The Wood Pallet & Packaging Market in 2016

A MARKET RESEARCH REPORT PREPARED FOR

TIMCON

&

THE FORESTRY COMMISSION

BY

JOHN CLEGG CONSULTING LTD

FEBRUARY 2018

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Forestry Commission

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1 Ravelston House Loan
Edinburgh
EH4 3LY

Tel : 0131 343 6821
Email : gw@johncleggconsulting.co.uk

February 2018

Foreword TIMCON report 2016

I am delighted to launch the publication of the Annual Market Research Report 2016 for the timber pallet, packaging and repair industry.

As on previous occasions and hopefully for many more to come I would like to thank the Forestry Commission for their continued support with this comprehensive overview of the industry. I am sure they will agree that in the challenging times not only our section of the timber industry experienced in 2016 but is continuing to do so through 2017 and the start of 2018, but sawmillers and forest owners as well, that the information provided within this report is invaluable. The industry again used in excess of one million cubic meters of wood grown in the UK, which just underlines our importance to the UK forest sector.

This years' report is proving to be even more so, as the information is extremely useful in helping to answer questions now being raised by the UK Ministers and DEFRA in regards to Brexit implications regarding the International Plant Health Standard ISPM 15 and wooden pallets and packaging.

As I have mentioned previously and will continue to do, many other national associations are envious of our report and the knowledge that it gives the association about the sector it is representing. In the last 12 months the French association SYPAL have launched their first annual report and their Secretariat confirmed that they had based it on ours.

The report also continues to highlight the importance of wood in developing sustainable circular economies. Recovery, repair and reuse all show increases on the previous year and I believe this is where we will continue to see rising numbers.

I would like to thank all the members on behalf of TIMCON and the Forestry Commission who submitted questionnaires and to those that have advised they will be contributing for the 2017 report we look forward to receiving your submissions.

Of course special thanks to Guy Watt of John Clegg Consulting Ltd for doing all the work, including the thankless task of chasing up submissions. With his feedback and input we will of course continue to "tweak" or add additional information to help gain an even more comprehensive understanding of our industry. No doubt like myself you will, after reading this report, be looking forward to receiving the 2017 numbers.

John Dye, *President*, Timber Packaging & Pallet Confederation (TIMCON)

EXECUTIVE SUMMARY

The main findings of the market survey of the wood pallet and packaging industry in 2016 are that:

- The estimated number of new wood pallets manufactured in the UK was 42.5 million; an increase of 5.7% on 2015. The estimated number of wood pallets repaired was 41.4 million; an increase of 6.2% compared with 2015.

- The manufacturing of new wood pallets in the UK is estimated to have generated a total turnover of £268.1 million; a decrease of 4.8% compared with 2015. The total estimated turnover for all companies from repairing wood pallets in the UK is estimated to have been £90.2 million; an increase of 7.8% compared with 2015. The total turnover of all companies involved in wood pallets and packaging in the UK is estimated to have been £358.3 which is a decrease of 1.6% on 2015.

- The estimated sale price of new pallets for all TIMCON member companies providing information was £6.31 per pallet which is a 5.8% reduction from £6.70 in 2015. This reduction at a time when wood prices are rising may be due to changes in pallet mix and design. The average unit costs of inspecting and/or repairing a pallet varied from £1.82 to £3.91 per pallet.

- TIMCON members contributing information are estimated to have used approximately 688,297 cubic metres of wood for pallets and packaging, and of this total 71.9% was UK grown timber and 28.1% was imported. In total it is estimated that 1,024,600 cubic metres of timber grown in the UK was used in the manufacturing and repairs of pallets and in packaging in the UK.

- TIMCON member companies who provided information manufactured 20.5 million new pallets and of these 70% were untreated, 25% were heat treated and 17% were kiln dried and heat treated. The number of newly manufactured pallets that were heat treated increased by 4.4% in 2016 compared with 2015, but the number of pallets kiln dried reduced by 21.4%. The latter reduction may be due to more pallets being recovered and repaired in 2016 so less newly manufactured kiln dried pallets were required, and due to more kiln dried pallets entering the country due to the imbalance in trade between the UK and Europe.

- The main initial end use market for new pallets manufactured by TIMCON members who returned forms was the construction industry which took an estimated 32% of the total. Other significant initial end use markets were Distributors (18%), Fast Moving Consumer Goods (FMCG) (14%), Chemicals (12%) and the Engineering and Automative Industries (11%). Most of the pallets in the pallet pools were used to move FMCGs.

- TIMCON estimates that there are approximately 250 million pallets currently in circulation in the UK and over 40 million new pallets are added to the supply chain annually. In addition many more pallets enter and leave the UK when goods are imported and exported. The number of wood pallet-based movements of goods in the UK in a year is estimated to be in excess of 1.5 billion.

- The estimated turnover of TIMCON member companies involved in wood packaging who provided information for this survey was £20.2 million. The estimated quantity of wood used was 51,815 cu metres and the number of people employed was 172.

- All TIMCON members are estimated to have employed directly, or indirectly in outsourced activities, 3,020 people at a total of 128 different sites throughout the UK. Of this total 43.7% of the employment related to new pallet production and 53.3% of the employment related to inspecting and/or repairing pallet and 3% to packaging.

- TIMCON member companies that provided information in 2016 forecast a weighted increase in turnover in the year ahead of 5.0%. This anticipated increase in turnover may be based on the recognition that the increasing price of wood will inevitably result in an increase in the overall turnover of their companies rather than an expected increase in market demand for pallets and packaging.

ABBREVIATIONS

Cu m	Cubic metres
FC	Forestry Commission
FEFPEB	Fédération Européenne des Fabricants de Palettes et Emballages en Bois (European Federation of Wooden Pallet and Packaging Manufacturers)
FMCG	Fast Moving Consumer Goods
ONS	Office for National Statistics
UKWPMMP	UK Wood Packaging Material Marking Programme

1 Introduction

Background

1.1. This is the seventh report on the wood pallet and packaging market in the UK that has been jointly commissioned by TIMCON and the Forestry Commission.

1.2. TIMCON, the representative body of the wood pallets and packaging industry views the commissioning of these reports as one of the range of valuable services that it offers its members. It regards the information in these reports of potential commercial benefit to companies within the sector as they provide companies with an overview of the changes taking place within the industry that may not always be apparent to companies from their own day-to-day operational activities. The information therefore has the potential to help companies build a better understanding of their commercial operating environment and how it might be changing. TIMCON also views the information in these market research reports as providing an opportunity for raising the sector's national profile about its size, economic contributions and the conditions its members face. TIMCON also uses this report to lobby government and help make the economic and environmental case for wood pallets and packaging.

1.3. The Forestry Commission wants to have a good understanding of the pallet and packaging market as the wood pallets and packaging industry uses some 30% of the sawn timber produced from roundwood grown in Britain. Short term changes in the market and long-term trends may have policy implications at the national level which is why they have jointly commissioned these studies with TIMCON.

Structure of the UK Wood Pallet & Packaging Market

1.4. The *wooden pallet* industry comprises many small firms, a good number of middle-sized firms, larger firms and a number of very large firms operating within the industry. The activities of these companies are not homogenous, with differing emphases on manufacturing and repair of pallets and they also have different ways of getting pallets to market. This is exemplified by the difference between manufacturers and pallet pool operators, with manufacturers mostly selling their output, while closed loop pallet pool operators rent pallets for use by customers.

1.5. There are some large, medium and small companies in the *wood packaging* industry, who are members of TIMCON, but there are other mainly small companies and organisations involved in wood packaging in the UK that operate at some 600 separate sites with a number of companies having several registered sites. This is known because the sites are all registered with the UK Wood Packaging Material Marking Programme (UKWPMMP); a programme that assist companies meet international plant health and phytosanitary standards.

1.6. Like the rest of industry in the UK, the structure of the pallet and packaging industry is continuously changing because of commercial pressures and because companies perceive business opportunities. One of the main consequences is that there is a gradual reduction in the number of independent businesses operating in the sector and the tendency for smaller businesses to cease trading as stand-alone entities.

Market Research Objectives & Methodology

1.7. The overall aim of the market research is to provide estimates of the total sizes of some key parameters of the UK wood pallet and packaging sector, based on the activities of TIMCON member companies; to identify how these parameters have changed from previous years, and, over the longer term allow TIMCON members to identify trends that may be starting to affect the sector and hence their activities. The objectives, and the methodology used are described in more detail in Annex 1.

Confidentiality

1.8. The type of market research required to assess the state of the wood pallet market depends almost entirely on the support of companies operating in the sector. In deciding whether to supply information, companies need to know that the confidentiality of the commercial data they are asked to provide is clearly recognised and that it will be extremely carefully protected and used in ways that will ensure that their operations cannot be recognised by their competitors, or anyone else connected with the sector. For this reason TIMCON and the Forestry Commission appoint an independent consulting company to undertake the research for them and they require the company to keep the information entirely confidential so that neither TIMCON, the Forestry Commission, nor any other party has any access at all to it. The consultants are also required to ensure that it is impossible to identify information relating to an individual company when presenting their market research results. These conditions of confidentiality have been strictly adhered to in preparing this report.

Coverage

1.9. Forty nine separate pallet manufacturing, packaging and pallet pooling companies in the UK were members of TIMCON in 2016 which is seven less than the number of companies separately identified for the 2015 market survey. This reduction is mainly due to changes in the corporate structure of the sector and not because companies have given up their membership of TIMCON.

