table above is for general guidance. New processes and products are being developed and explored which could lead to new and innovative opportunities.

## Species Focus

Leona Baillie SAC Consulting

The **Macedonian pine** *Pinus peuce* is a five-needled pine native to the Balkans, first introduced to the UK in 1864 and often planted as an ornamental tree in parks. Although not widely planted as a commercial crop in the UK it has potential as an alternative forestry species due to its excellent stem form, disease resistance and ability to grow in a wide range of soil conditions.

Its needles are dark blue-green with white stripes and can be soft to the touch, giving it the alternative name of the Silk pine in Scandinavia. The bark is grey-green in young trees, becoming dark purple and black in maturity, and trees can reach 40m in height.

In its native range across mountainous regions of the Balkan peninsula it grows



between 1100 and 2300m elevation and is mostly found on north-facing slopes with siliceous and occasionally carbonate soils. Commercial harvesting in the region is currently limited, as the less than 230,000ha of natural Macedonian pine forest remaining is considered to be under threat. It naturally grows with Norway spruce, European silver fir and Scots pine, suggesting potential for use in mixed-species forestry systems.

In the UK, the Macedonian pine has been trialled in forest gardens, and is one of the most vigorous and healthy pine species in the Forestry Commission's collection at Kilmun, Argyll.

Compared to other pine species it is far less vulnerable to pests and diseases, displaying strong resistance to red band needle blight, blister rust and pine wood nematode.

The species is also hardy to severe winters, wind exposure and frost. Its structural stability is due to a high ratio of stem diameter to height, making it an option for areas where windthrow is a serious risk.

It grows well on flushed peats, podzols and sandy soils, with poor to medium soil nutrient regimes. As with other pines, only moist and rich fertile soils should be avoided as these encourage poorer stem form.

While the timber is not as strong or dense as other pine species it is very stable in drying, making it an excellent material for indoor joinery, carpentry, furniture and traditional wood carving.

As the wood is light in colour it is a good choice for chipboard and paper pulp and as a spruce equivalent for the biomass and firewood markets. Because the trees grow a particularly wide trunk, they can hold a much higher volume of timber than other pine species of the same height.

A likely reason why the Macedonian pine hasn't been widely planted as a commercial species in the UK is that it has been a challenging species for the nurseries to establish.

Historically, seeds may have taken 2 years to germinate, with another 4-5 years needed for the young trees to reach plantable size. While not all nurseries stock the species, those that do have managed to reduce their establishment period to 3-4 years.

Once planted out on site, the young trees initially grow more slowly than other species, starting off in a bushy-looking "grass stage". However, once the stems reach around 2.5cm diameter at the root collar their height growth accelerates.

In the right location the species has great potential as a commercial crop. With increasing emphasis on future resilience, the Macedonian pine is worth serious consideration as an alternative conifer.



## Forestry Grant Scheme Update



Additional funding has been secured that will cover all projects currently approved for the 2018/19 claim year, plus work that can be brought forward from the 2019/20 claim year.

Demand in 2019/20 is currently predicted to be exceptionally high and in excess of the budget available. For this reason, if you are applying for woodland creation grant funding in the 2019/20 claim year, it may be worth considering bringing forward any work that can be realistically be completed and claimed within 2018/19.

You can split work across two separate claim years, for example, if fencing can be completed before end of February 2019, you can claim for the fencing capital items in the 2018/19 claim year, then claim for the rest of the funding in 2019/20 once all the work is completed.

For 2019/20, the top-up funding for sites within the Central Scotland Green Network (CSGN) area is under more pressure and

likely to run out sooner. Funding allocated to Woodland Improvement Grants (WIG) and Sustainable Management of Forests (SMF) is not available in 2018/19 and there is already enough interest in these funding sources for the next claim year that there will be strong competition in 2019/20.

There is currently an open consultation on Scotland's Forestry Strategy 2019-2029. When forestry becomes fully devolved in April 2019, the strategy will help to guide Scottish ministers in achieving the long-term aims for Scottish forestry. The draft strategy is available on Scottish Government website and consultation closes on 29 November 2019.



## Competition

Last edition's question was: A ship surgeon was given the seeds of a tree for dessert, but instead of eating them the surgeon pocketed them and grew them on. What tree did the seeds come from and who normally eats this tree-seed dessert?

Congratulations go to Janet Van Rossen of Buckie, who wins a selection of 12 native trees. The answer was: Archibald Menzies was the ship's surgeon, who was fed seeds from monkey puzzle (*Araucaria araucana*) and brought them back to Europe in 1795. The seed of the trees has long been a staple of the indigenous Mapuche people of Chile.

This edition's question is: Solve this anagram: kanji grab ale. Hint: If you make wooden flooring, you've this person to thank.

Please email or post your answer, by 28 February 2019 to the address below. All correct answers will be entered into a lucky draw for the prize.

Email: [tracey.mcintosh@sac.co.uk](mailto:tracey.mcintosh@sac.co.uk)

Tracey McIntosh  
15 Hay Street  
Elgin  
IV30 1NQ

