

# A market commodity digest: Agricultural Produce

GBR Transition Team actions to grow rail freight

April 2024



*Colas Rail Class 70 locomotive with timber wagons*

*(Photo courtesy of Colas Rail)*

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## 1. Context

This Commodity Digest sits within the work undertaken on the [Long-Term Strategy for Rail](#), the [Growth Target](#) and the [GBRTT Market Development Plan](#). It is part of a wider review of rail freight market studies into a number of commodity areas as well as the Freight Estate Strategy. The purpose of the Commodity Digest is set out in the GBR Market Development Plan, which states:

**Commodity Digests** – the documentation of understood market need across a range of commodity areas, the constraints to growth and resultant proposed Strategic Freight Unit (SFU) development actions.



Figure 1 Strategic context for commodity digest.

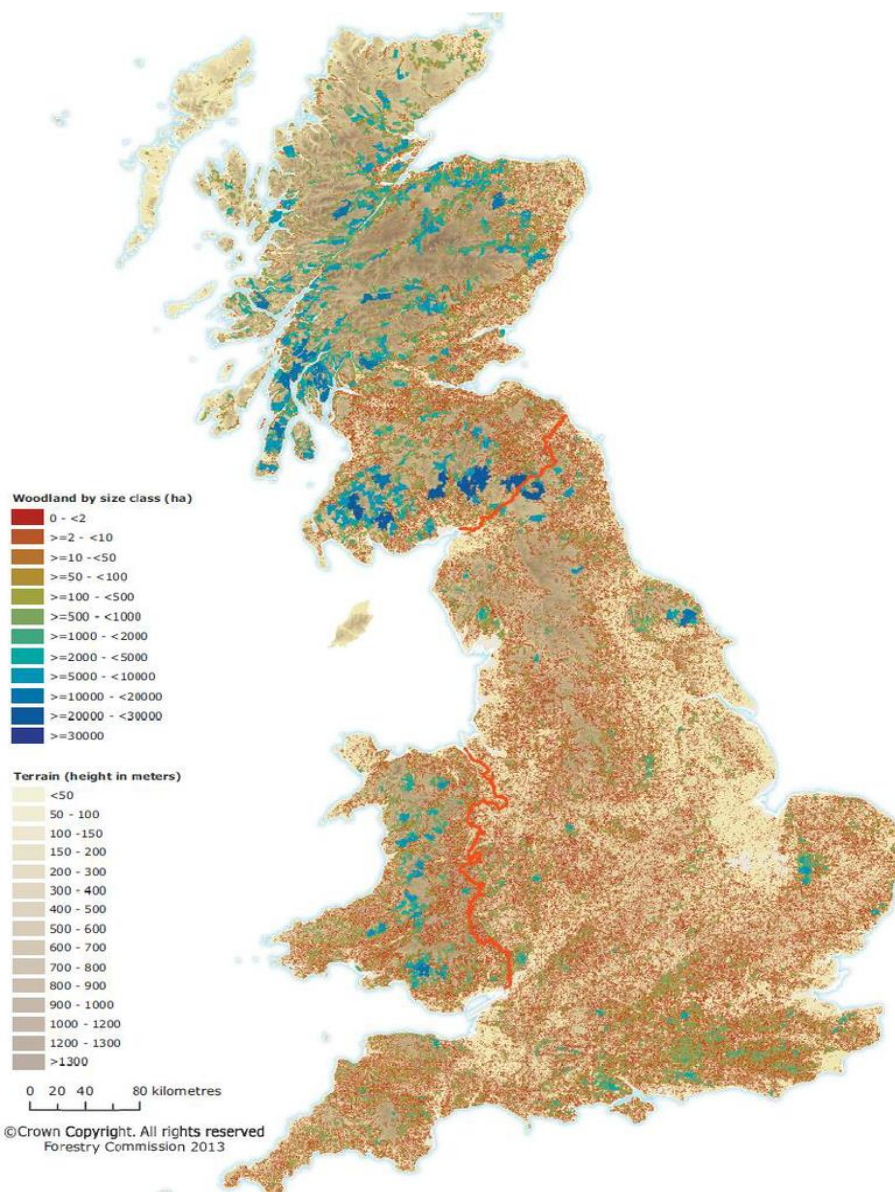
Agricultural produce can broadly be defined as the produce of farms, gardens, orchards and forests. Typically, this could include everything from harvested wood to cultivated food produce. For the purposes of this commodity digest, the focus has largely centred around domestically produced agricultural produce whilst noting that the UK imports a significant volume in this market. To this end, current rail-borne imported agricultural produce such as biomass (*Energy Commodity Digest*) as part of the energy generation supply chain and imported retailer fresh produce (*Intermodal Commodity Digest*) whilst referenced will be considered in further detail under future commodity studies respectively. Likewise with biofuels (*Petrochemical Commodity Digest*).

In defining agricultural produce for the purposes of this commodity digest, the focus has predominantly centred on two broad sub-sectors; timber and cultivated produce. As part of the bi-annual review of this commodity digest, combined with further market engagement and research it is anticipated that this will lead to an expanded or more specific focus on certain agricultural produce sub-sectors.

## 2. Market Background

### Timber

The UK timber industry is spread across the UK in terms of access to the raw material for which Scotland dominates in terms of harvested volume. The industry is made up of different sub-sectors of activity ranging from planting, forestry/land management, harvesting, logistics and various methods of processing. Regionally, three large public body organisations' make up the majority of timber harvesting sites within the UK. The map<sup>1</sup> below displays the relative woodland density of the UK highlighting both Scottish and Welsh density.