1.10. One company that took part in the 2015 market survey disappointingly did not send in returns for 2016, and another sent in only partial results, but 3 companies that did not take part in the 2015 survey did in 2016, which is an increase in the response rate of 21.4% which is an encouraging increase Hopefully this reflects an increasing awareness of the importance and benefits of the survey results, and increasing confidence in the strict confidentiality of any information provided. Overall, 37% of TIMCON's members responded to the 2016 market survey.

1.11. Where TIMCON member companies are supplying information for the first time, the information is substituted for estimates that have been made previously which improves the accuracy of the survey results. When a company does not respond, but took part in the previous year's survey, last year's datasets are adjusted so the datasets for the same companies are being compared in both years, otherwise any trends between years would be affected by absence of data from the company that hasn't responded this year. It should be noted though that although the same companies are being compared, it is possible that they may have acquired the operations of another company during the year so the operations themselves may not be exactly the same.

1.12. TIMCON's membership includes all the major companies, and together TIMCON estimates they account for 70% of all the pallet industry's outputs. TIMCON estimates that this percentage remains unchanged. The market research results for 2016 given in this report are based on a survey of TIMCON's members that was conducted in 2017.

Acknowledgements

1.13. The accuracy of the market research results very much depends on companies completing and returning questionnaires. We would therefore like to thank all those companies that did so this year. It is very much appreciated.

2. Pallet Production & Repairs

Survey Data

2.1. The companies that completed and returned questionnaires for 2016 manufactured 20.54 million new pallets which is an increase of 3.9% compared with the 20.46 million new pallets manufactured in 2015. The companies returning the survey forms also repaired an estimated total of 27.2 million pallets compared with 26.0 million pallets in 2015 which is an increase of 4.6%. These results show that the number of new pallets manufactured, and existing pallets repaired, both increased in 2016 compared with 2015, but the figures also suggest that users are increasing their focus on keeping pallets in use by maximising their repair and recovery rather than buying new ones in order to save money.

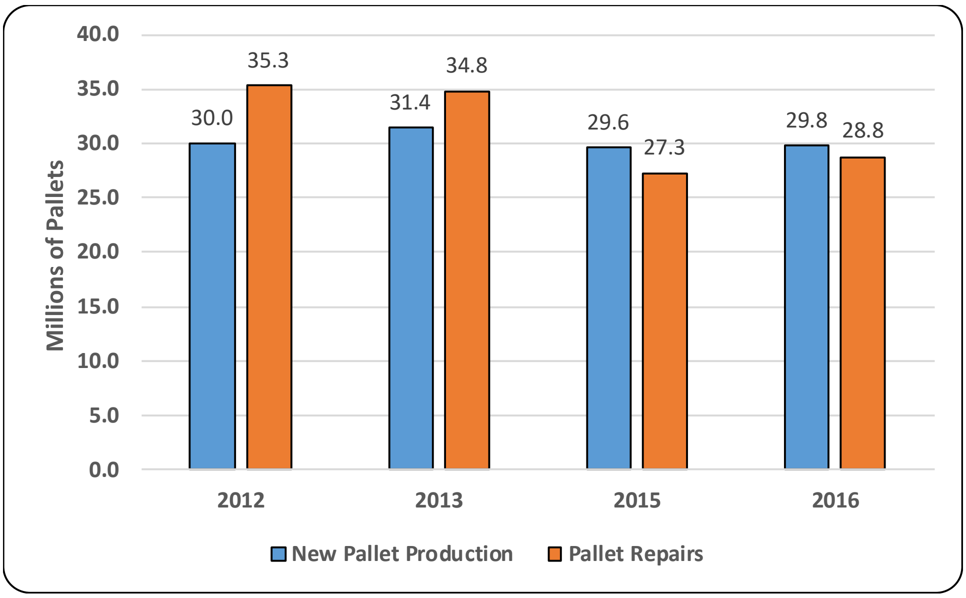
Estimated Quantity of Pallets Produced & Repaired by All TIMCON Members

2.2. An estimate of the total number of pallets manufactured and repaired by all TIMCON members in 2016 has been made using the same methodology as in previous years. This was done by supplementing the figures obtained from the returned survey forms with estimates of turnover based on TIMCON membership categories for those members who didn't return questionnaires. Overall it is estimated that the companies that completed and sent in forms in 2016 accounted for 69% of the total relating to all TIMCON members.

2.3. Using the approach described above the estimated total number of new pallets manufactured by all TIMCON members in 2016 was 29.75 million (29.6 million in 2015) which is a 5.1% increase. The number of pallets that were repaired is estimated to have been 28.8 million (27.3 million in 2015) which is a 5.5% annual increase.

2.4. Chart 2.1 shows the estimated total number of pallets manufactured and repaired in 2012, 2013, 2015 and 2016. The figures for 2012 and 2013 are shown in the graph for interest but they not directly comparable with the figures for the two most recent years because data relating to companies in the UK Wood Packaging Material Marketing Programme were included in the figures for 2012 and 2013 but have been excluded for 2015 and 2016. There may also be some differences because the response rate of companies returning survey forms has been higher in 2015 and 2016 than for the two earlier surveys.

Chart 2.1 Estimated Numbers of New Pallets Manufactured & Repaired by All TIMCON Members in 2012, 2013, 2015 and 2016



2.5. The chart shows that that the gap between the number of new pallets manufactured in 2016 and the numbers being repaired is narrowing and that total numbers are very similar. The pallet pool companies undertake or organise most of the pallet repairs.

Estimated Number of New Pallets Manufactured in The UK in 2016

2.6. Based on the information provided by TIMCON member companies that completed and returned questionnaires, the total number of new pallets they manufactured in 2016 was 20.54 million. The estimated production of new pallets by all TIMCON members in 2016 is estimated to have been 29.75 million. TIMCON estimate that their members accounted for 70% of all new pallets manufactured in the UK in 2016 which gives an estimated total production of new pallets in the UK in 2016 of 42.5 million (42.26 million in 2015) which is a 5.7% increase compared with 2015.

Estimated Number of Pallets Repaired in The UK in 2016

2.7. Based on the information provided by TIMCON member companies that completed and returned questionnaires, the total number of pallets repaired in 2016 was 27.2 million. The number of pallets repaired in 2016 by all TIMCON members is estimated to have been 28.8 million. TIMCON estimate that their members accounted for 70% of all pallet repairs in the UK in 2016 which gives an estimated total for the number of pallets repaired in the UK in 2016 of 41.4 million which is a 6.2% increase from the 39.0 million pallets repaired in 2015.

3. PALLET MARKET TURNOVER FROM MANUFACTURING & REPAIRING PALLETS

Survey Results

3.1. The annual turnover of TIMCON member companies that completed and returned survey forms in 2016 is estimated to have been £185.2 million. This is a decrease of 9.5% from the figure of £194.7 million in 2015. Of this total the manufacturing of new pallets is estimated to have accounted for £127.8 million of the turnover which is a decrease of 7.9% from £138.8 million in 2015. This decrease at a time of rising wood prices is likely to be due to changes in pallet mix and the design of pallets to meet specific purposes in order to minimise the amount of wood that needs to be used. The turnover from repairing pallets is estimated to have been £57.4 million which is an estimated 2.7% increase from the total of £55.9 million in 2015.

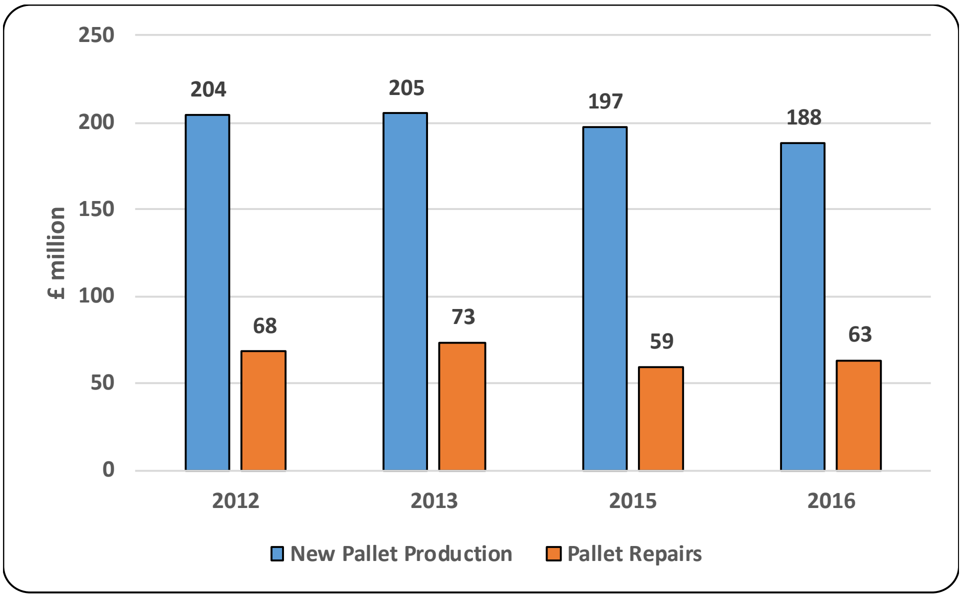
3.2. Although the turnover of companies manufacturing new pallets in the survey decreased by 7.9%, the number of new pallets they produced rose by 3.9% or approximately 80,000 pallets (para 2.1). This suggest that companies manufacturing new pallets were facing significant cost and profitability pressures. The increased turnover from repairing pallets indicates that pallets could be being kept in circulation longer as it is cheaper to repair pallets than purchase new ones.

