The UK Wood Pallet & Packaging Market in 2017

A MARKET RESEARCH REPORT PREPARED FOR

TIMCON

&

THE FORESTRY COMMISSION

BY

JOHN CLEGG CONSULTING LTD

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Forestry Commission

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REPORT CONTENTS

FORWARD PROVIDED BY TIMCON

EXECUTIVE SUMMARY

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FOREWORD

First and foremost as always, I would like to thank the Forestry Commission on behalf of all of us for their continued support with this comprehensive overview of the industry.

This year's report continues to show how important our industry is for the forestry sector including forest owners and sawmills. Once again, 2017 saw an excess of 1 million cubic meters of UK timber used and over 1.5 million cubic meters in total.

Albeit that new manufacture dropped slightly, it is extremely encouraging to see that repair work has increased again by 7.3% meaning that this sector of the industry has grown by circa 15% since 2015. This confirms that the industry and pallet users are looking to extend the life cycle of their pallets and are broken up into other products such as, chips for the board industry, animal bedding and of course biomass, as a last resort. The findings of this report are again going to prove very helpful in discussions with various bodies regarding packaging waste recovery targets and of course Wood PRN pricing that will be going on throughout the coming months. I stated in last years' foreword that *"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."* I cannot stress enough how useful and important these reports are in these discussions and when lobbying with government departments. We have actually had feedback in recent months from DEFRA representatives stating how "great it is to see a national association having such knowledge of its own industry."

Finally as always, I would like to thank all the members on behalf of TIMCON and the Forestry Commission who submitted questionnaires this year and would urge you to submit your 2018 numbers in a timely manner when John Clegg contact you later in the year and for those of you who have not contributed previously, please reconsider as the feedback does really help your industry.

Special thanks to Guy Watt of John Clegg Consulting Ltd for doing all the work and for ensuring that individual companies' submissions are handled professionally and in complete confidentiality.

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 2017 are that:

- The estimated number of new wood pallets manufactured in the UK was 41.4 million; which was a decrease of 2.6% on 2016. The estimated number of wood pallets repaired was 44.4 million; an increase of 7.3% compared with 2016.

- The manufacturing of new wood pallets in the UK is estimated to have generated a total turnover of £288.4 million; an increase of 7.5% compared with 2016. The total estimated turnover for all companies from repairing wood pallets in the UK is estimated to have been £83.3 million; a decrease of 7.6% compared with 2016. This decrease in the value of turnover repairs may possibly be due to the way some companies have chosen to answer the survey question. The total turnover of all companies involved in wood pallets and packaging in the UK in 2017 is estimated to have increased by 3.7% to £358.3 million in the year from 2016. In addition, there is a very significant annual turnover in the pallet pooling sector from renting pallets which is not recorded in these figures.

- The estimated sale price of new pallets for all TIMCON member companies providing information was £7.0 per pallet which is a 10.9% increase from 2016/17. This increase is likely to be mainly due to the significant increases in wood prices. The average unit costs of inspecting and/or repairing a pallet varied from £1.52 to £3.15 per pallet.

- TIMCON members contributing information are estimated to have used approximately 767,581 cubic metres of wood for pallets and packaging compared with 688,297 in 2016 but the totals are not directly comparable as there was a new contributor to the survey in 2017. Of this total, 66.4% was UK grown timber compared with 71.9% in 2016. In total it is estimated that the UK pallet and packaging industry used 1,525,096 cubic metres of wood from all sources in 2017 and of this total 1,012,664 cubic metres was timber grown in the UK which is a very similar volume to 2016.

- TIMCON member companies who provided information manufactured 20.87 million new pallets and of these 64% were untreated, 14% were heat treated and 22% were kiln dried and heat treated. 36% of all newly manufactured pallets were therefore given some type of heat treatment compared with 25% in 2016 which is an 11% increase, and 22% were kiln dried and heat treated compared with 17% in 2016.

- The main initial end use market for new pallets manufactured by TIMCON members who returned forms was the construction industry which took an estimated 30% of the total. Other significant initial end use markets were Fast Moving Consumer Goods (FMCG) (21%), Chemicals (8%) and the Engineering and Automotive Industries (10%). Most of the pallets in the pallet pools were used to move FMCGs. The percentage going to Distributors was down from 18% to 3% but the percentage going to Other Markets was up 10% so the change is most likely to be due to the way markets have been classified by one or more survey participant.

- 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 £21.5 million which is up 6.4%. The estimated quantity of wood used was 49,242 cubic metres which is down 5% compared with 2016 and the number of people employed was 157 which is an 8.7% reduction from 2016.

- All TIMCON members are estimated to have employed directly, or indirectly in outsourced activities, 3,000 people, which is 0.7% down on 2016, at a total of 128 different sites throughout the UK.

- Analysing the information for all TIMCON member companies that returned forms, including the pallet pool companies, 30.3% of their employees were involved in new pallet production, 63.8% of them in repairing pallets and 5.8% in packaging. This employment activity profile is thought likely to be broadly representative of the whole pallet and packaging sector.

- TIMCON member companies that provided information in 2017 forecast a weighted increase in turnover in 2019 of 7.6% with 28.1% of survey participants expecting no change or a decrease.

ABBREVIATIONS

Cu m	Cubic metres
FC	Forestry Commission
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 eighth 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 pallet 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 to be 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 pallet and packaging industry uses some 24% to 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 wood pallet industry comprises many small firms, a good number of middle-sized firms, larger firms and a number of very large firms. 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); the programme that provides the means of regulating the manufacture, repair and re-manufacture of ISPM15 compliant wood packaging material in the UK and is administered by TIMCON.

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. The total number of separate pallet manufacturing, packaging and pallet pooling companies in the UK that were members of TIMCON in 2017 for the purposes of this market survey remained the same as 2016. Although the total remained the same, there were some changes in the composition of TIMCON's membership due to some more companies joining TIMCON and some being lost due to changes in the corporate structure of the sector and not because companies have given up their membership of TIMCON. One new member took part in the survey.

1.10. The overall response rate was 26% which is a reduction from last year's 37%. This reduction is due to two companies not returning survey forms this year and due to some structural changes in TIMCON's company membership. Although it is disappointing that the response rate is not higher, the companies that did respond include all the largest ones and so the results can reasonably be taken as reflective of the activities of the whole sector.

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 2017 given in this report are based on a survey of TIMCON's members that was conducted in 2018.

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

Manufacture of New Pallets

2.1. The companies that completed and returned questionnaires for 2017 manufactured 20.87 million new pallets which is a small increase of 1.7% compared with the 20.54 million new pallets manufactured in 2016. An analysis of this increase shows that of the companies that returned questionnaires in previous years, half experienced an increase in production and half a decrease. The increase was also due to the addition of data from a company contributing to the survey for the first time.

Pallets Repaired

2.2. The companies returning the survey forms also repaired an estimated total of 29.4 million pallets compared with 27.2 million pallets in 2016. This is an increase of 8.1% and follows an increase of 4.6% in 2016. These increases in the numbers of pallets repaired suggest that users are increasing their focus on keeping pallets in use by repairing rather than replacing them with new ones. This might be because it is a cheaper option given the increasing cost of wood, and an increased awareness by TIMCON members and customers of the need to meet Defra's targets for recycling wood packaging.