<sup>1</sup> Forestry Commission - <https://www.gov.uk/government/organisations/forestry-commission>

## **England**

Forestry England (FEng), a subdivision of the Forestry Commission, holds responsibility for the management and maintenance of England's public forests which in turn makes it the largest landowner in England of forestry land. Its responsibilities include the management of significant forestry land, both recreational and otherwise, which includes amongst many other smaller holdings:

- North – Kielder Forest, Northumberland (65,000 hectares)
- South – New Forest, Hampshire (37,667 hectares)
- East – Thetford Forest, East Anglia (19,000 hectares)
- West – Forest of Dean, Gloucestershire (12,000 hectares)

Appendix 1<sup>2</sup> (page 22) includes a broader map of Forestry England's various sites.

Forestry England utilises sales of timber, of which it generates around 1.3 million tonnes annually<sup>3</sup> to fund the maintenance of its land. Timber sales typically occur in an 'open' format every two months from across its sites.

## **Wales**

Similarly to Forestry England, Natural Resource Wales (NRW) acts as the responsible public body authority for managing and maintaining Wales publicly owned forestry land which produces around 850,000 tonnes of timber annually<sup>4</sup> the majority of which originates from Mid-Wales as seen in Appendix 2<sup>5</sup> (page 23). Timber sales are typically undertaken on an 'open' basis quarterly. Some of Natural Resource Wales largest sites include:

- Hafren Forest, Powys (13,000 hectares)
- Afan Forest Park, Neath (11,000 hectares)
- Gwydir Forest, Snowdonia (7,250 hectares)
- Brechfa Forest, Carmarthenshire (6,500 hectares)

In addition to Natural Resource Wales sites, Wales is also home to a number of large private commercial forests that see harvesting including Llanbrynmair Forest in Mallwyd, Powys (5,300 hectares).

## **Scotland**

Forestry and Land Scotland (FSL) manage and maintain 32% of Scotland's forests which in turn contributes around 40% of the annual national harvest. <sup>6</sup> FSL undertakes timber sales on a mixture of long-term contract and 'open' basis. FSL's sites (see appendix 3, page 24)<sup>7</sup> include large holdings such as:

- Galloway Forest Park, Dumfries & Galloway (77,700 hectares)
- Argyll Forest Park, Argyll & Bute (24,281 hectares)

<sup>2</sup> [Forestry England District Map 2020.pdf](#)

<sup>3</sup> [Managing for the economy | Forestry England](#)

<sup>4</sup> [Natural Resources Wales / Forestry](#)

<sup>5</sup> [niwt\\_mid.pdf \(naturalresources.wales\)](#)

<sup>6</sup> [Marketing & Sales Timber Marketing Framework 2020-2029 \(forestryandland.gov.scot\)](#)

<sup>7</sup> [Scotland's national forests and land - Forestry and Land Scotland](#)

- Knapdale Forest, Argyll & Bute (19,800 hectares)
- Queen Elizabeth Forest Park, Stirling (16,780 hectares)

In addition to FLS's holdings, many private commercial forests provide the bulk of Scotland's timber production with sites split between forestry company and private individual ownership<sup>8</sup>.

### UK Timber Industry

The UK timber industry serves several end-user functions ranging from supplying sawmills with 'roundwood' for production into finished goods through to raw material for pulp mills. In 2022, the UK harvested 9.2 million green tonnes of softwood and 0.8 million green tonnes<sup>9</sup> of hardwood, the majority of which was delivered for processing at primary sawmills:

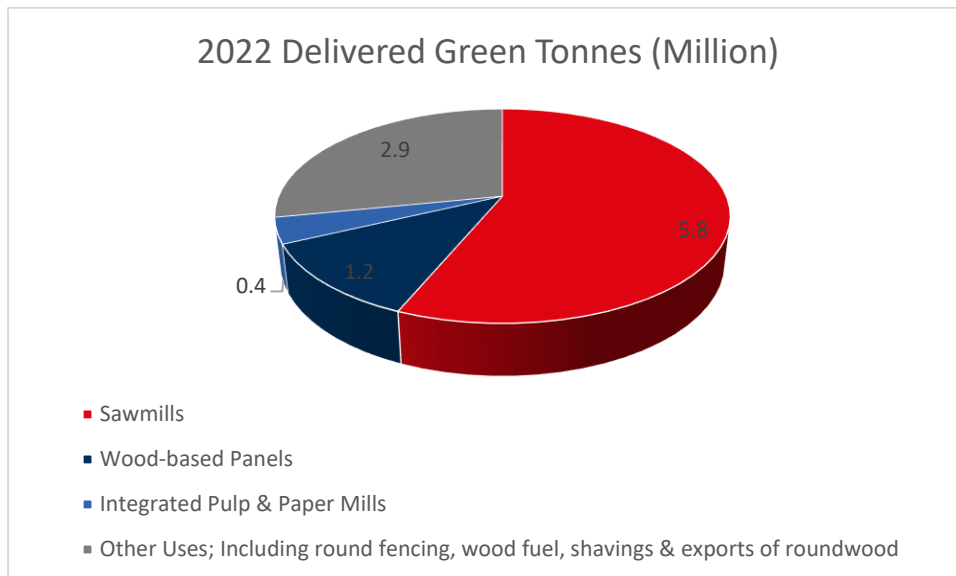


Figure 2 A graph showing results from 2022 highlighting Delivered Green Tonnes per million across timber users.