Estimated Turnover of all TIMCON Members

3.3. An estimate of the total turnover of all TIMCON members in 2016 has been made using the same methodology as in previous years by supplementing the figures obtained from the returned questionnaires with estimates of turnover based on the average unit price of TIMCON members who manufacture and repair pallets multiplied by estimates of TIMCON membership categories for those members who didn't return questionnaires. Using this approach the total turnover of TIMCON members is estimated to be £250.8 million compared with £255.7 million in 2015; a decrease of 1.9%. The estimated turnover from the manufacture of new pallets in 2016 is estimated to have been £187.7 million which is a 4.8% decrease on their turnover of £197.1 million in 2015. In contrast the turnover arising from the repair of pallets has increased by 7.6% to £63.1 million from £58.6 million in 2015. The survey results for total pallet market turnover of £250.8 million accounts for some 73.8% of the estimated turnover of all TIMCON members.

3.4. The estimated turnover of all TIMCON members from manufacturing new pallets and repairing pallets is shown in chart 3.1 along with estimates for 2012, 2013 and 2015. Although when shown graphically, the results suggest that the turnover of TIMCON members from manufacturing new pallets appears to be trending downwards, suggesting a long-term squeeze on their profitability, the figures for 2012 and 2013 are not directly comparable to those for 2015 and 2016 because data relating to companies in the UK Wood Packaging Material Marking Programme were included in 2012 and 2013 and adjustments were made to turnover estimates in those two years to accord with ONS ProdCom data. Higher survey responses have also been obtained in 2015 and 2016.

Chart 3.1 Estimated Total Pallet & Packaging Turnover Figures for 2012, 2013, 2015 and 2016 for All TIMCON Members



3.5. The percentage of turnover relating to repairs was 25.2% in 2016 compared with 23% in 2015, 26% in 2013 and 25% in 2012.

Estimated Turnover Relating to New Pallet Production & Repairs in the UK in 2016

3.6. Based on the information provided by companies that completed and returned questionnaires, their total turnover from the manufacture of new pallets in 2016 was £127.8 million. The estimated turnover from new pallet production for all TIMCON members in 2016 is estimated to have been £187.7 million. TIMCON estimate that their members accounted for 70% of all the new pallets produced in the UK in 2015 which gives an estimated total turnover for new pallet production in the UK in 2016 of £268.1 million compared with £281.6 in 2015 – a decrease of 4.8%.

3.7. Based on the information provided by companies that completed and returned questionnaires, their total turnover from pallet repairs in 2016 was £57.4 million. The turnover of all TIMCON members that related to repairs is estimated to have been £63.1 million. TIMCON estimate that their members accounted for 70% of all pallet activity in the UK in 2016. If the estimated value of these pallet repairs is based on the average unit price of TIMCON members who manufacture and repair pallets, this gives an estimated total turnover from pallet repairs in the UK in 2016 of £90.2 million up from £83.7 million in 2015 – an increase of 7.8%.

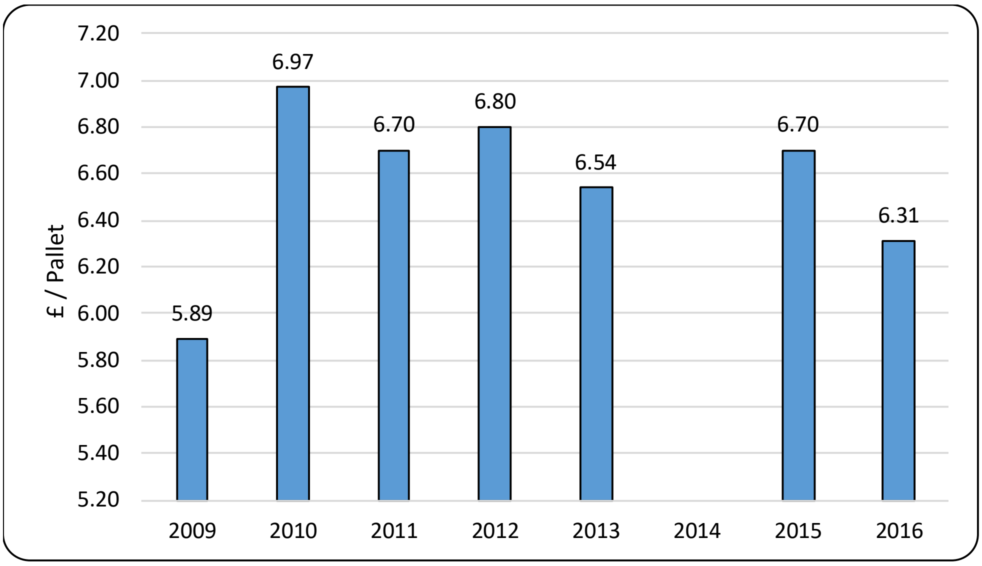
3.8. The estimated total turnover from manufacturing new pallets and repairing existing ones is estimated to have been £358.3 million in 2016 which is a 1.6% decrease on £364.3 million for 2015 but occurred when production of new pallets increased by 5.7% and the number of pallets repaired increased by 6.2% during 2016.

4. Average Unit Sale and Pallet Repair Prices

4.1. Based on the figures given in para 3.1 and 2.1 the estimated unit selling price of new pallets for all TIMCON members in 2016 was £6.31 per pallet. This is a reduction of 5.8% in the average price that all TIMCON members received for new pallets compared with 2015. This reduction in average price at a time of rising wood prices could be due to a number of factors such as changes in TIMCON members' pallet mix, changes in pallet design to meet specific purposes and cost pressures on pallet manufacturers.

4.2. Chart 4.1 shows how the estimated average sale price of new pallets for all TIMCON members has varied over the years since 2009.

Chart 4.1 Average Unit Sale Price for New Pallets for All TIMCON Members 2009 – 2016



4.3. The average unit cost of repairing a pallet, but excluding costs associated with just sorting and inspecting pallets, ranged from £1.82 to £3.91 per pallet.

5. Wood Used in Pallet Production & Repairs

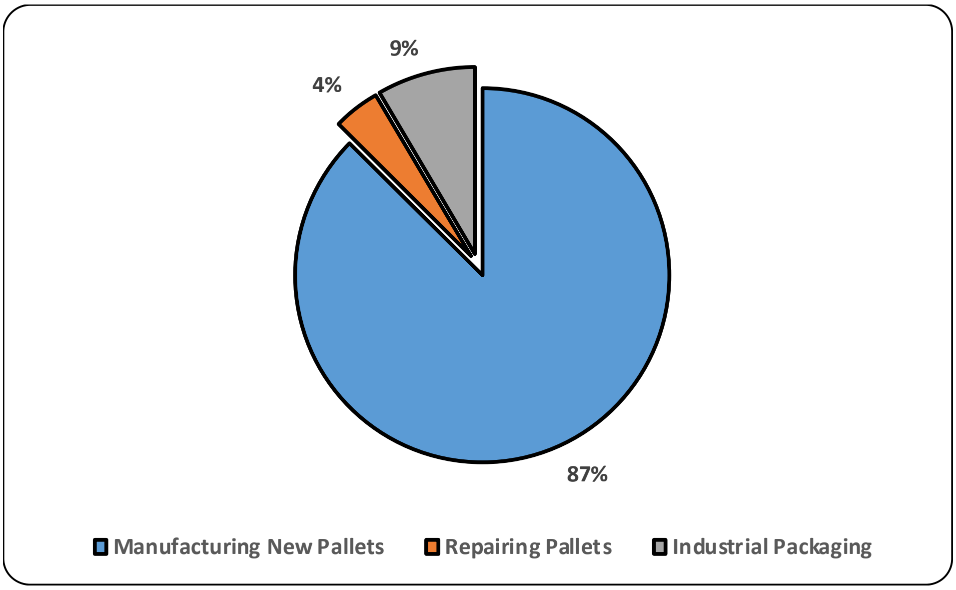
SURVEY DATA

5.1. The total volume of wood products from all sources, and of all types used in the pallet and packaging industry in 2016, based on an analysis of the information on the forms that were completed and returned, was 688,297 cubic metres. This is a 2.5% decrease from the figure of 705,641 cu metres of wood used in 2015. This occurred when both the number of new pallets manufactured by these companies increased by 3.9% and the number of pallets repaired increased by 4.6%. This suggests that due to supply chain cost pressures the pallet mix is changing and pallet manufacturers are reducing the amount of new wood they use in pallet making by re-designing them to meet the exact needs of their customers, and perhaps, where possible, by using more recovered wood.

Wood Use

5.2. The ways the pallet and packaging industry used this wood are shown in percentage terms in chart 5.1, based on information in the completed survey forms.

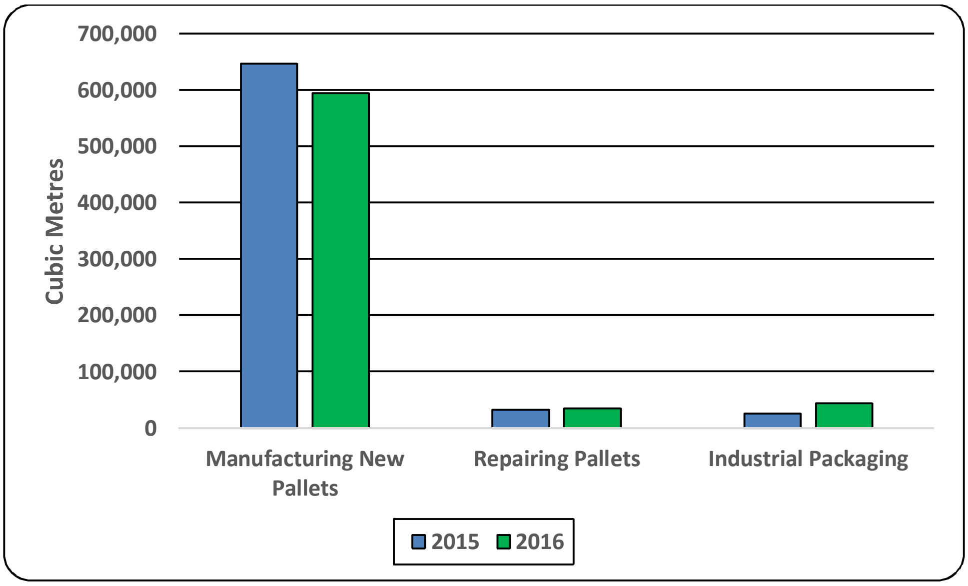
Chart 5.1 Uses of Wood by TIMCON Member Companies in 2016 based on Survey Returns



5.3. The chart shows that the majority of wood is used in the manufacture of new pallets as previous market surveys have identified.