Estimates for All TIMCON Membership

Methodology

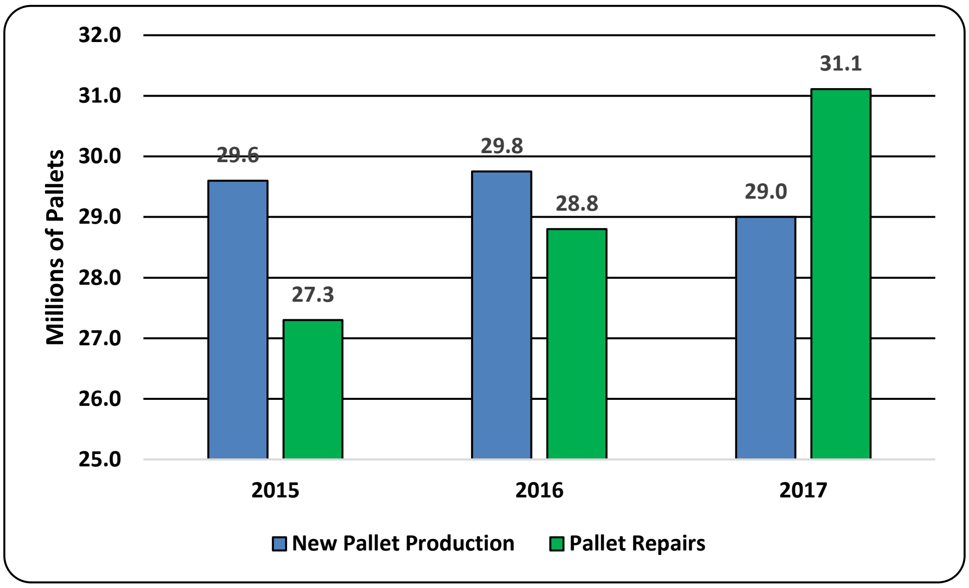
2.3. An estimate of the total number of pallets manufactured and repaired by all TIMCON members in 2017 has been made using the same methodology as in previous years. This was done by supplementing the figures obtained from the returned survey forms with estimates of turnover based on TIMCON's membership categories for those members who didn't return questionnaires. The number of companies included in the database is left unchanged to provide consistency and avoid distortions from companies leaving or joining the sector. Overall it is estimated that the member companies that completed and sent in forms accounted for 71.9% of all new pallets manufactured by TIMCON members in 2017.

Manufacture of New Pallets & Repairs Carried out by TIMCON Members

2.4. Using the approach described above the estimated total number of new pallets manufactured by all TIMCON members in 2017 was 29.0 million (29.75 million in 2016) which is a 2.5% decrease. The number of pallets that were repaired is estimated to have been 31.1 million (28.8 million in 2016) which is a 7.3% annual increase. Overall it is estimated that the TIMCON member companies that completed and sent in forms accounted for 87.6% of all the pallets repaired by TIMCON members in 2017.

2.5. Chart 2.1 shows the estimated total number of pallets manufactured and repaired between 2015 and 2017 by TIMCON members.

Chart 2.1 Estimated Numbers of New Pallets Manufactured & Repaired by All TIMCON Members between 2015 and 2017



2.6. The chart shows that there has been a fairly steady increase in the estimated number of pallets being repaired annually between 2015 and 2017; the pallet pool companies undertake or organise most of the pallet repairs, but some other companies are starting to do more. The chart also suggests that the number of pallets being repaired may be starting to exceed the number of new pallets being manufactured.

2.7. The reduction in the number of new pallets being manufactured may reflect present economic conditions and uncertainties due to Brexit, the start of a wider trend on the part of pallet manufacturers and their customers to try and increase the number of pallets that are repaired rather than discarding them after use to improve their environmental credentials, and an awareness of the need to meet future recycling targets set by Defra.

Estimates for UK

Estimated Number of New Pallets Manufactured

2.8. Based on the information provided by TIMCON member companies that completed and returned questionnaires, the total number of new pallets they manufactured in 2017 was 20.87 million. The estimated production of new pallets by all TIMCON members in 2017 is estimated to have been 29.0 million. TIMCON estimate that their members accounted for 70% of all new pallets manufactured in the UK in 2017 which gives an estimated total production of new pallets in the UK in 2017 of 41.4 million (42.5 million in 2016) which is a decrease of 2.6% compared with 2016.

Estimated Number of Pallets Repaired in The UK in 2017

2.9. Using the information provided by TIMCON member companies that completed and returned questionnaires, the total number of pallets they repaired in 2017 was 29.4 million. The total number of pallets repaired by all TIMCON members in 2017 is estimated to have been 31.5 million (28.8 million in 2016). TIMCON estimate that their members accounted for 70% of all pallet repairs in the UK in 2017 which gives an estimated total for the number of pallets repaired in the UK in 2017 of 44.4 million which is a 7.3% increase from the 41.4 million pallets repaired in 2016.

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 2017 is estimated to have been £194.22 million. This is an increase of 4.9% from the figure of £185.2 million in 2016. Of this total the manufacturing of new pallets is estimated to have accounted for £141.77 million of the turnover which is an increase of 10.9% from £127.8 million in 2016. This increase probably reflects some increase in activity for some companies but is more likely to be due to the increasing cost of wood, other materials and wages that will have been experienced by most, if not all companies. The turnover from repairing pallets is estimated to have been £52.50 million which is a decrease of 8.5% from the estimated total of £57.4 million in 2016. One possible explanation is that companies have interpreted the question this year, and in previous years, in different ways with some companies only providing the total cost of the actual repairs while other companies chosen to include handling and inspection costs as well. Other companies have experienced some small increase in turnover for pallet repairs.

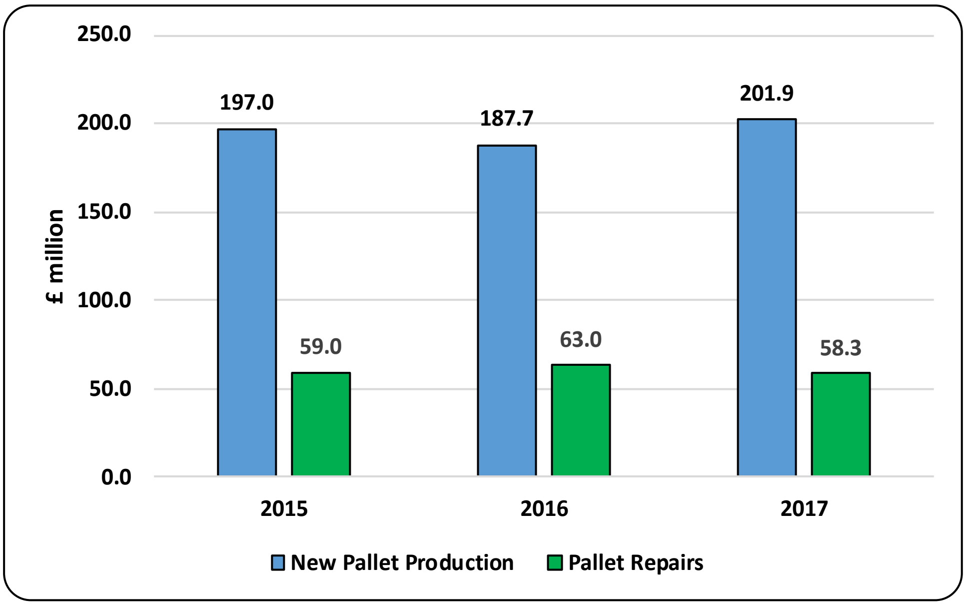
Estimated Turnover of all TIMCON Members