Around 10.3 million green tonnes of round wood were delivered to its various processing points in 2022. The primary delivery destinations for the supply of predominantly softwood and to a lesser extent hardwood focussed on:

- Sawmills – responsible for the production and supply to the construction industry of various sawn products ranging from sawn softwood, plywood, chipboard and joinery products. The UK has around 141 active sawmills.
- Wood-based Panels Mills – responsible for the production and supply to the construction industry of products ranging from fibre board, MDF and oriented strand board. Sawmill products also form part of the production cycle.
- Pulp & Paper Mills – responsible for utilising raw wood material for the production of paper related products. Wastepaper is also heavily utilised in this process too.

The UK is a net importer of roundwood and finished product with some £8.5billion worth of product imported vs £2billion worth of export<sup>10</sup>. Scandinavia, North America, China, and

<sup>8</sup> [Woodland ownership: key data - gov.scot \(www.gov.scot\)](http://www.gov.scot)

<sup>9</sup> [UKWPT-2022-provisional-figures.pdf \(forestresearch.gov.uk\)](http://forestresearch.gov.uk)

<sup>10</sup> [Forestry Facts & Figures 2022 \(forestresearch.gov.uk\)](http://forestresearch.gov.uk)

Europe represent significant suppliers to the UK. The table below outlines domestic production vs imported volumes for 2022<sup>11</sup> highlighting that imported sawn timber represents two-thirds of the UK's supply:

Type	Domestic Production (million cubic metres)	Imported (million cubic metres)
Sawnwood	3.3	6
Wood-based Panels	3.5	3
Wood pellets	0.3	3.5
Pulp & paper	3.5	5.7
<b>TOTAL</b>	<b>10.6</b>	<b>18.2</b>

The timber market is extremely price sensitive which can impact scheduled harvesting and deliveries to timber processors. Timber is typically purchased by weight which can impact volumes dependent on weather. The market is also influenced by wider socio-global events such as Covid-19. During the pandemic, several manufacturing firms within the industry reported record sales as a direct result of increased 'DIY' activity during Government mandated lockdowns. This in turn was aided by the opening of DIY stores as key enterprises during this period. Typically, the End User of the harvested product will dictate transport requirements to suit production needs.

## Produce

Produce, for the purposes of this digest, can typically be defined as fruit, vegetables, and grains. As with the timber market, overall, the UK is a net importer of both vegetables and fruit with around 47%<sup>12</sup> of the UK's consumed vegetables being imported and 84% of fruit. With grains such as wheat, typically around 15%<sup>13</sup> of the UK's supply is imported. Domestic production of certain crops such as potatoes represent significant volumes. In 2022 around 4.8 million tonnes<sup>14</sup> of potatoes were harvested supplying retailer and chip/crisp manufacturers. Seed potatoes, which form a critical element of the industry's crop cycle are largely produced within Scotland. In 2022, around 500,000 tonnes of seed potato were produced of which around 100,000 tonnes were exported. Changing regulations post-Brexit has however adversely impacted export potential for seed potatoes with a current ban on direct selling to EU member states.

From a grain perspective, the UK largely cultivates three main types in the form of wheat, barley and oats, which see uses varying from baked goods, cereals, alcohol production and a significant percentage of animal feed. The UK is largely self-sufficient with all three crops however this is particularly the case with wheat production for which the UK grows 81%<sup>15</sup> of

<sup>11</sup> [UK Wood Production and Trade: provisional figures - Forest Research](#)

<sup>12</sup> [Food statistics in your pocket - GOV.UK \(www.gov.uk\)](#)

<sup>13</sup> [Imports & exports: wheat & flour \(ukflourmillers.org\)](#)

<sup>14</sup> [Chapter 7: Crops - GOV.UK \(www.gov.uk\)](#)

<sup>15</sup> [United Kingdom Food Security Report 2021: Theme 2: UK Food Supply Sources - GOV.UK \(www.gov.uk\)](#)

its domestic consumption. For wheat alone, on average the UK grows 15 million tonnes per annum. The table below highlights some of the uses for the three grains in 2020<sup>16</sup>:

UK Domestic Grain Usage	Animal Feed (million tonnes)	Milled (million tonnes)	Brewing/Distilling (million tonnes)	Seed (million tonnes)	Total (million tonnes)
Combined	11.9			0.5	
Wheat		5.9			
Oats		0.6			
Barley			1.6		
Total	11.9	6.5	1.6	0.5	20.5

Whilst the UK boasts a strong domestic production base for grain, it still imports large volumes on an annual basis. For instance, annually around 15% or circa 750,000 tonnes<sup>17</sup> of wheat used by UK flour millers is imported.

Further engagement with this market is required to better understand its key drivers, geography, and wider supply chains.

### 3. Agricultural Produce & Rail: Historical Context

When looking at the prospects of moving certain goods by rail today, particular focus often falls on their historic movement by rail. Given the historical prevalence of rail borne agricultural produce it's worth noting the role railways played in the transformation of how the UK accessed produce. The advent and growth of the UK rail network in the mid-late 19<sup>th</sup> century resulted in a domestic agricultural transformation that saw previously largely localised farming output reach new and expansive markets.

The railways supported the transportation en-masse of numerous agricultural products and the development of wider industry supply chains for which rail became a critical component. From milk to livestock, sugar to grain, seasonal vegetables to fertiliser and others, there were few facets of agricultural produce that couldn't be transported by rail. The railways status as a 'common carrier', obligated companies to reasonably carry all goods offered to them at Nationally agreed rates. Initially this status played a significant role in this growth too and was reflective of the critical importance of freight in rail companies' overall revenue. In the early – mid 20<sup>th</sup> century, growing imports of fresh produce, including new exotic fruits such as bananas began a trend for the UK importing fresh produce. The UK became a significant importer of the fruit developing ever evolving ventilated wagons to carry the produce.