5.4. Chart 5.2 provides a comparison of the total quantities of wood used for manufacturing new pallets, repairing pallets and packaging in 2015 and 2016 by TIMCON members who took part in surveys in both years.

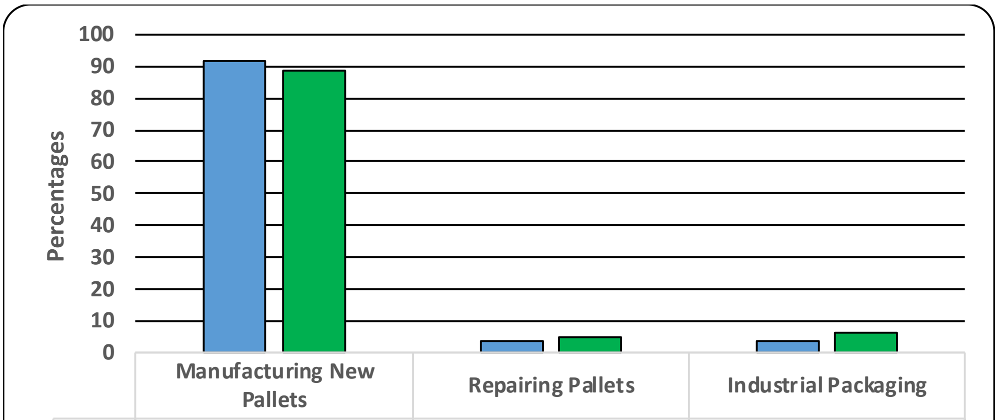
Chart 5.2 Comparison of the Amount of Wood Used in Pallet Manufacturing & Repair Operations and Packaging in 2015 and 2016 by TIMCON Members who took part in Surveys in both Years



5.5. This shows that the quantity of wood used by companies manufacturing pallets that returned survey forms in 2016 fell by 7.9% compared with the amount of wood used in 2015, but there was an increase of 17,620 cu m in the quantity of wood used for packaging.

5.6. To see if there has been any underlying shift in wood use, given the reduced quantity of wood used in 2016 compared with 2015, the quantities of wood used in making new pallets, repairing pallets and packaging in each year have been expressed as percentages of total wood used in 2015 and 2016 by companies completing returns in both years in chart 5.3.

Chart 5.3 Quantities of Wood Used in 2015 and 2016 for Manufacturing New Pallets, Repairing Pallets and Packaging as a Percentages of Total Wood Used by TIMCON Members who took part in both Surveys



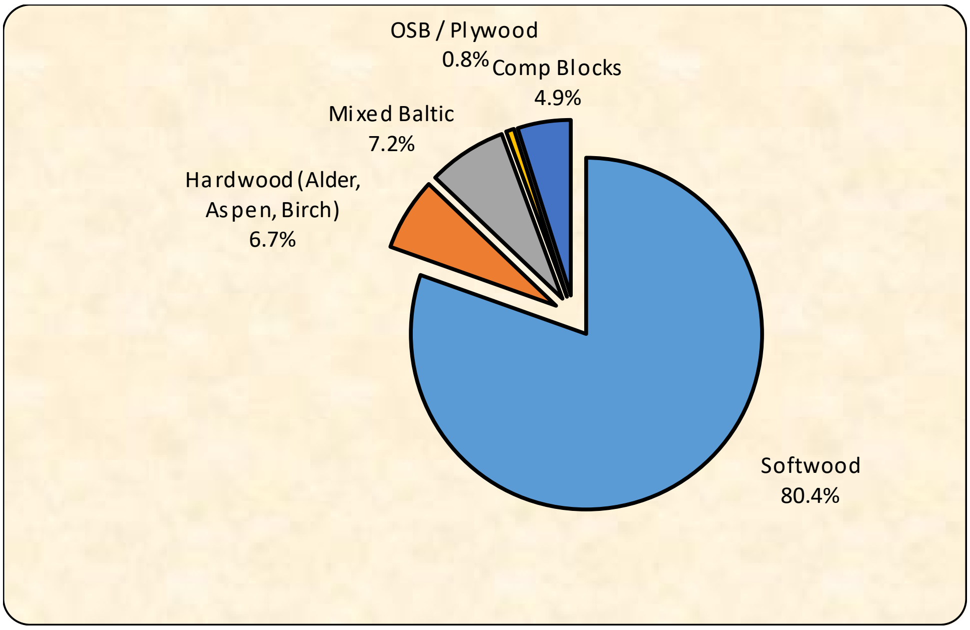
	Manufacturing New Pallets	Repairing Pallets	Industrial Packaging
2015	92	4	4
2016	88	5	6

5.7. This shows that proportionately the use of wood in manufacturing new pallets has fallen slightly, but its use in repairing pallets and in packaging has increased, although from a much lower base.

Types of Wood Used

5.8. The types of wood being used in manufacturing and repairing pallets, and packaging in 2016 by TIMCON member companies that returned market survey forms are given in chart 5.4. The generic term of 'Hardwood' covers the faster growing, light demanding species such as Alder, Aspen and Birch.

Chart 5.4 Types of Wood being Used by TIMCON Member Companies in 2016 based on Survey Returns

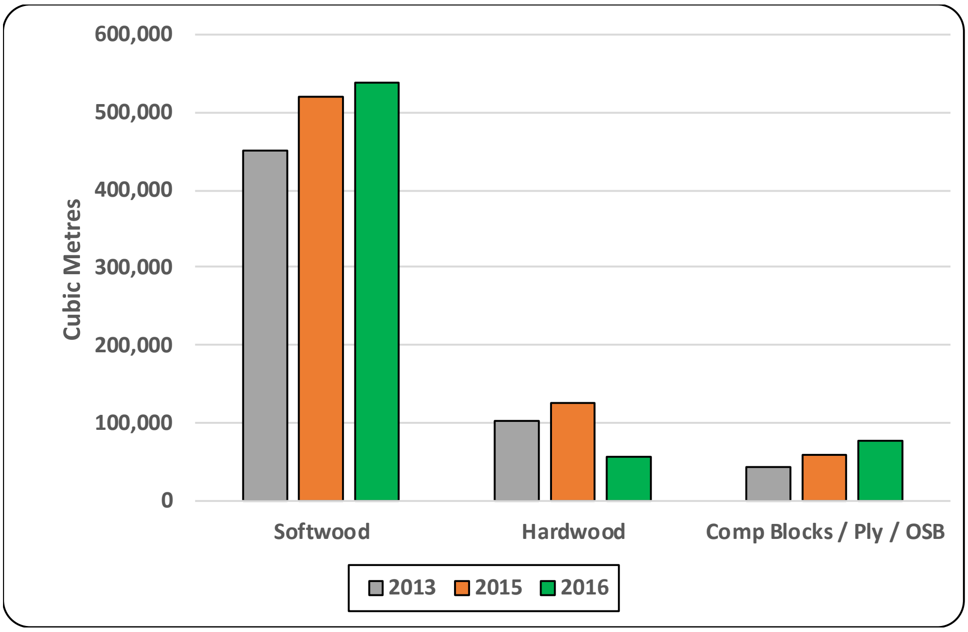


5.9. The chart shows that the majority of the wood used in 2016 was softwood (80.4%).

5.10. In previous market survey forms OSB, plywood and composite blocks were all combined into one single category rather than being separated out as they have been in the 2016 survey.

This means it is only possible to directly compare the 2016 data with the results of previous market surveys by combining the 2016 data for the quantities of OSB, plywood & composite block used. This has been done and the results are given in Chart 5.5.