3.2. An estimate of the total turnover of all TIMCON members in 2017 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 estimated turnover from the manufacture of new pallets in 2017 is estimated to have been £201.9 million which is an increase of 7.5% on their turnover of £187.7 million in 2016 and the turnover of TIMCON members repairing pallets has decreased by 4.8% to £58.3 million from £63.1 million in 2016. The total turnover of all TIMCON members is therefore estimated to be £260.2 million compared with £250.8 million in 2016; an increase of 3.75%

3.3. Although the turnover of all TIMCON member companies manufacturing new pallets is estimated to have increased by 7.5%, the number of new pallets they produced fell by 2.5% or approximately 750,000 pallets (para 2.4). This increase in turnover is most likely to be because of increased material costs rather than a significant increase in economic activity. In contrast the increased turnover for all TIMCON companies repairing pallets is likely to be mostly because more pallets are being repaired (Chart 2.1) rather than any increases in material cost as new materials only make up a small percentage of repair costs.

3.4. The estimated turnover of all TIMCON members from manufacturing new pallets and repairing pallets in 2015, 2016 and 2017 is shown in chart 3.1

Chart 3.1 Estimated Total Pallet Manufacturing & Repair Turnover Figures for All TIMCON Members for 2015, 2016 and 2017



3.5. The percentage of turnover relating to repairs was 22.4% in 2017, 25.2% in 2016 and 23% in 2015.

Estimated Turnover Relating to New Pallet Production & Repairs in the UK in 2017

3.6. The estimated turnover from new pallet production for all TIMCON members in 2017 is £201.9 million (para 3.2) and TIMCON estimate that their members accounted for 70% of all the new pallets produced in the UK in 2017 which gives an estimated total turnover for new pallet production in the UK in 2017 of £288.4 million compared with £268.1 in 2016 – an increase of 7.5%.

3.7. The turnover of all TIMCON members involved in pallet repairs is estimated to have been £58.3 million in 2017 (para 3.2). TIMCON estimate that their members accounted for 70% of all pallet activity in the UK in 2017. 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 £83.3 million down from £90.2 million in 2016 – a decrease of 7.6%.

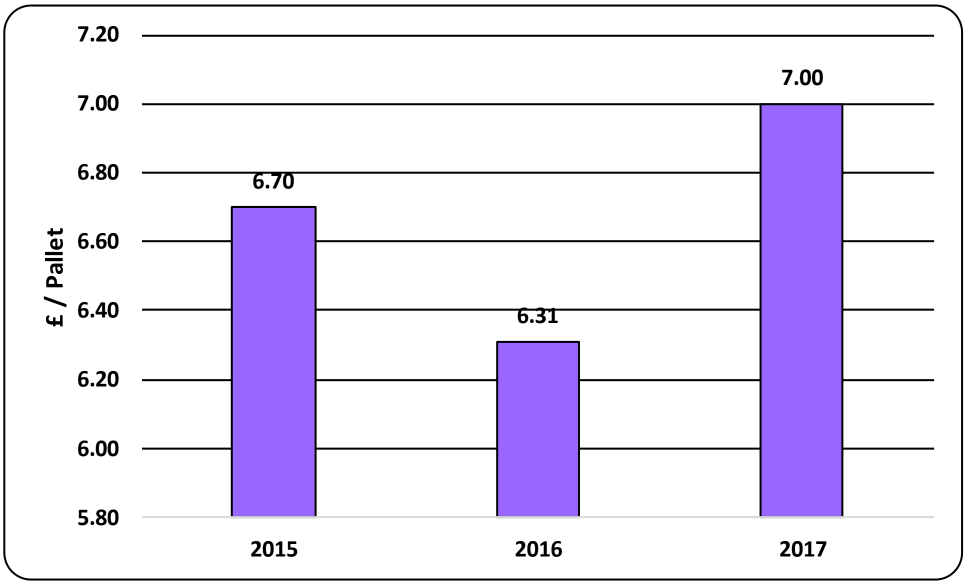
3.8. The estimated total turnover from manufacturing new pallets and repairing existing ones is estimated to have been £371.7 million in 2017 which is a 3.7% increase on the estimated figure of £358.3 million for 2016.

4. Average Unit Sale and Pallet Repair Prices

4.1. Based on the figures given in para 2.4 and 3.2 the estimated unit selling price of new pallets for all TIMCON members in 2017 was £7.0 per pallet. This is an increase of 10.9% in the average price that all TIMCON members received for new pallets compared with 2016. This significant increase in the average price of a new pallet is likely to be largely due to an increase in manufacturer's costs for materials and wages and particularly the cost of wood.

4.2. Chart 4.1 shows how the estimated average sale price of new pallets has varied since 2015.

Chart 4.1 Average Unit Sale Price for New Pallets for All TIMCON Members 2015 – 2017



4.3. The average unit cost of repairing a pallet ranged from £1.52 to £3.15 per pallet.

5. Wood Used in Pallet Production & Repairs

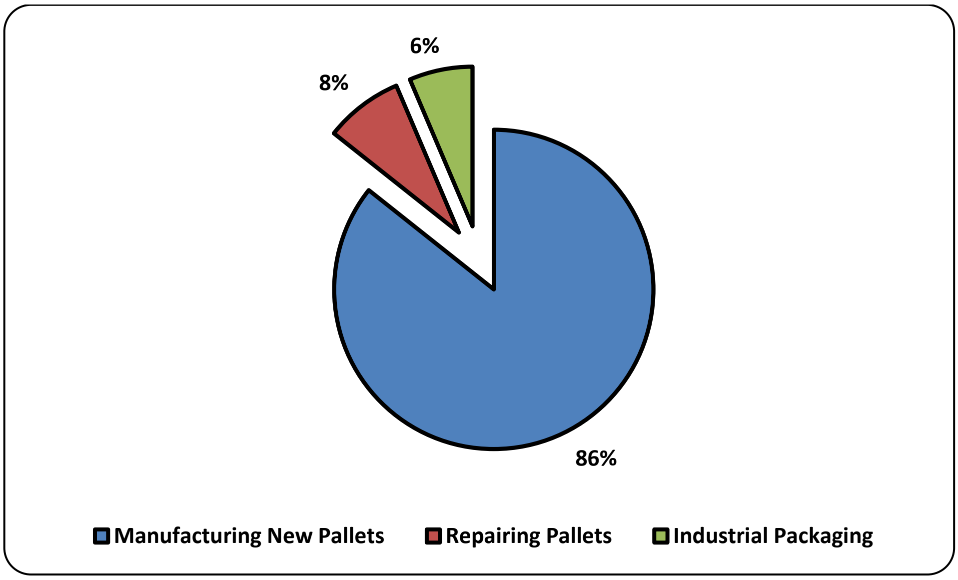
Survey Results

5.1. The pallet and packaging companies that completed and returned questionnaires for 2017 used a total volume of 767,581 cu m of wood of all types compared with 688,297 cu metres of wood used in 2016. The two figures are not directly comparable on a like-for-like basis as the TIMCON members who responded are not exactly the same.