The immediate aftermath of the end of the Great War saw a significant increase in the private ownership of motor lorries. Unincumbered by common carrier status, early road haulage contractors were able to not only undercut published rates but to also identify and target the most profitable loads. The ability to offer a fully door to door service over the railways offering served to not only reduce costs but increase flexibility. Whilst the railways still benefited from

<sup>16</sup> [United Kingdom Food Security Report 2021: Theme 2: UK Food Supply Sources - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/92222/uk-food-security-report-2021-theme-2-uk-food-supply-sources.pdf)

<sup>17</sup> [Imports & exports: wheat & flour \(ukflourmillers.org\)](https://www.ukflourmillers.org/imports-exports-wheat-flour)



moving large volumes of goods over large distances, as they do today, the trend towards road haulage acted as a harbinger for the future decline of such traffic by rail. Rail would have its common carrier status removed by 1962 however by this stage volumes had significantly declined.

Road competition and changing agricultural production and distribution methods and requirements meant that agricultural produce by rail had begun to decline significantly post World War Two. This trend continued into the British Rail era as wagon load freight (less than train load volumes), often a significant element of moving agricultural produce, struggled with profitability at a time of increased Government scrutiny over British Rail's finances.

The advent of 'Speedlink' in 1977 enabled the continued movement of certain agricultural products with established Networks for commodities such as fertiliser and grain. For fertiliser traffic, much of it centred around the production hub of Ince & Elton in Cheshire with a distribution network that served much of the UK in the late 70's and early 80's. The demise of Speedlink in 1991 and the transition to initially Rail Freight Distribution (RfD) before the privatised 'Enterprise' services under the newly formed EW&S coincided with a general decline in volumes amongst continued cost pressures and road haulage competition. Interviews with those who were working within the industry in the late 80's and early 90's suggested that rail was often too slow to adapt to changing market trends and customer requirements often making required changes long after the core traffic had been lost.

## 4. Addressable Market & Rail Opportunity

### Timber

In assessing the addressable market and rail opportunity for the timber sector it is worth highlighting the existence and relative success of current rail borne timber traffic. Kronospan, a leading timber industry manufacturer, sees a typically daily rail service of roundwood from their aggregation hub at Carlisle, where Scottish harvested roundwood is delivered by road, to their sawmill and wood-based panel production facility at Chirk, North Wales. Each service, hauled by Colas Rail, typically delivers around 750 tonnes of timber. This core flow has also been supplemented by the introduction of typically seasonal services from Aberystwyth to Chirk utilising harvested roundwood from the forests of Powys and Ceredigion and roundwood sourced from North Yorkshire moved from Hellifield – Chirk. Historically, other locations have acted as feeder sites to Chirk including Baglan Bay in South Wales, Teigngrace, Newton Abbot and Exeter in the Southwest in addition to trials from East Anglia. Additionally, feeder services to Carlisle and Chirk from Crianlarich and Arrochar have historically operated although ceased in 2009.

In addition to Kronospan's existing activities, other industry leading manufacturing firms such as BSW have indicated plans to invest heavily in their various rail connected sites such as those at Corpach on the West Highland Line to serve their processing facility at Carlisle with an aspiration for rail to play a key role within the supply chain. Further ambitions to link other strategically located, rail adjacent sites, with large sustainable volumes of harvested timber have been identified. Work is underway to investigate how best BSW can create a key rail connected regional timber hub into their rail connectivity plans. From a wider UK perspective,

BSW's recent purchase of the large pallet company, Scott Group, with regional bases across UK also offers significant growth opportunities.

It is also worth highlighting the largely successful and informative Transport Scotland funded trial undertaken by Victa Railfreight in 2020. The trial saw the movement of circa 1,800 tonnes of round wood between Georgemas Junction and Inverness Millburn Yard over a 6-week period between August – September. The trial highlighted several opportunities and challenges to long term viable establishment many of which are highlighted in the sections below.



*Figure 3 Railway ground staff preparing the strapping of a timber train prior to departure.*



*Figure 4 Timber being loaded at Georgemas Junction as part of the Victa Railfreight timber trial to Inverness.*

*(Photos courtesy of Victa Railfreight)*

In terms of headline figures, interviews conducted with industry figures estimate that of the 10 million green tonnes of timber delivered to processing plants annually, the potential rail

addressable market likely sits at around 10% or 1 million tonnes (approx.. 75% more than is currently moved) which in turn would equate to a number of daily rail services. There is a wider acknowledgement that this figure could increase post the successful establishment of sustainable new to rail flows as awareness and 'rail freight curiosity' of rails potential increases. There is acknowledgement that the amount of HGV related timber movements, particularly within Scotland on key road links such as the A82 which links Inverness to the Central Belt via Fort William poses a decarbonisation and congestion challenge. Likewise, the various restrictions around HGV movements on more rural roads within Scottish harvesting locations offers a potential ability for rail to remedy this. Finally, it is worth noting the potential that exists for utilising vacant space on southbound Scottish-Anglo intermodal flows as a means of transporting smaller volumes to key destinations such as the Central Belt and Midlands. The practice sees use today but has the potential to be expanded to support both short term and long-term rail growth ambitions.