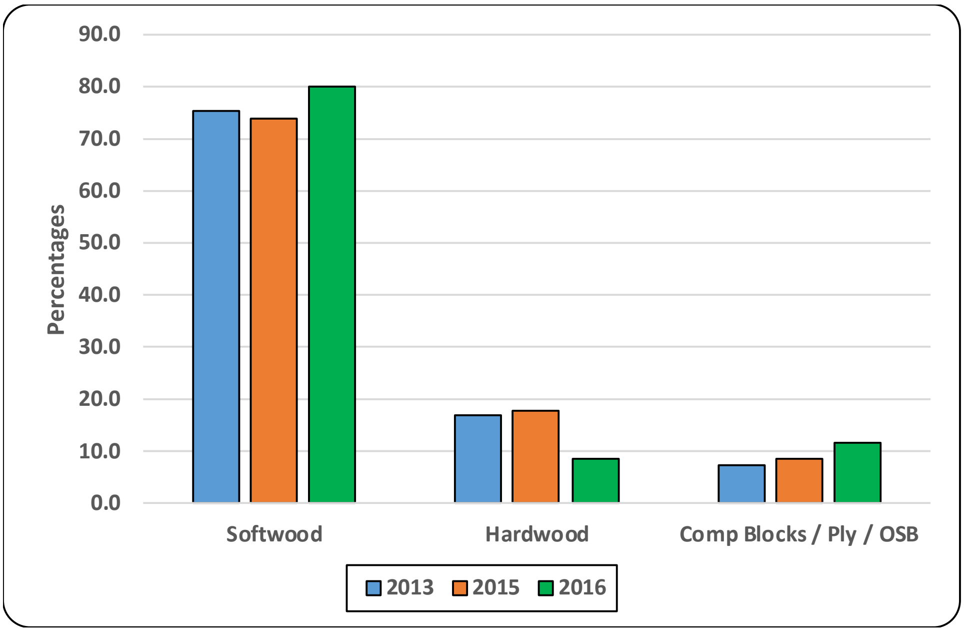
Chart 5.5 Quantities of Different Types of Wood Used in 2013, 2015 and 2016 by TIMCON Members Taking Part in the Market Survey in all Three Years



5.11. The chart shows that the use of softwoods, composite blocks, plywood and OSB has increased steadily between 2013 and 2016, but the use of hardwoods such as Alder, Aspen and Birch, which were imported, declined quite significantly in 2016 after a slight increase in use in 2015. This decrease may therefore be due to imports becoming more expensive.

5.12. The results of expressing the quantities of the different types of wood as percentages of all wood used in that year are shown in chart 5.6.

Chart 5.6 Quantities of Different Types of Wood Used in 2013, 2015 and 2016 expressed as Percentages of all Wood Used in that Year by TIMCON Members Taking Part in the Market Survey in all Three Years

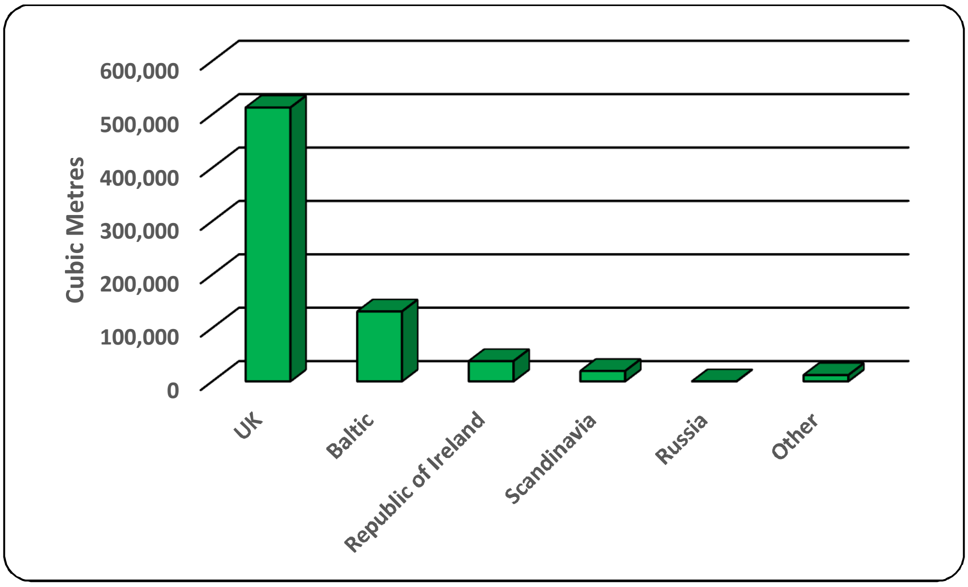


5.13. While the trend of increasing use of softwoods and composite blocks, plywood and OSB is mirrored in percentage terms, the percentage increase in the use of softwood is less significant.

Sources of Wood Used

5.14. The sources of the wood used by the pallet and packaging industry in 2016 based on survey returns are shown in chart 5.7.

Chart 5.7 Sources of Wood used by TIMCON Member Companies in 2016 based on Survey Returns

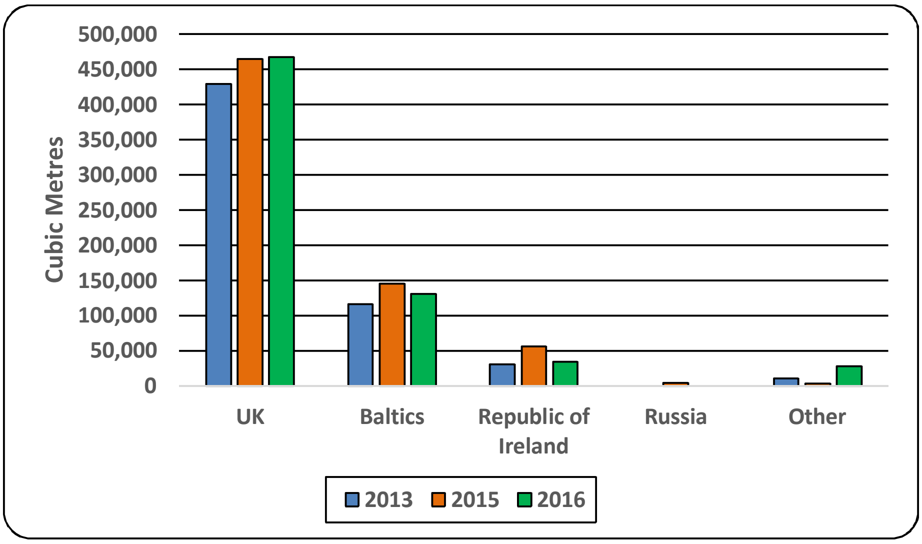


5.15. TIMCON member companies taking part in the survey in 2016 sourced 71.9% of their wood from the UK compared with 66% in 2015. Most of the faster growing hardwoods, such as Alder, Aspen and Birch, which accounted for a further 18.4%, were sourced from the Baltic countries – down from 20% in 2015.

Sample Trend Changes 2013 - 2016

Chart 5.8 shows that there have been some changes geographically in the overall quantities of wood purchased for pallet making and packaging by TIMCON member companies that returned forms between 2013 and 2016.

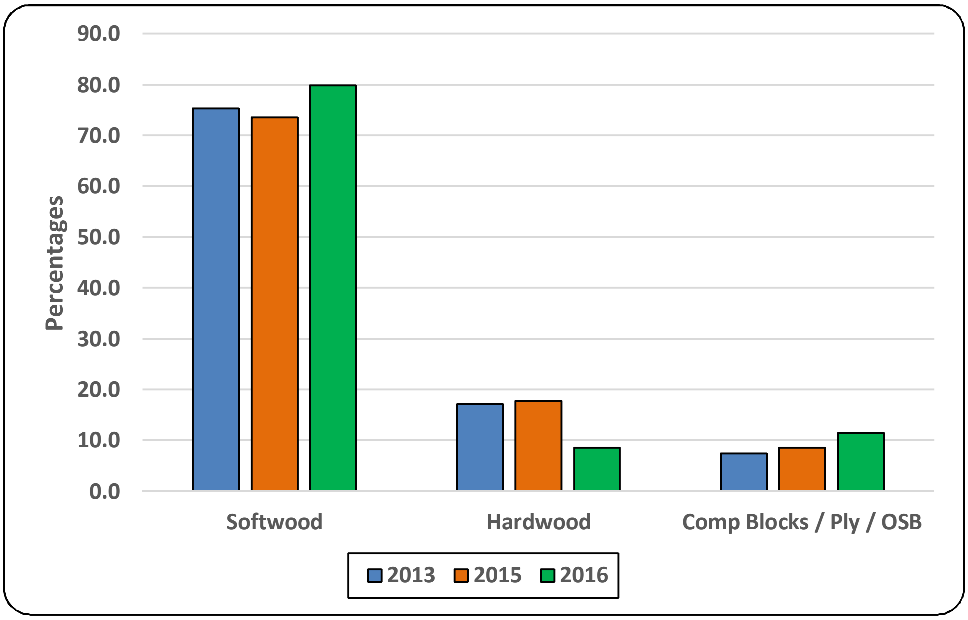
Chart 5.8 Sourcing of Wood Used in Pallet Manufacturing and Packaging by TIMCON member Companies Returning Forms in 2013, 2015 and 2016



Footnote: Totals are less than those shown in table 5.7 because of the need to ensure comparability with 2003 data

5.16. Chart 5.8 shows that there has been an increase in the amount of wood sourced from the UK in 2016. The results are slightly influenced by one company that imported a relatively large amount of wood from a country classified as 'Other' in 2016 which it had not done in previous years. This suggests that the increased use of wood sourced in the UK could be a reflection of the devaluation of Sterling. However, if the information given in Chart 5.7 is expressed in percentage terms in relation to the total quantity of wood used in each year a slightly different picture emerges. The results are shown in chart 5.9.

Chart 5.9 Quantities of Wood Sourced by Location as a Percentage of All Wood Used by TIMCON member Companies Returning Forms in the years 2013, 2015 and 2016



5.17. This chart shows that the TIMCON members who provided survey information in all three years have increased use of softwoods and composite blocks, plywood and OSB relative to their use of hardwoods.

ESTIMATED WOOD USE BY ALL TIMCON MEMBERS IN 2016

5.18. The companies that provided information estimated they used 688,297 cu m of wood in 2016 (705,641 cu metres in 2015). As the companies that returned forms are estimated to account for 69% of all new pallets manufactured by TIMCON members (para 2.2), and most new wood is used in manufacturing pallets, it has been assumed this year that they account for 69% of all wood used by TIMCON members in pallet and packaging (compared with a figure of 75% used in 2015). Based on an assumption of 69%, it is estimated that the quantity of wood used by all TIMCON members would be 997,531 cu m (940,854 cu m in 2015). If 71.9% (66% in 2015) of all wood used is grown in the UK (Chart 5.7), then the amount of British grown wood used by TIMCON members is estimated to have been 717,225 cu m compared with 620,964 cu m in 2015. This increase partly reflects a change in assumption in estimating TIMCON members' use of new wood and partly the shift towards sourcing more wood in the UK.