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.

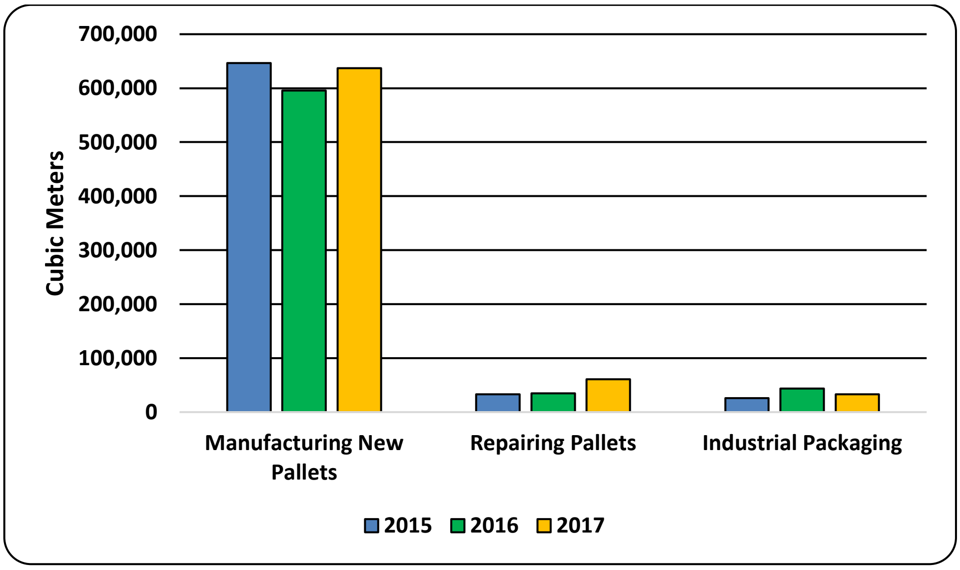
Chart 5.1 Uses of Wood by TIMCON Member Companies in 2017 based on Survey Returns



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. The quantity of wood used by pallet and packaging companies that returned survey forms in 2015, 2016 and 2017 increased by 8.3% in 2017 compared with the amount of wood used in 2016. Chart 5.2 shows the quantities of wood used in manufacturing new pallets, repairing them and used in packaging over the three-year period.

Chart 5.2 Comparison of the Amount of Wood Used in Pallet Manufacturing & Repair Operations and Packaging between 2015 and 2017 by TIMCON Members who took part in Surveys in all Three Years



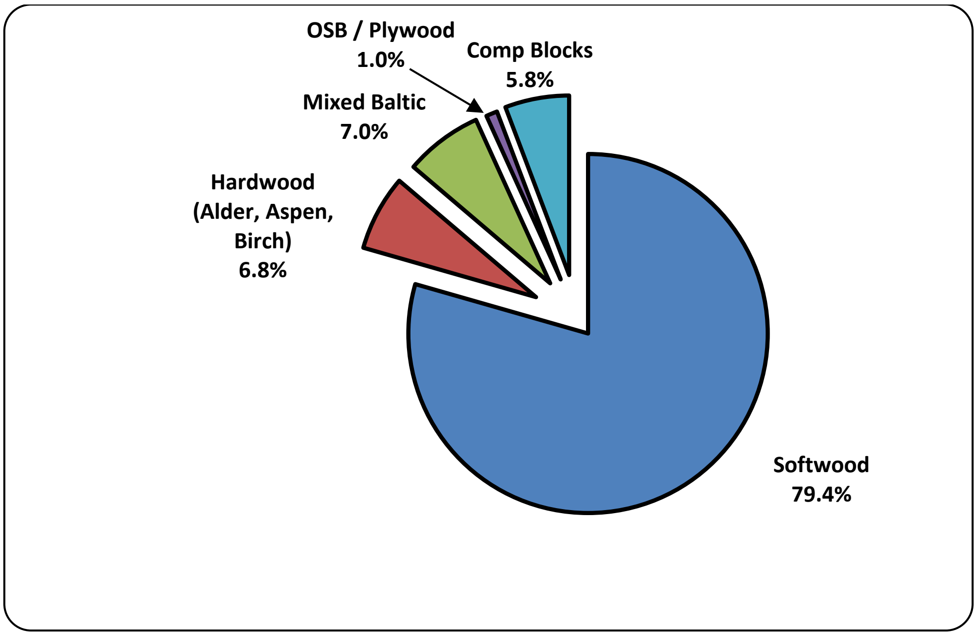
5.5. Most wood is used in manufacturing new pallets, and as there was only a 1.69% increase in the quantity of pallets produced in 2017 compared with 2016, it therefore looks as if the 2016 figure may be exceptional for some reason, such as wood purchases made at a year end.

5.6. The quantity of wood used in repairing pallets has increased and this reflects the 8.37% increase in the quantities of pallets being repaired in 2017.The quantity of wood used in packaging by companies that have taken part in the survey for the last 3 years is relatively small. The reduction in 2017 is explained by variations in different companies packaging material activities.

Types of Wood Used

5.7. The types of wood being used in manufacturing and repairing pallets, and packaging in 2017 by TIMCON member companies that returned market survey forms are given in chart 5.3. The generic term of 'Hardwood' covers the faster growing, light demanding species such as Alder, Aspen and Birch.

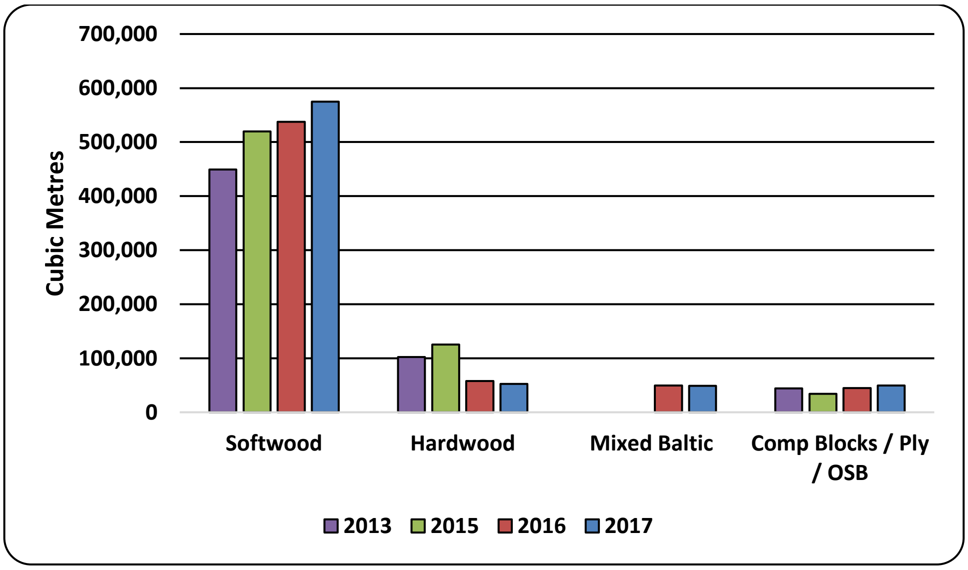
Chart 5.3 Types of Wood being Used by TIMCON Member Companies in 2017 based on Survey Returns



5.8. The chart shows that the majority of the wood used in 2017 was softwood (79.4%).

5.9. The different types of wood that are being used by companies that have taken part in previous market surveys from 2013 are shown in Chart 5.4. In market surveys prior to 2016 OSB, plywood and composite blocks were all combined into one single category rather than being separated out and this has been continued to help identify trends, and Mixed Baltic was added as a separate category in 2016.