It is important to note that the potential for timber by rail can be split between harvested roundwood and the requirement to move finished or processed timber products. Given the widespread geographic demand for finished timber products and the ability to utilise intermodal solutions for their transport, the network of existing and emerging rail served container terminals offers great potential.

Outside of Scotland, there is a need to greater link and understand English and Welsh harvested timber volumes with end processing facilities. This in turn should allow for greater exploration of rails potential in terms of railhead proximity and whether sufficient volumes exist to warrant trainload volumes. To that end, the potential ability for rail to serve a number of locations that see sufficient harvested volumes could greatly aid rails price competitiveness whilst providing gainful resource allocation over say, a weekly service.

Interviews with industry figures highlighted a number of critical factors that were required in order to give rail the best opportunity to gain modal market share within the timber sector. These can broadly be categorised as follows:

- **Railheads** (depot at which supplies are unloaded to be distributed or forwarded): there is an acknowledgement that the location and availability of railheads close to both source material and end production is critical in limiting the amount of double handling and reducing time and cost pressures. The relative success of flows such as Kronospan's Carlisle – Chirk highlights the potential of what can be achieved with regularised volumes directly serving a production facility. Additionally, there is a need for greater documentation and awareness of existing railheads and terminals within the locale of harvesting areas to understand their potential capability. Likewise, the factoring in of potential timber traffic into refurbished and new build facilities within geographic reach of both harvesting and manufacturing facilities should be a consideration during design phases. This is equally important when considering general rail enhancement schemes such as the opening of the new Inverness Airport station which has had the latent capability to connect to West Fraser's Dalcross facility built in. This offers the future potential of directly serving Dalcross with roundwood and the potential for outbound wood-based panels. Finally, the potential for line side loading/unloading on more remote parts of the Network warrants further investigation. Whilst factors such as capacity are a core consideration, line side loading offers the potential ultimate low-cost solution particularly for campaign flows and seasonal traffic.

- **Network Capacity and Capability:** in tandem with the criticality of ideally located railheads is the need to establish viable paths on the Network that allows for efficient operation. This is key for numerous reasons; however, it is critical for reducing cost and ensuring maximum efficient use of locomotive, wagon, and human resource which in turn enables rail to compete both against road and sea modes. The nature of timber harvesting often means that locations are often located on more remote parts of the Network often resulting in constrained capacity on single line sections of route. The ability to establish a network of strategic linked paths that serve different locales is seen as critical by the industry to enable rail to cope with often flexible demand and changing volumes.
- **Wagons:** several interviewees highlighted the need for dedicated wagon sets to serve the timber market. Currently most timber wagons, notably of the 'KFA' and 'IWA' type, are deployed on existing services resulting in a lack of additional resource to serve new to rail traffic. The 'BTA' type pipe wagons utilised during Victa Railfreight's trial in 2020 are understood to no longer be available resulting in either modification of existing wagon fleets or new build options to facilitate potential growth. This poses a challenge in terms of initial capital expenditure. The potential use of 'IDA' intermodal twin flats, a low deck (720mm deck height) wagon with track friendly bogies has also been explored favourably by the industry. The IDA wagon, historically utilised on domestic intermodal retailer services, allows for the conveyance of 9ft 6ins containers within a W8 gauging envelope. The 'IDA' in combination with 45-foot curtain sided containers also affords simplified loading options for both round wood and other products such as wood panels and pallets. Similarly, interested industry parties have also undertaken positive feasibility work on the potential to convey timber products on 'flat racks. Flat racks, typically an open sided container with support posts at either end allows for the conveyance of goods beyond the dimensional constraints of a typical deep sea or curtain sided container whilst utilising an intermodal wagon such as the IDA. Both a typical 45-foot curtain sided container and flat rack have the capability to convey 28 tonnes per container/rack however the flat rack has the potential for greater cubic capacity.



Figure 5 Example of a Colas Rail hauled timber service for Kronospan utilising 'KFA'/'IWA' type wagons.



Figure 6 Example of WH Davis 'super low' IDA wagons.



Figure 7 Example of WH Davis 'super low' IDA wagons.

(Photos courtesy of WH Davis, 'IDA' wagon manufacturer)

## Produce

The potential addressable market and rail opportunity for food produce is, comparatively to timber, less clear. In undertaking research for this digest, it has become clear that for certain specific produce commodities such as potatoes for which domestic volumes remain significant, the nature of harvesting, processing and distribution has evolved considerably since rail's previous involvement. The processes involved in harvesting – retail sale, i.e., farm to fork, have become much more linear in recent decades. In the case of potatoes destined for the crisp industry for instance, the typical process involves harvesting and processing at facilities located on the farm before onward road distribution or processing factories which are typically located within a 30-mile radius of the field. Likewise for crops such as sugar beet which are utilised within the sugar industry, the principal production factories of Cantley and Wissington in Norfolk, Newark in Nottinghamshire and Bury St Edmunds in Suffolk are served by farms typically within a 28 mile<sup>18</sup> radius. In these instances, it is challenging to see how rail could effectively compete with road given the relative short distances. The need to temperature control deliveries as part of an increasing consumer demand for freshness and quality also adds additional complexities to any potential rail offering for certain crops. In addition to this, the seasonal nature of many domestic UK crops plays an important role. Crops such as potatoes are typically harvested from July – October with temperature-controlled storage covering November – June. Consumer demand for staple crops year-round has seen

<sup>18</sup> [Where Our Sugar is Grown | Silver Spoon](#)

a significant increase in imported produce for which volumes currently do move by rail, typically containerised and present an opportunity for growth. This growth opportunity is however tempered by post-Brexit changes to inspection regimes for imported fresh produce due to come into effect as of April 2024.