ESTIMATED WOOD USE BY UK PALLET & PACKAGING INDUSTRY IN 2016

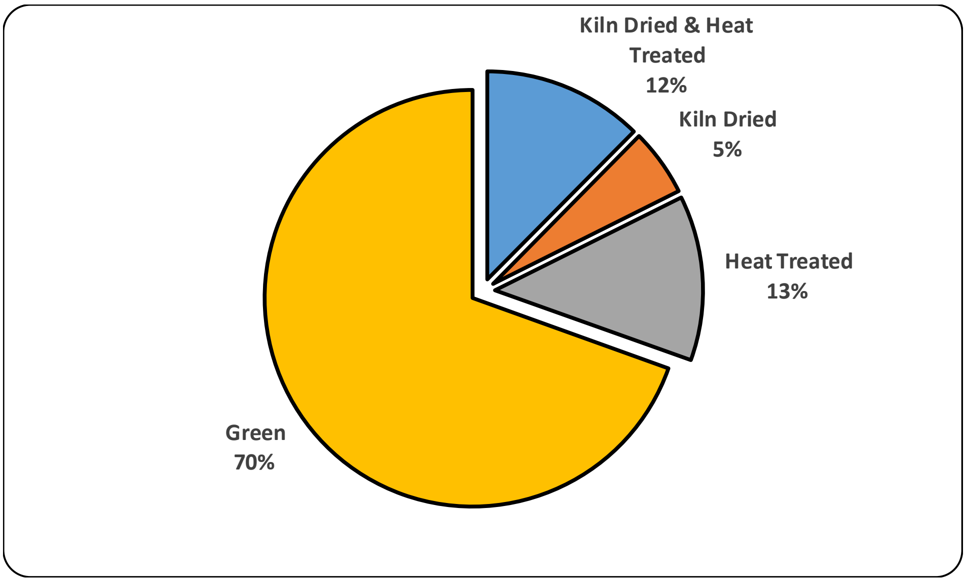
5.19. TIMCON members are estimated to account for some 70% of UK pallet production and therefore the estimated use of UK grown timber in the UK in 2016 would have been 1,024,608 cu m – an increase of 137,516 cu m on the 887,092 cu m in 2015.

6. HEAT TREATMENT & KILN DRYING OF NEW PALLETS

6.1. The companies returning 2016 market survey forms manufactured a total of 20.54 million new pallets in 2016. If new pallets are going to be used for exporting goods outside of the EU, or possibly outside the UK after Brexit, the new pallets will need some form of heat treatment. This is to limit the potential for the spread of insects. A total of 6.4 million newly manufactured pallets were given some form of heat treatment by the TIMCON member companies who took part in the 2016 market survey.

6.2. Chart 6.1 shows as percentages the different types of heat treatment given to newly manufactured pallets by TIMCON members taking part in the survey.

Chart 6.1 Heat Treatments Applied to New Pallets Manufactured in 2016 by TIMCON Members Returning Forms expressed as Percentages of Total New Pallets Manufactured by Them



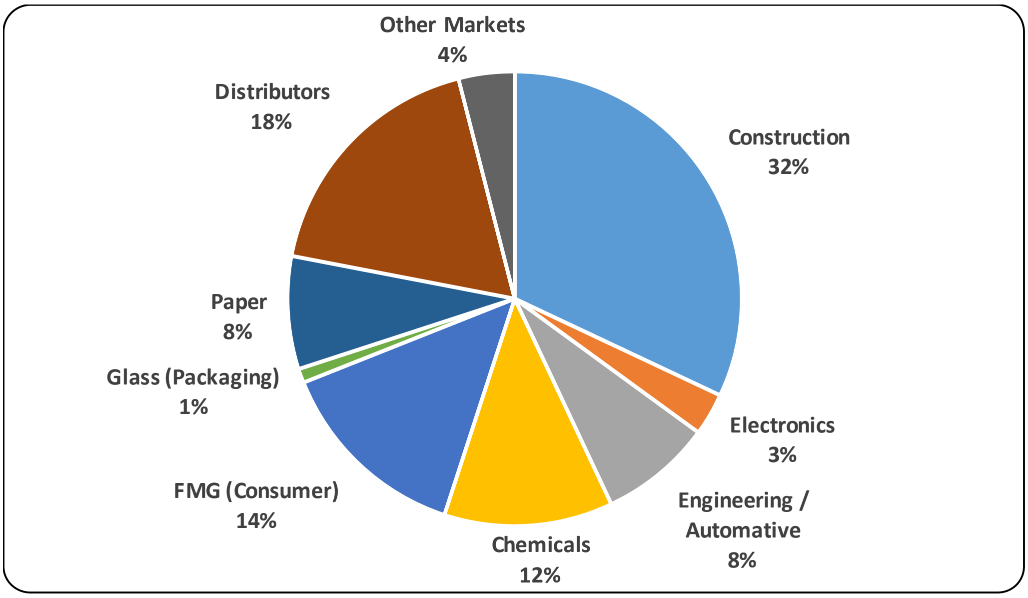
6.3. The chart shows that 25% of all newly manufactured pallets were given some type of heat treatment and 17% were kiln dried and heat treated. The difference between the two heat treatments is that kiln drying reduces moisture content and helps prevent mould on pallets and packaging and may be essential to meet the requirements of particular customers.

6.4. It is less easy to compare these findings with those in 2015 as the survey form used in 2015, and in earlier years offered more limited choice of possible answers to the question about treatment given to newly manufactured pallets. A detailed analysis of the market survey responses in 2015 and 2016 indicates that 5,286,760 newly manufactured pallets were heat treated in 2016 compared with 5,074,728 pallets in 2015 and when put on a like for like company basis, it is an increase of 4.4%. The number of pallets kiln dried in 2016 by companies that returned survey forms was 1,152,420 compared with an estimated 1,468,013 pallets in 2015 which is a 21.4% reduction compared with 2015. One possible reason for this reduction is that most of the newly manufactured pallets that are kiln dried are purchased by pallet pool companies and therefore the reduction is consistent with these companies seeking to maximise the recovery and repair of their pallets rather than buying new ones. (Section 2). Another possible reason is that pallet pool companies may have reduced their purchase of new manufactured heat treated pallets due to trade flows whereby the imbalance in trade between the UK and Europe has enabled them to effectively import pallets under load.

7. Initial End Use Markets for New Pallets

7.1. The initial end use markets for new pallets manufactured in the UK based on an analysis of all the returned forms is given in chart 7.1.

Chart 7.1 Initial End Use Markets for New Pallets Manufactured by TIMCON Members that Took Part in the Survey in 2016



7.2. The chart shows that the construction industry is by far the largest market for new pallets for the companies that returned completed forms and accounted for just under a third of total new pallet production in 2016. The quantities of new pallets being sold to Distributors, and to companies that handle Fast Moving Consumer Goods[1], Chemicals, and Engineering / Automative goods are all very similar and are individually almost half the quantity of pallets that were sold to the construction industry.

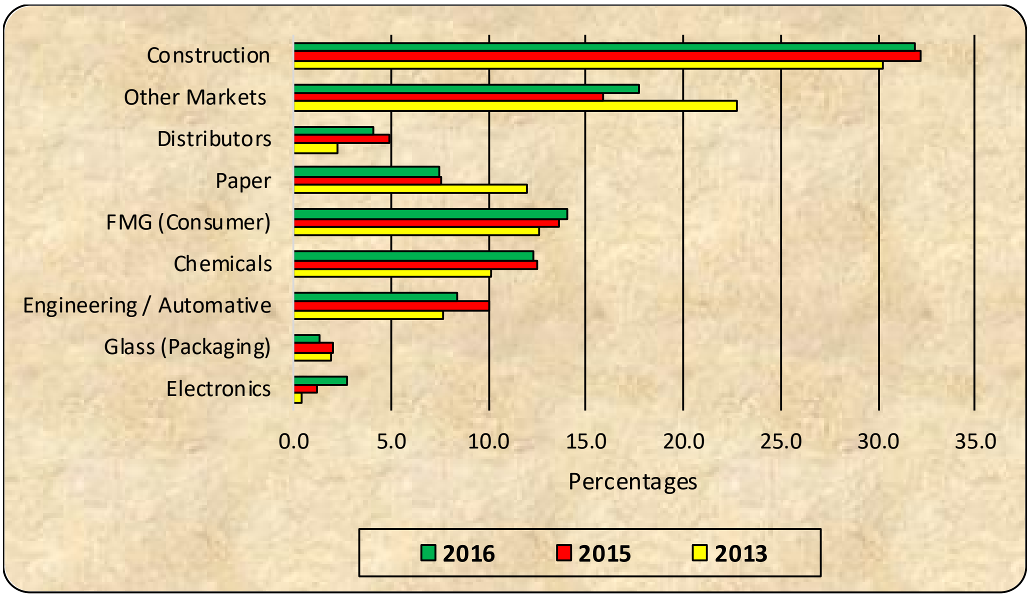
7.3. The majority of the pallets circulating in the pallet pools are used to move goods in the Fast Moving Consumer Goods (FMCG) markets.