Chart 5.4 Quantities of Different Types of Wood Used between 2013, and 2017 by TIMCON Members Taking Part in the Market Survey in all Four Years

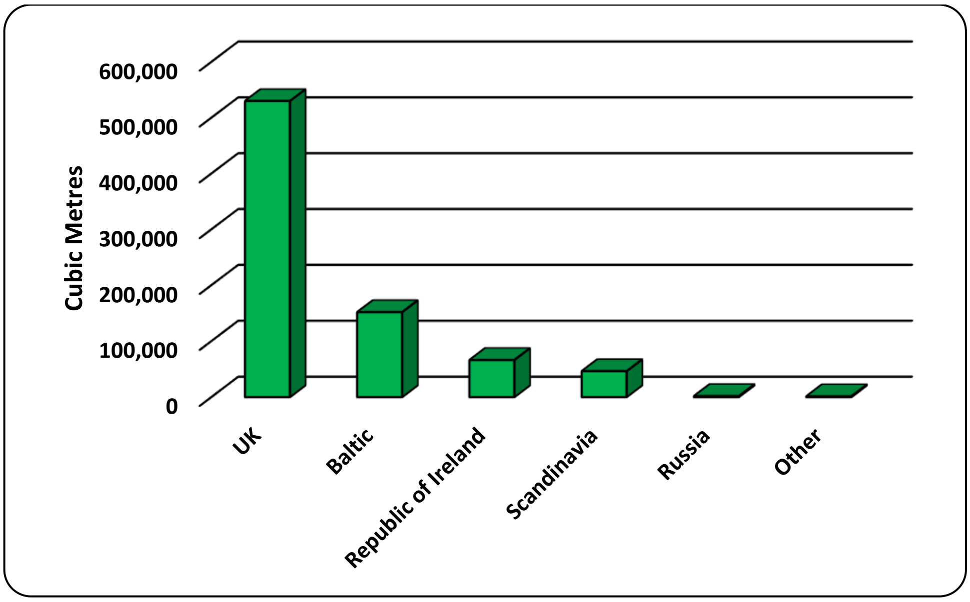


5.10. The chart shows that the use of softwoods has increased steadily since 2013, and the reduced use of imported hardwoods, such as Alder, Aspen and Birch, that occurred in 2016 continued in 2017. There has been little significant change in the quantities used of Mixed Baltic timber and composite blocks, plywood & OSB.

Sources of Wood Used

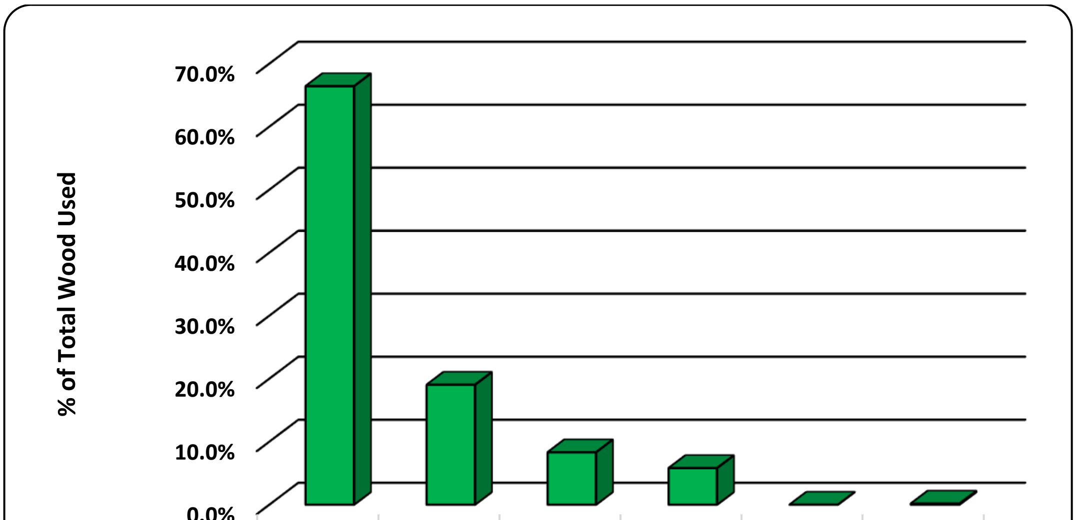
5.11. The sources of the wood used by the pallet and packaging industry in 2017 based on survey returns are shown in chart 5.5.

Chart 5.5 Sources of Wood used by TIMCON Member Companies in 2017 based on Survey Returns



5.12. These quantities in Chart 5.5 are expressed in percentage terms in Chart 5.6.

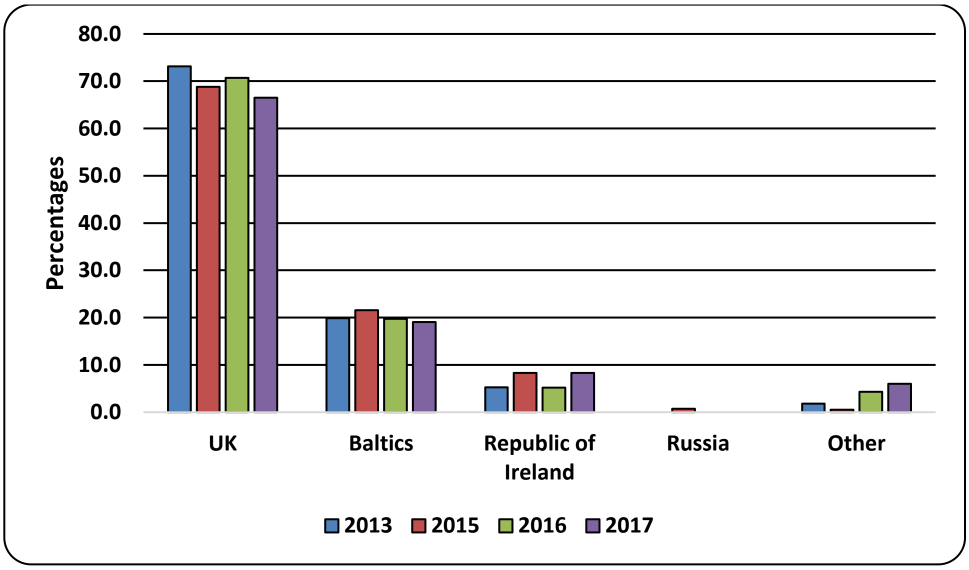
Chart 5.6 Sources of Wood used by TIMCON Member Companies in 2017 based on Survey Returns Expressed as a Percentage of Total Used



	UK	Baltic	Republic of Ireland	Scandinavia	Russia	Other
Source of Wood	66.4%	19.0%	8.3%	5.8%	0.0%	0.2%

5.13. As the quantities of wood used by companies who returned forms since 2013 has varied, direct comparisons of total quantities coming from different locations on a year-by-year basis can therefore be misleading. Instead annual quantities have been expressed as a percentage of the total of all wood used by the companies in the sample and are shown in Chart 5.7.