As with timber traffic, the ability for railheads to directly serve manufacturing and production facilities greatly increases the potential for modal shift to rail. As such, factoring freight into passenger focused reopening schemes prepresents a critical opportunity for modal shift. For instance, the under construction 'Levenmouth Rail Link' project which re-establishes passenger services after a 50-year absence is a case in point. As part of the project works at Cameron Bridge, there is the potential for rail to serve one of Europe's largest distilleries. This in turn could lead to future inbound rail borne volumes of grain such as malted barley, a core component of both the whisky and white spirit production process. Very few distilleries possess their own malting floors which necessitates the import of malted barley from typically larger agri-producer specialists such as Baird's, Simpsons and Muntons amongst others who are located across Scotland and the East of England. Likewise, the '*Campaign for Northeast Rail's*' ambitions to reconnect the route from Dyce (Aberdeen) to Fraserburgh (the 'Buchan' line) could afford the opportunity for a number of agri-produce related ventures to become rail connected such as Brewdog's large production facility at Ellon.

The potential for rail to facilitate the delivery of grain to major cereal manufacturers warrants further exploration. Currently, many the UK's domestic cereal manufacturers utilise localised or national haulage to transport grain to their processing factories. In some instances, such as in the production of Weetabix at the Burton Latimer factory, this is result of the key ingredient originating within 50 miles of the factory<sup>19</sup>. For other manufacturers who typically source their grain from further afield, there is a greater potential for rail to play a role in their supply chain particularly where there manufacturing facilities are near railheads. As an example, one of Kellogg's largest manufacturing sites sits within the Trafford Park industrial estate less than 1 mile from Trafford Park container terminal. Mapping the volumes of import and export grain (and wider agri-produce) via the UK's various rail connected Ports could also yield opportunities for rail.

As part of the evolving nature of this specific commodity digest there is a need for further engagement with the produce sector to better understand current supply chains. Engagement to date has presented a challenge given the often lack of rail exposure however several key industry contacts has been latterly established which should aid future updates to this digest. Targeted engagement with firms who utilise wider agri-produce products such as Leprino foods the UK's leading mozzarella supplier and a vast consumer of milk, are key to improved understanding of rails potential market.

Finally, it is worth highlighting that for many large manufacturers who operate on a Global scale, decarbonisation and their carbon footprint are increasingly critical focus points of their Environmental, Social and Governance (ESG) policy. The transportation element of this is critical and rail offers both a significant carbon footprint saving but also positive publicity as to said firms' green credentials. This in turn increases the potential attractiveness of rail as a solution beyond normal price and feasibility considerations.

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<sup>19</sup> [Meet Our Farmers - Weetabix Cereals](#)

## 5. Challenges to Modal Shift

### Timber

In assessing the challenges to realising modal shift within the timber sector there are several areas of focus:

- **Alternative (to road) Transport Modes:** in some instances, rail not only faces competition from road for potential volumes but other transport modes too, particularly coastal shipping. As an example, 'Timberlink', a Scottish Government public service contract, represents a coastal shipping service which connects harvesting sites in Argyll with processing facilities in Ayrshire. In this instance, coastal shipping is preferable to road haulage given the 140-mile comparative difference (190 miles via road, 50 miles via sea). The potential linking of rail and coastal shipping operations serves as an interesting area for further exploration.
- **Network capacity & capability:** As highlighted in the previous section, Network capacity and capability is a critical element of any potential rail offering. Challenges around capacity on rural routes such as the West Highland and Far North lines along with capability constraints on gauge, weight and length all serve as challenges.
- **Volatile volumes:** roundwood volumes can be volatile based on a range of factors including market price sensitivity. A lack of consistent or fluctuating volume poses a challenge to rail, particularly around efficient resource utilisation.
- **Fragmented industry structure:** the timber industry is complex and fragmented with several different players at different levels. The ownership of harvestable forestry land is particularly fragmented which can pose a challenge in terms of aggregating sufficient volumes for trainload freight.
- **Rail cost & location of Freight Operating Company (FOC) resources:** Given the remote location of many timber harvesting sites and fluctuating/seasonal volumes, there are challenges around any one FOC being able to guarantee locomotive, wagon or human resource to facilitate services. Road hauliers, comparatively have greater flexibility to cover fluctuating volumes and alternating locations and are often localised and dedicated to said commodity.
- **Wagons:** the lack of additional existing suitable wagons poses a short-term challenge to any prospect of modal shift to rail. The conversion of existing wagon types or the creation of new dedicated sets requires capital outlay of a speculative nature to avoid 'chicken and egg' scenarios where rail traffic can't be generated without wagons which in turn can't be funded without guaranteed work.

### Produce

In assessing the challenges to realising modal shift within the cultivated produce sector there are a number of areas of focus:



- **Evolved Agricultural Supply Chains:** as indicated in previous sections, the conditions which once favoured the movement of produce by rail have considerably changed to favour road haulage. The location of processing, manufacturing, and distribution facilities within relatively close proximity to the source of the produce would typically not favour rail. Coupled with this, many retailers rely on a number of different suppliers to source produce. Further work is required to understand specific produce supply chains to understand whether any longer distance volumes exist which could be aggregated and moved by rail viably.
- **Embedded road haulage option within sector:** Road haulage represents the dominant transport mode within the produce sector with localised and regional haulage firms firmly embedded within the wider supply chain. This can be particularly seen with produce such as potatoes.
- **Lack of suitably located railheads:** during the heyday of agricultural produce moving by rail it was often facilitated by a vast network of railheads and sidings often linked directly to the local passenger station. This network and the prevalence of wagon load freight suited farming production methods of the time. The subsequent contraction of much of the Network and loss of suitable railheads now means that typically the nearest railhead will require some form of first and last mile road movement. This in turn adds to the cost via double handling which doesn't favour rail from a price sensitivity perspective.
- **Seasonal Harvest:** the nature of domestic harvesting poses a challenge in converting volumes to rail. Crops such as potatoes which are typically harvested between July and October represent essentially campaign flows. Whilst modern rail freight has the capability to undertake campaign work, the volumes required to make it financially viable may be at odds with the volumes required to be moved at any given time.
- **Specialised Equipment:** for many crops, the requirement for specific transit and storage conditions to maintain quality and freshness is of critical importance. To that end, the requirement for rail to be able to match existing road fleet offerings would likely require the deployment of specialised equipment such as refrigerated (reefer) or ventilated wagons. It should be noted however that existing solutions have historically been utilised in this sector which could be deployed again. The use of 30ft bulk box containers on intermodal flats through to the use of 20ft 'tanktainers' for the transport of produce such as milk represent readily available and scalable multimodal solutions.

## 6. Terminal Requirements

### Timber

As referenced earlier in the digest, the location of railheads and terminals in relative proximity to both origins harvested source material and destination processing plants is key to ensuring reduced instances of double handling and improving cost and efficiency of the rail operation. In particular, the ability to serve processing facilities directly is a key offering for rail particularly given the additional prospect of moving outbound processed or finished product from site representing improved efficiency.

Whilst the remote nature of many harvesting sites and potential railheads often limits the maximum potential length of train, this can mean that railheads that would be typically unsuitable for traditional bulk traffic such as engineers' sidings have potential use particularly if an area of hardstanding exists too. The ability to utilise such sites also potentially offers a relatively low-cost initial option to establish base volumes by rail. Likewise, the potential ability to lineside load in more remote locations that do not have a railhead within the locale warrants further investigation. Key to this offering however is identifying suitable 'white spaces' to allow for the safe loading operation with minimised risk of disruption to the wider Network.

Timber loading and unloading operations can typically be undertaken by 'grab lorry' which benefits space confined railheads but can result in increased terminal time or independent timber grab. The availability of space to stockpile at railheads affords the ability regularise volumes and ensure trainload volumes to maximise rails efficiency. Long term stockpiling however can dry out the wood potentially impacting the value of the roundwood.

A greater understanding and wider industry visibility of the available locations within linked geographic harvesting sites and processing facilities should drive further discussions on the viability of a rail offering. Likewise, the inclusion of potential handling facilities within both Network and third party developed terminal schemes where located within timber activity should also drive further conversations around rails potential.

Where containerised solutions are utilised, the potential geographic scope of operation increases significantly given the current and likely future spread of rail served container terminals. In particular, GBRTT's work to understand and develop a network of Intermodal Railfreight Interchanges, IRFI's, in historically underserved geographic locations such as the Southwest and East of England could prove critical to serving the agri-produce market in where containerisation has been utilised.

## Produce

As with timber, key to any potential rail offering in this market is the location of railheads and terminals in proximity to source material and processing facility/retailer distribution centre. As with timber, the ability to stockpile produce, albeit likely requiring controlled environment conditions, is key to aggregating volumes to create trainload services.

As with timber, the potential to utilise containerised or multi modal solutions for the transport of produce could benefit from the established present and future container terminal network.

Further research and engagement with the fresh and cultivated produce industry to better understand any potential terminal requirements. As with timber however, wider industry visibility of the location of existing railheads and terminals along with their fundamental capabilities can only drive positive conversations around any potential modal shift opportunities for rail.

## 7. SFU Actions for Growth

The following actions aim to align with the four core pillars of the Freight Market Development Plan<sup>20</sup>, namely Informing, Promoting, Enabling and Delivering.

### 1) INFORMING

- a. Further targeted market engagement with agricultural produce key players and trade bodies to greater inform understanding of wider supply chain structure, volumes, and opportunities/requirements for rail.
- b. Further engagement with Government and Local Authorities around the potential role of rail in supply chain security.
- c. Further engagement with import hubs such as Port's to better understand international agri-produce trade flows and opportunities for rail.
- d. Work with wider industry to understand and identify opportunities for collaborative aggregated volumes to boost rails potential at existing terminals.
- e. Understand market appetite for commodity summits/working groups/forums aimed at collaboration.
- f. Input into ongoing Government review of Modal Shift Revenue Support Grant scheme to highlight its potential to boost rails price competitiveness particularly around seasonal traffic.

### 2) ENABLING

- a. Work to better understand Network capacity and capability constraints and opportunities in relation to potential agri-produce flows particularly where containerisation may be utilised.
- b. Work with internal and industry colleagues to identify, validate and secure viable strategic network of paths linking core sites that match industry requirements and act as a catalyst for growth.
- c. Review impact and opportunities to influence engineering access and seasonal treatment trains on Network capacity and capability in relation to potential rural flows.

### 3) PROMOTING

- a. Map, detail and publish railhead, sidings and terminal location opportunities in line with geographic linking to processing locations/end distribution in conjunction with greater understanding of linked volumes.
- b. Link existing rail users with potential agri-produce customers to further explore opportunities through aggregation of volumes and utilisation of existing railheads.
- c. Promote possibilities of containerised solutions to wider agr-produce community and linked intermodal players.
- d. Further understand potential candidate locations for new rail connections linked with agri-produce customers.
- e. Further understanding of lineside loading opportunities linked with geographic market requirements.