Trend Changes in End Use Markets 2013 - 2016

7.4. After adjusting for the different number of companies taking part in the survey, Chart 7.2 compares the end use markets identified in 2016 with those for the same companies in 2013 and 2015.

[1] Fast Moving Consumer Goods are products that are sold quickly and at relatively low cost e.g. non-durable goods such as soft drinks, toiletries, over-the-counter drugs, processed foods and many other consumables.

Chart 7.2 Changes in End Use Markets for New Pallets Produced in the UK between 2013, 2015 and 2016



7.5. There have been no major changes in the end use markets for new pallets in 2016. The construction industry remaining the largest and most important end use market. Any significant differences compared with 2013 are likely to have occurred because of the way one or more companies defined their initial end use markets when completing their market survey forms for 2013 rather than a significant shift in the end use markets themselves.

8. Wood Packaging Market

8.1. Encouragingly, two more TIMCON members involved in packaging completed the 2016 market survey form. Those companies that separately identified their industrial wood packaging activities had an aggregate turnover of £20.2 million in 2016 which compares with a figure of £13.29 million in 2015 - an increase of 52%, but covering two additional companies. The total quantity of wood used in these activities was estimated to be approximately 51,815 cu m compared with 26,000 cu m in 2015 – an increase of 99%. The total number of employees identified specifically with packaging activities in the 2016 market survey was 172 compared with last year's survey results of 89.

8.2. The 2016 market survey related to a total of 9 sites where packaging activities took place. Given that there are some 600 registered sites where packaging activities are potentially taking place, it seems likely that the packaging information captured by this survey is a significant underestimate of the packaging figures for the UK. The overall size of the market cannot be accurately assessed on the information available at this stage.

9. Economic Contributions of the Sector

Economic Contributions of TIMCON Member Companies

9.1. Wooden pallets and packaging are an integral and essential part of the supply chains of many companies involved in moving materials and products throughout the UK and overseas. TIMCON estimates approximately 250 million pallets are currently in circulation in the UK and over 40 million new pallets entered the supply chain. In addition many more pallets enter and leave the UK when goods are imported and exported. The number of wooden pallet based movements of goods in the UK in a year is estimated to be in excess of 1.5 billion.

9.2. As the use of wooden pallets and packaging is so closely linked to the supply chains of companies involving consumer goods, building materials and industrial products, the activities and profitability of TIMCON member companies closely reflect the conditions of the UK economy. This means they are some of the first companies to feel the effects of cost pressures coming up their material supply chains from exchange rate changes and increases in fuel, wood, labour and nail prices, for example. They also face pressures on the prices they can charge for pallets and packaging coming down the supply chains from retailers, distributors and manufacturers and other intermediaries keen to reduce their costs.

9.3. This market research has indicated that TIMCON members had an estimated turnover of £250.8 million in 2016 comprising £255.7 million from manufacturing and repairing pallets (para 3.3) and £20.2 million from packaging (para 8.1). This excludes the turnover of companies manufacturing and repairing pallets that are not TIMCON members and many companies involved in wooden packaging who are also not members of TIMCON but operate one or more of the 600 sites registered under the UK Wood Packaging Material Marking Programme.

9.4. Based on the completed forms returned by TIMCON members for 2016, they have some 87 different sites from which they operate (83 in 2015) and if it is assumed that the other TIMCON members who didn't return forms had just one site, then the estimated number of sites in the UK that TIMCON members operate is 128.

9.5. The TIMCON member companies that supplied information for the 2016 survey employed a total of 2,671 people directly and in outsourced pallet repair operations. This is an increase from the figure of 2,559 people in the 2015 market survey report because more pallets are being repaired, which is more labour intensive, and more companies involved in packaging sector returned survey forms. The figures have been adjusted to avoid double counting. An estimate of the total turnover of all TIMCON members in 2016 has been made based on the estimated total turnover of all TIMCON member companies and the estimated turnover per employee from the survey companies and this indicates that the total employment generated by all TIMCON members in 2016 was approximately 3,022 which is a slight increase on 2,944 people in 2015.

9.6. Of the estimated 3,022 people employed by TIMCON members 43.7% are estimated to be involved in new pallet production, 53.3% with repairing pallets and 3% in packaging. The number of people involved in packaging is undoubtedly an underestimate because only a few companies involved in packaging have returned survey forms.

Office for National Statistics Sector Estimates

9.7. Table 9.1 compares the estimates of turnover and pallet production numbers based on the findings of this 2016 market assessment for the UK with the estimates taken from the ProdCom statistics for the same parameters produced by the Office for National Statistics (ONS).

Table 9.1 Comparison of ONS Estimates for Sector with Estimates prepared for this 2016 Market Assessment

	ONS 2016 Estimates	2016 TIMCON Market Assessment for UK	2016 Market Assessment for UK as % of ONS Estimates
Sales Value of New Pallets / (£ million)	279.9	268.1	- 4.2%
Number of New Pallets Sold (millions)	45.6	42.5	- 6.8%
Sales Value of Repaired[1] Pallets (£ million)	111.92	90.2	- 19.4%
Number of Pallets Repaired (millions)	34.0	41.4	+ 21.8%

Footnote: [1] ONS use the term 'refurb pallets' and not repair.

9.8. The differences in the sales values and numbers of new pallets sold are small given that the two estimates have been made using different methodologies. This closeness and the degree of consistency, when also taken with the estimates made for 2015 (see Annex 2), suggests a degree of robustness for the survey methodology and estimates made.

9.9. The differences in the estimates of the value of pallet repairs and the number of pallets repaired are larger and are of the order of 20%. Differences in the number of pallets repaired and their repaired value also occurred in the estimates of these two parameters at the time when TIMCON's 2015 market report was produced. The ONS subsequently revised their figures sometime during 2017 which reduced the differences (See Annex 2), but a notable difference still exists in the estimated turnover for repairing pallets.

9.10. There are three possible explanations for this divergence. One is that the size of the differences for 2016 shown in table 9.1 may diminish as ONS may revise their estimates as more data comes in as they did in 2017. Another is that it could be caused by methodological differences as ONS data collection is based on information from a random sample of companies that repair pallets based on turnover. This would not take into account the structure and organisation of pallet repairs in the UK where a relatively few companies undertake a high volume of repairs for a few organisations and account for over 50% of the pallets repaired annually in the UK. These high volume operational prices are captured by the TIMCON members survey, but perhaps only a few are in the ONS' random sample for collecting their national statistics based just on company turnover. A third possible explanation for some of the difference could be a lack of clarity or misunderstandings relating to what is meant by 'repaired' pallets and 'sorted/inspected' pallets. The conclusion that can be drawn for this is that the ONS estimate for the sale price of repaired pallets in the UK is likely to be an overestimate rather than there being a mistake in the figures obtained through this market analysis. The Fédération Européenne des Fabricants de Palettes et Emballages en Bois (European Federation of Wooden Pallet and Packaging Manufacturers) (FEFPEB) have experienced similar discrepancies between the figures reported by official government agencies and national trade associations on the size of the pallet and packaging market throughout Europe.

UK Timber Production & Consumption of Pallets and Packaging Material

9.11. It is estimated from this market assessment that 1,024,608 cubic metres of British grown timber was used in the pallet and packaging industry in the UK in 2016 which is a 15.5% increase on the 887,000 cubic metres in 2015. The Forestry Commission's annual sawmill survey estimates that approximately 30% of the production from the larger UK sawmills is sold for use in the pallet and packaging industry. If this percentage is applied to the estimated 3.67 million cubic metres of sawn timber produced by UK sawmills in 2016, it would indicate that the UK pallet and packaging industry used approximately 1.10 million cu metres of UK produced sawn timber (Forestry Commission Forestry Statistics 2017). The estimate of 1,024,608 cubic metres from this market analysis is within 6.9% of the Forestry Commission's estimate.

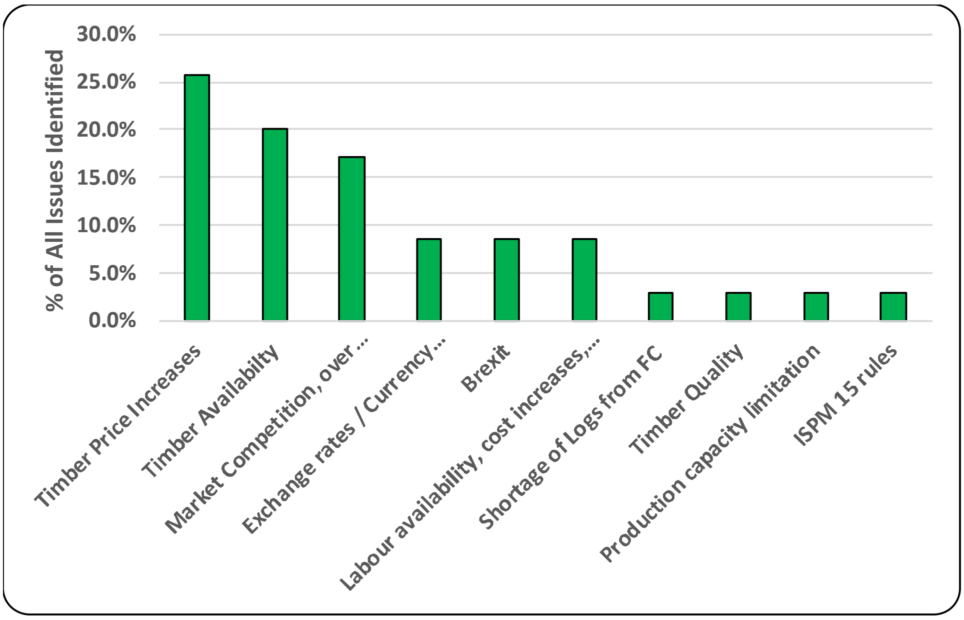
9.12. Both figures are estimates and are relatively close given that both figures have been reached using different methodologies and assumptions. In the case of the Forestry Commission's estimate their figure is based on an estimated percentage figure developed from production in the larger sawmills which may not be a representative sample of production in all sawmills in the UK in 2016.