Chart 5.7 Sourcing of Wood Used in Pallet Manufacturing and Packaging by TIMCON member Companies Returning Forms from 2013 expressed as Percentages of Total Annual Use



5.14. This chart shows that the amount of timber sourced in the UK has been reducing slightly in percentage terms. Analysis of individual company returns shows that in 2017 this has been at the expense of increased timber purchases from the Republic of Ireland and Scandinavia. This might be because the price differential between UK and overseas sourced timber may have lessened on occasions due to currency and timber price movements.

Estimates for All TIMCON Membership

5.15. The companies that provided information estimated they used 767,581 cu m of wood in 2017 (688,297 cu metres in 2016). As the companies that returned forms are estimated to account for 71.9% of all new pallets manufactured by TIMCON members (para 2.3), and most new wood is used in manufacturing pallets, it has been assumed this year that they account for 71.9% of all wood used by TIMCON members in pallet and packaging (compared with a figure of 69% used in 2016). Based on an assumption of 71.9%, it is estimated that the quantity of wood used by all TIMCON members would be 1,067,567 cu m (997,531 cu m in 2016). If 66.4% (70.7% in 2016) 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 708,865 cu m in 2017 compared with 717,225 cu m in 2016. This indicates that the use of British grown wood by the pallet and packaging industry has remained almost unchanged.

UK Estimates

5.16. Assuming TIMCON members used a total of 1,067,567 cu m in 2017 (para 5.15) and they account for 70% of the UK pallet and packaging industry, then the total amount of timber from all sources used by the pallet and packaging industry in 2017 is estimated to have been 1,525,096 cu m

5.17. 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 2017 would have been 1,012,664 cu m – a very small decrease of 11,944 cu m on the 1,024,608 cu m in 2016.

5.18. The Forestry Commission's annual sawmill survey has in the past found that approximately 30% of the production from the larger UK sawmills is sold for use in the pallet and packaging industry, but in 2017 the figure was 24%. If the 30% percent is applied to the estimated 3.77 million cu m of sawn timber produced by UK sawmills in 2017, it would indicate that the UK pallet and packaging industry used approximately 1.13 million cu m of UK produced sawn timber (Forestry Commission Forestry Statistics 2018). The estimate of 1,012,664 cu m from this market analysis is 10.6% less than the Forestry Commission's estimate for 2017. If the Forestry Commission's 2017 estimated figure of 24% of UK sawn timber production goes into the pallet and packaging industry is applied to the 3.77 million cu m of sawn timber produced by UK sawmills in 2017, the amount of UK grown wood used for pallets and packaging would be 904,800 cu m which is 10.7% below the amount estimated by this market survey.

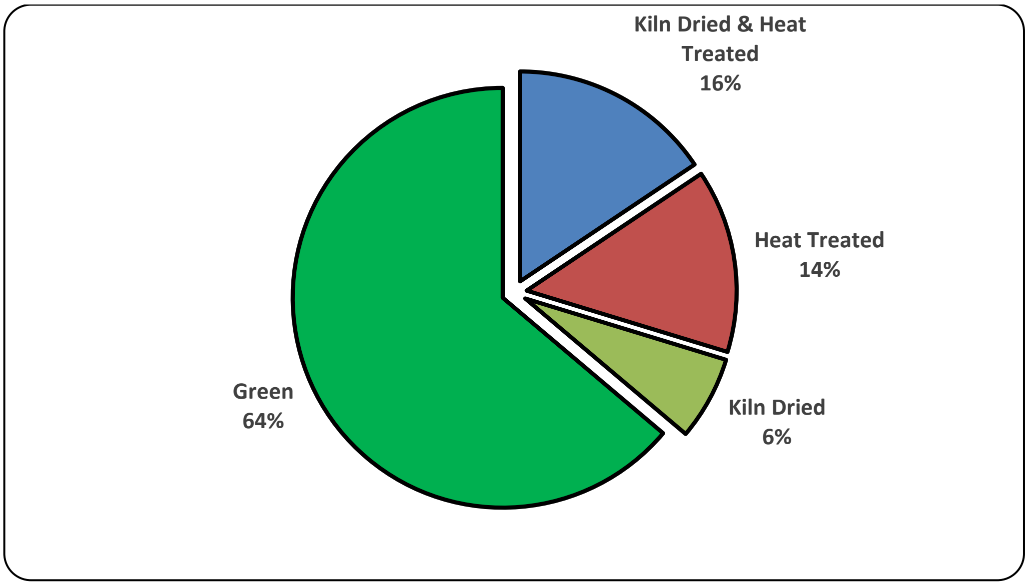
5.19. The figures are estimates and have been reached using different methodologies and assumptions. In the case of the Forestry Commission's estimate their figure is based on an estimated percentage figure developed from softwood production in the larger sawmills which may not be a representative sample of production in all sawmills in the UK in 2017.

6. Heat Treatment & Kiln Drying of New Pallets

6.1. The companies returning market survey forms manufactured a total of 20.87 million new pallets in 2017. If new pallets are going to be used for exporting goods outside of the EU, or possibly outside the UK after exiting the EU, the new pallets will need to comply with ISPM15 and be heat treated. The purpose of ISPM15 is to limit the potential for the spread of harmful tree pests and diseases. A total of 7.4 million newly manufactured pallets were either heat treated, kiln dried or both by the TIMCON member companies who took part in the 2017 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.

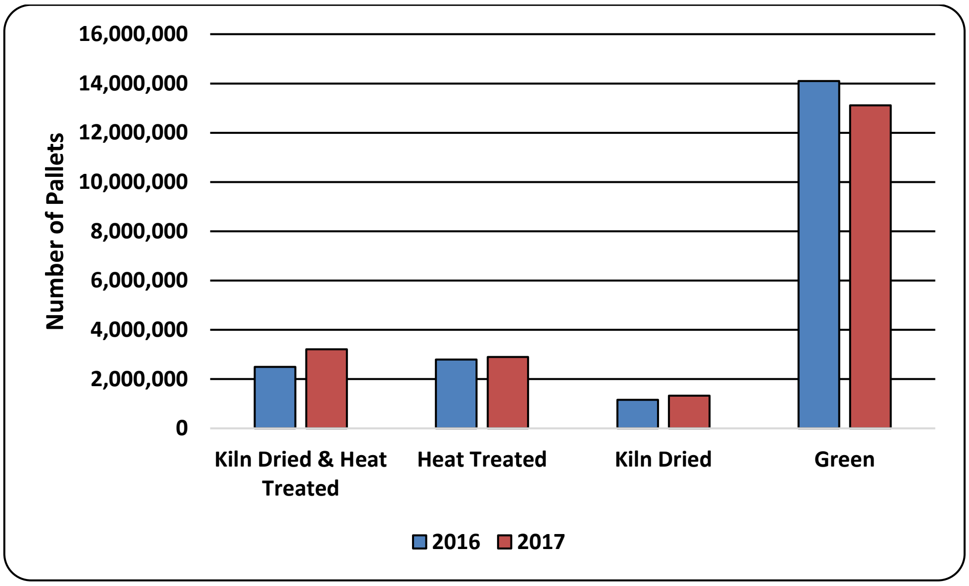
Chart 6.1 Heat Treatments Applied to New Pallets Manufactured in 2017 by TIMCON Members Returning Forms expressed as Percentages of Total New Pallets Manufactured by Them



6.3. The chart shows that 36% of all newly manufactured pallets were given some type of heat treatment compared with 25% in 2016 which is a significant percentage increase, and 22% were kiln dried and heat treated to ISPM15 standard compared with 17% in 2016. 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. A comparison of the results in Chart 6.1 with those for 2016 is shown in Chart 6.2, but not for earlier years as the question was formatted differently.