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<sup>20</sup> [Growing-rail-freight-a-market-development-plan.pdf \(gbrtt.co.uk\)](https://www.gbrtt.co.uk/growing-rail-freight-a-market-development-plan.pdf)

- f. Progress future digitisation of freight estate to increase awareness of freight site opportunities.
- g. Attendance at key agri-produce forums and events to promote rail as a supply chain solution.

#### **4) DELIVERING**

- a. Split future iterations of agri-produce commodity digest into timber and produce independent reports to reflect uniqueness of each sector.
- b. Production of specific internal and external planning guidance in relation to potential new agri-produce flows and terminal developments.
- c. Directly support the delivery of the proposed new timber railhead at Carlisle and linked wider terminal developments in conjunction with Network Rail.
- d. Create design guidelines to be factored into future terminal development work to accommodate potential agri-produce traffic.

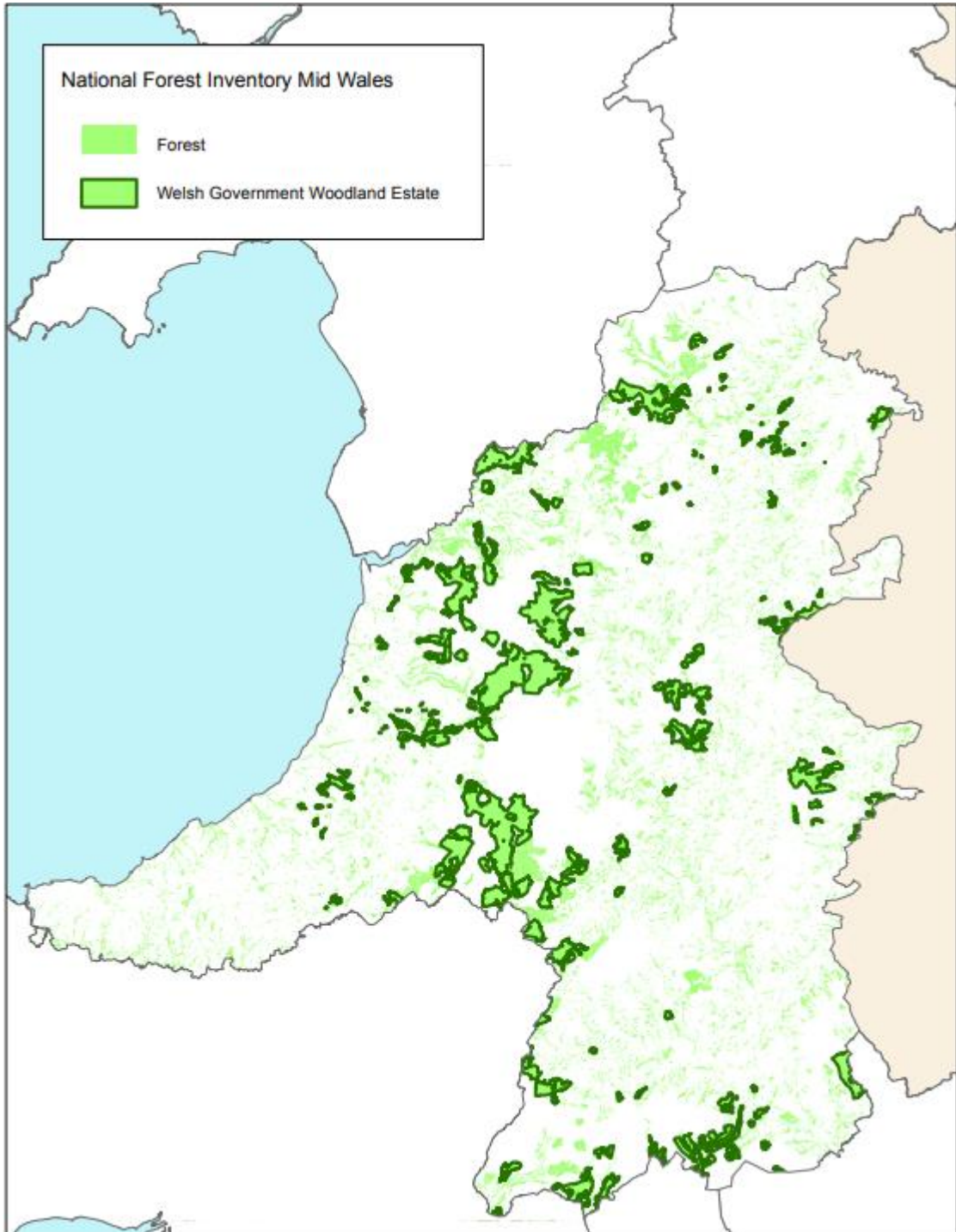
## 8. Glossary

FOC	<b>Freight Operating Company</b>
NR	<b>Network Rail</b>
GBRTT	<b>Great British Railways Transition Team</b>
SFU	<b>Strategic Freight Unit (part of GBRTT)</b>
Green Tonne	<i>Refers to the weight measurement of freshly felled timber before any industrial drying processes are applied</i>
Hardwood	<i>Higher density wood generally derived from deciduous trees such as oak</i>
Roundwood	<i>Wood in its natural state as felled</i>
Softwood	<i>Generally derived from coniferous trees</i>

## Appendix 1 – Forestry England Sites



## Appendix 2 – Natural Resource Wales Sites (Mid Wales)



## Appendix 3 – Forestry & Land Scotland Sites