10. TIMCON MEMBERS' OUTLOOK FOR YEAR AHEAD

Issues Facing TIMCON Member Companies

10.1. TIMCON members were asked in the survey what they thought are the three biggest issues facing their company in 2017 /18. Responses were left up to the responders rather than asking them to select three from a list of pre-determined options to avoid restricting answers. Some of the answers given were very specific such as timber price increases. Others were less so, but for purposes of analysis some have had to be grouped under a single heading. For example, 'competition from much larger companies', 'over-capacity in new pallets', 'customers concentrating on price rather than quality', 'unrealistic price pressures from competitors buying market share' have all been placed under the heading 'Market Competition' in chart 10.1. 'Brexit' and 'exchange rate fluctuations' could be argued to be closely linked, but they have been kept separate in chart 10.1. Labour Availability in chart 10.1 covers its actual availability and 'cost increases such as transport (fuel price increases and driver shortages), wages (National Living Wage increases)', labour shortages and 'Logistical transport availability / capacity'.

Chart 10.1 Importance Attached to Issues in 2017 /18 as a Percentage of All Issues Chosen as the Three Most Important to them Identified by TIMCON Member Companies Returning 2016 Market Survey Forms



10.2. While the issues themselves may not come as a surprise to TIMCON members, the survey has identified a measure of their overall relative importance to TIMCON members. The greatest concern was over timber price increases, followed by timber availability. Both issues could be considered as being to an extent related. Wood accounts for about 70% of the cost of making a pallet, and pallet and packaging companies source approximately 70% of their sawn timber from sawmills in the UK. The prices of standing timber and sawlogs grown in the UK continued to rise in 2016 which has resulted in sawmills in the UK needing to increase their prices for pallet and packaging material. In this situation in the past, companies could try to alleviate the price increase by importing material but the devaluation of sterling and the consequent higher cost of timber imports from Baltic countries may have reduced their pricing and sourcing options.

TIMCON Member Companies' Turnover Expectations

10.3. TIMCON member companies were asked what increase or decrease in sales they expected in the year ahead. Of the companies that responded, that account for about 75% of TIMCON members, 69.2% (54.6% in 2015) of responding companies expected turnover to grow in the year ahead by various amounts ranging from +1% to +10%, another 30.8% (36.4% in 2015) expected no change in sales and there were no companies (9% in 2015) that expected a fall in sales. The weighted average expected total net increase in sales in the year ahead was 5.0% for responding companies. Much of this anticipated increase in turnover may be based on the recognition that the increasing price of wood will inevitably result in an increase in the overall turnover of their companies rather than being based on an expected increase in market demand for pallets and packaging.

11. CONCLUSIONS

11.1. This market assessment has provided some detailed information on the pallet and packaging industry in the UK in 2016. The key findings are:

- The estimated number of pallets manufactured in the UK increased by 5.7% compared with 2015 and the number of pallets repaired by 6.2% over the same period.

- The estimated turnover from manufacturing new pallets fell by 4.8% compared with 2015, but the estimated turnover from pallet repairs rose by 7.8% for the same period.

- The average price of new pallets fell by 5.8% between 2015 and 2016. This reduction in average price at a time of rising wood prices could be due to a number of factors such as changes in TIMCON members' pallet mix, changes in pallet design to meet specific purposes and cost pressures on pallet manufacturers.

- The amount of wood used by companies that returned survey forms fell by 2.5% between 2015 and 2016 although more pallets were manufactured and repaired. However, it is estimated that the amount of wood sourced from the UK by pallet and packaging companies in the UK rose by 15% because companies sourced more wood from the UK, and because of a small change in the way the figure is calculated..

- TIMCON members anticipate a weighted average increase in turnover of 5% in the year ahead, but this anticipated increase in turnover may be based on a recognition that the increasing price of wood will inevitably result in an increase in the overall turnover of their companies rather than an increase in market demand for pallets and packaging.

11.2. The estimated figures given in this report match up closely with some key parameters for the wood pallet and packaging industry that have been developed using different methodologies. The only significant differences are in the figures for the number of pallet repairs and the related estimated turnover figures.

11.3. The figures given in this report depend on estimates and therefore they cannot be regarded as precise. If more companies contributed information for this type of market assessment, the accuracy of the results would be improved.

11.4. Information on wood packaging activities in this report only relates to TIMCON members who are involved with these activities and who provided information for 2016. The scale and economic significance of wood packaging activities in the UK is therefore unknown. The fact that there are some 600 sites registered under the UK Wood Packaging Material Marking Programme would suggest that in aggregate these companies and their activities may be of some potential economic significance.

11.5. One of the important results of this market assessment will again be to provide those outside the wood pallet and packaging industry with a greater understanding and recognition of its importance to the economy.

John Clegg Consulting Ltd

February 2018

ANNEX

1. MARKET RESEARCH OBJECTIVES & METHODOLOGY

Market Research Objectives

1.1. The overall aim of the market research is to estimate the value and quantities of wood pallets manufactured and repaired in the UK and the quantities of wood used in the pallet and packaging industry. More specifically the aim is to:

1. Estimate the value and/or quantity of:
    - new pallets manufactured and repaired in the UK
    - heat treated (ISPM15) pallets
    - kiln dried pallets
    - primary markets for new pallets
2. Estimate timber consumption by pallet manufacturers in the UK, including estimates of timber supply by country.
3. Provide an estimate of how the industry might perform in the coming year.

Research Methodology

1.2. The methodology used in researching the market in 2016 is very similar to that adopted for the previous six surveys conducted for TIMCON and the Forestry Commission. Using the same methodology has the added benefit of allowing meaningful comparisons to be made between the results presented in this report and previous ones.

1.3. The research has been conducted by asking TIMCON members to complete and return questionnaires that had been emailed out to them with a covering email following a separate earlier email from TIMCON's President asking them to support this market research work. This overall approach was taken rather than using a stratified sampling method because of the diversity and scale in wood pallet making activities of companies in the sector and in the way they operate. Separate questionnaires, based on ones designed for previous surveys, were used for pallet producing companies and companies that operate pallet pools.

1.4. The survey data was supplemented by the addition of data from the TIMCON membership database which allowed estimates of turnover (among other features) to be made for the entire TIMCON membership – but specifically, for manufacturing members of TIMCON, as opposed to supplier members.

1.5. The calculation of turnover of TIMCON members was made by taking the mid-point of each turnover band and simply aggregating the turnover of companies in each band to arrive at a notional total of turnover for the TIMCON membership.

1.6. Where companies responded to the survey, their individual actual data was then reintroduced to the analysis, with the mid-point turnover figure for these individual companies withdrawn and replaced by the actuals provided. Consequently, a highly representative turnover figure could be derived, on the basis that some companies would fall below the mid-point turnover mark while others would be above that mark.

1.7. This process of 'adding-back' individual survey results to the mid-point aggregate turnovers for each band has resulted in good estimates from which to establish the detailed analysis that followed.

1.8. The availability of data from the six previous studies, revisions of data by key TIMCON members and information supplied by newly responding companies has continued to allow a better estimate of industry turnover.

Research Programme

1.9. The programme of work included the following tasks:

- Task 1: Revising and re-formatting questionnaires
- Task 2: Obtaining TIMCON membership records for conducting the survey
- Task 3: Writing and seeking approval for the covering email to accompany the survey questionnaire
- Task 4: Building the survey and analysis database to be used in the dispatch and receipt of questionnaires
- Task 5: Emailing the questionnaires to TIMCON members
- Task 6: Receipt, checking and input of data to the analysis database
- Task 7: Sending out reminder emails to companies that did not respond
- Task 8: Analysis and interpretation of results
- Task 9: Writing the draft report
- Task 10: Amending the text to take account of comments from TIMCON
- Task 11: Production of final report

1.10. The last task is to present the results to TIMCON members at their AGM in March 2018.

2. Comparison of Revised ONS Estimates of 2015 New Pallet Production & Repairs with TIMCON's 2015 Market Survey Estimates

2.1 The table in this annex has been taken from TIMCON's 2015 market survey report and the revised ONS estimates for 2015 have been added to it. The figures in the table show that the two sets of estimates now come very close apart from the estimate of turnover resulting from pallet repairs. This finding suggests the results of the 2015 TIMCON market survey can be taken as being very robust.

Comparison of Revised ONS Estimates of 2015 New Pallet Production & Repairs with TIMCON's 2015 Market Survey Estimates

	ONS 2015 Estimates	ONS 2015 *Revised* Estimates	2015 Market Assessment for UK	2015 Market Assessment for UK as % of ONS Original Estimates	2015 Market Assessment for UK as % of ONS *Revised* Estimates
Sales of New Pallets / turnover (£ million)	287.8	288.7	281.57	-2.2%	-2.5%
Number of New Pallets Sold (millions)	47.3	48.0	42.26	- 10.6%	- 12.5%
Sales of Repaired[1] Pallets (£ million)	146.3	113.8	83.7	- 42.8%	- 26.5%
Number of Pallets Repaired (millions)	44.1	35.0	39.0	-11.6%	+ 11.4%

Footnote: [1] ONS use the term 'refurb pallets' and not repair.