Chart 6.2 A Comparison of Heat Treatments Applied to Newly Manufactured Pallets in 2016 and 2017 by TIMCON Member Companies on a Like-for-Like Basis

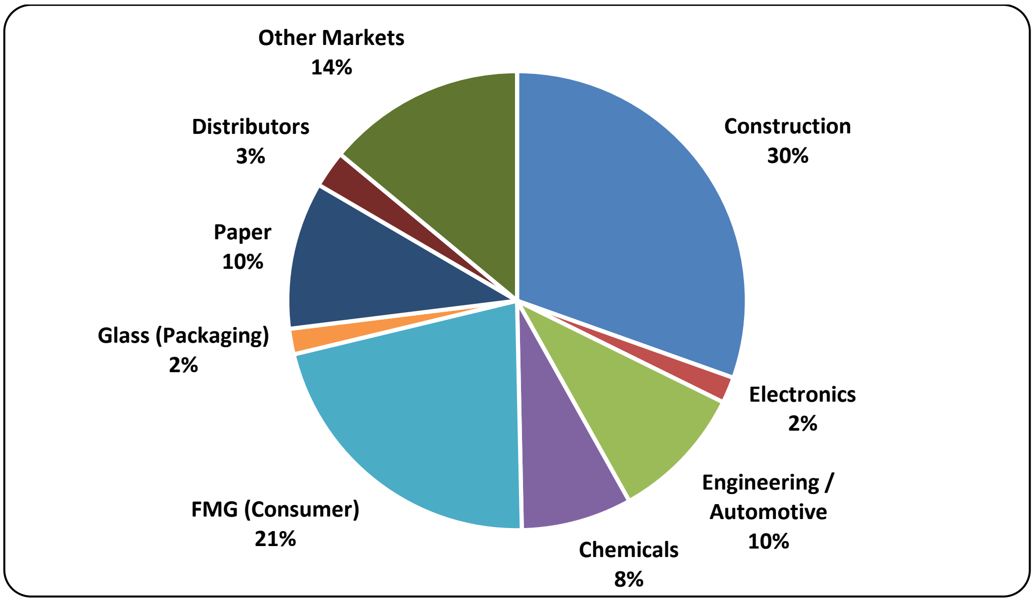


6.5. When the figures in the chart are expressed in percentage terms, they show that between 2016 and 2017 in the companies in the sample, the production of kiln dried and heat-treated pallets increased by 28%, the production of heat-treated pallets increased by 4.0%, the production of kiln dried pallets increased by 14.9% and the production of green pallets fell by 6.9%. These changes are likely to be as a result of the increasing recognition of Plant Health Regulations and ISPM15.

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 2017



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 2017. The quantities of new pallets being sold to companies handling Fast Moving Consumer Goods[1] is increasing, while the importance of other end uses for pallets shows some changes, but none of significance.

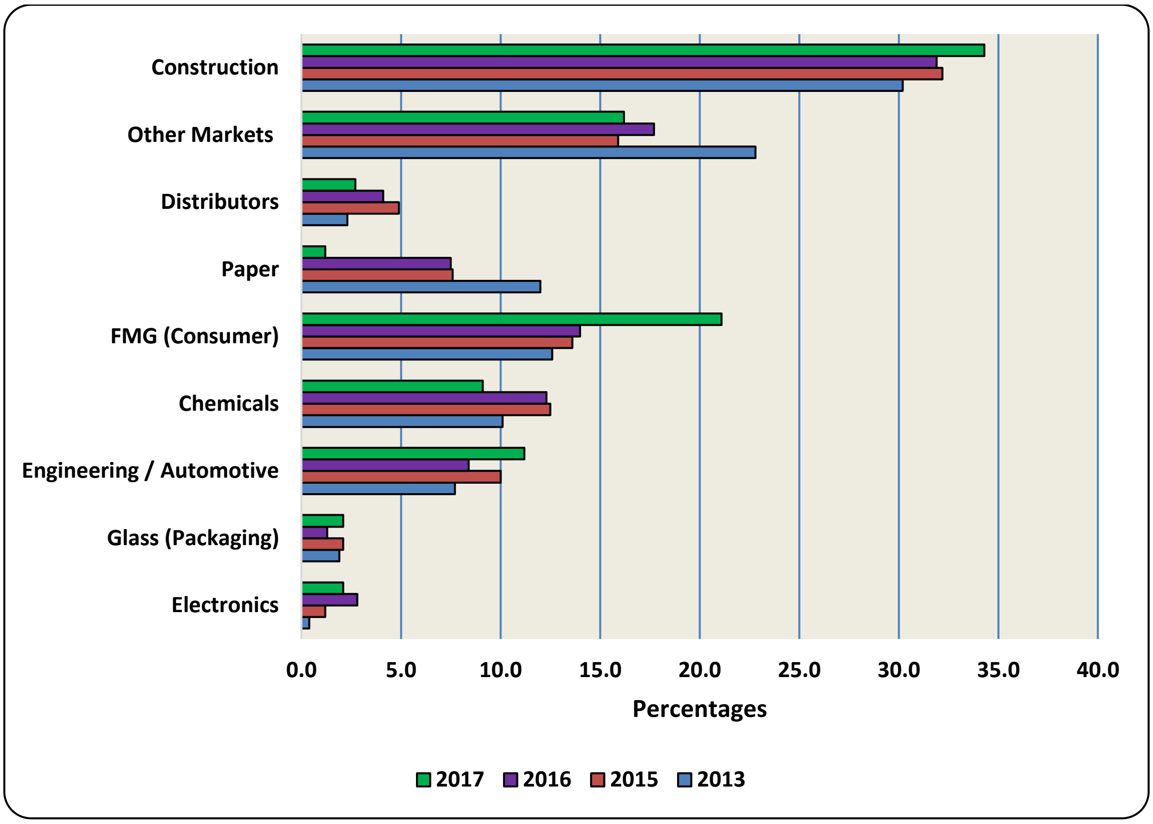
7.3. The majority of the pallets circulating in the pallet pools are used to move goods in the Fast Moving Consumer Goods (FMCG) markets.

Trend Changes in End Use Markets 2013 - 2017

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 2017 with those for the same companies in 2013, 2015 and 2016.

[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, 2016 and 2017 amongst the same Companies that have taken part in the Survey



The chart shows the construction industry remains the largest and most important end use market for new pallets and it has increased its importance slightly in percentage terms amongst companies that have consistently taken part in these surveys. The biggest percentage increase between 2016 and 2017 was in end use market share taken by FMCG, but there was also some increase in engineering and automotive markets.

8. Wood Packaging Market

8.1. Six TIMCON members involved in packaging completed the 2017 market survey form. They had an aggregate turnover of £21.5 million in 2017 which compares with a figure of £20.2 million in 2016 - an increase of 6.4% on a like-for-like basis. This increase in turnover may reflect increased material costs, such as timber, rather than any increase in activity. The total quantity of wood used in these activities was estimated to be approximately 49,242 cu m compared with 51,815 cu m in 2016 – a decrease of 5.0%. The total number of employees identified specifically with packaging activities in the 2017 market survey was 157 compared with last year's survey results of 172. This reduction may be as a result of a company re-deploying staff to other activities.

8.2. The 2017 market survey related to a total of 10 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 and over 40 million pallets are repaired each year. 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 £288.9 million in 2017 comprising £268.4 million from manufacturing and repairing pallets (para 3.3) and £21.5 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 2017, they have some 97 different sites from which they operate (87 in 2016) 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 129.

9.5. The TIMCON member companies that supplied information for the 2017 survey employed a total of 2,664 people directly and in outsourced pallet repair operations. The figures have been adjusted to avoid double counting. This is a small reduction overall from the figure of 2,671 people in the 2016 market survey report, but this hides the fact that another company contributed information to the 2017 survey figures. Further analysis shows the companies that took part in the 2017 survey reduced the number of people they employ by 8.5% during the year. This is likely to have been as a result of the cost pressures they were facing.

9.6. It was estimated for the 2016 market survey that a further approximate 358 people were employed by other TIMCON members who didn't contribute information to the survey, based on turnover per employee. The indications from the 2017 survey are that a number of companies are experiencing cost pressures which is reflecting in higher turnover figures, rather than increased activity levels, so using the same approach this year might give an overestimate of the number of people employed by all TIMCON members, particularly as some companies have reduced the number of employees (para 9.5). Assuming that approximately 358 people continue to be employed in other TIMCON member companies, and adjusting for the changes in the sample, it is estimated that the total number of people employed by all TIMCON members in 2017 was approximately 3,000 which is a decrease of 0.7% on the total of 3,022 people estimated in 2016.

9.7. Based on information from TIMCON members who returned survey forms and were not operating within a pallet pool, 65% of their employees were involved in new pallet production, 22% with repairing pallets and 12% with packaging. The number of people involved in packaging is undoubtedly an underestimate because only a few companies involved in packaging have returned survey forms.

9.8. Analysing the information for all companies that returned forms, including the pallet pool companies, 30.3% of their employees were involved in new pallet production, 63.8% of them in repairing pallets and 5.8% in packaging. This employment activity profile is thought likely to be broadly representative of the whole pallet and packaging sector as new pallet production is potentially an operation that can be highly automated, while the repairs to pallets and packaging operations are less easy to mechanise as they tend to be more complex and require one-off decisions on what needs to be done.

10. COMPARISON OF MARKET SURVEY RESULTS WITH ONS STATISTICS

10.1. Table 10.1 compares the estimates of turnover and pallet production numbers based on the findings of this 2017 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 10.1 Comparison of ONS Estimates for Sector with Estimates prepared for this 2017 Market Assessment

	ONS 2017 Estimates	2017 TIMCON Market Assessment for UK	Difference between 2017 Market Assessment for UK as % of ONS Estimates
Sales Value of New Pallets / (£ million)	263.9 *(279.9)*	288.4 *(268.1)*	+ 9.2% *(-4.2%)*
Number of New Pallets Sold (millions)	40.3 *(45.6)*	41.4 *(42.5)*	+ 2.7% *(-6.8%)*
Sales Value of Repaired[1] Pallets (£ million)	137.2 *(111.9)*	88.3 *(90.2)*	- 35.6% *(-19.4%)*
Number of Pallets Repaired (millions)	38.6 *(34.0)*	44.4 *(41.4)*	+15.0% *(+21.8%)*

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

Figures in italics are estimates for 2016.

10.2. 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 previous years, suggests a degree of robustness for the survey methodology and estimates made.

10.3. The differences in the estimates of the value of pallet repairs and the number of pallets repaired are larger and are much more significant as the figures in table 10.1 shows. Significant differences in the number of pallets repaired and their repaired value also occurred in the estimates for previous years. The ONS do subsequently revise their figures and in 2017 the differences were reduced, but a notable difference still exists in the estimated turnover for repairing pallets.

10.4. There are obvious differences in the methodology used by ONS and this detailed survey based on returns from TIMCON members, but it was felt important to see if there could be other potential reasons. Therefore, during the year there has been a dialogue between TIMCON and the ONS. Several reasons for the differences have been identified that are related to the methodology used by ONS.

PRODCOM Survey Methodology

10.5. The annual PRODCOM (PRODuction COMmunautaire) surveys are required under EU regulations 3924/91 and 912/2004. They are designed to provide statistics **only for the production of manufactured goods** in EU member states.

10.6. These surveys are conducted by ONS using the Standard Industrial Classification (SIC) codes that individual companies classify themselves with when they register with Companies House. Companies that are not registered for VAT or PAYE will not be included on ONS' Business Register and will not be included in any ONS surveys.

10.7. When producing their annual statistics, ONS select businesses from their business register according to their 5-digit SIC codes (so 16240, for example). All businesses that employ 250 or more people in a particular SIC code are included in the ONS survey each year. A sample is then taken of the smaller businesses, but ONS split each SIC into 5 further size bands based on the number of employees to ensure an appropriate mix of small and medium sized businesses and these smaller businesses are randomly selected every 3 years.

10.8. The sample size for each 5-digit SIC varies depending on the size (in terms of number of businesses) in each. ONS review the sample based on the standard errors from previous years' estimates and returns in order to minimise the variance across the whole survey.

ONS Survey of the Pallets & Packaging Sector

10.9. ONS do not specifically and directly seek to provide statistics on the pallet & packaging sector, but they do so indirectly by using SIC codes. The two main SIC codes that ONS use in their PRODCOM survey that they feel reflect activities in the pallet and packaging sector are 16240 (Manufacturing of wooden containers) and 33190 (repair of other equipment which includes the 'Repair or reconditioning of wooden pallets, shipping drums or barrels (manufacture)'.

Limitations of ONS Statistical Coverage of Pallets & Packaging Activities

10.10. There are five main reasons why ONS statistics may not provide a comprehensive coverage of all pallets and packaging activities:

- At time of company registration, a company may decide that pallet and packaging activities are not their principal activity when selecting their SIC code and therefore those companies will not be included in any ONS statistics for pallets and packaging.

- If companies are foreign owned, they may not have a SIC code and may not be included in a PRODCOM survey unless they employ over 250 people.

- Companies may consider that although their activities are connected with pallets, there is a better SIC code to describe their activities. For example, SIC code 77390 covers 'the Renting and leasing of other machinery, equipment and tangible goods n.e.c'. which specifically includes the renting of pallets. A company could also have registered under SIC code 52290 which covers 'Other transportation support activities'.

- SIC code 33190 used by ONS for estimating pallet repairs figures also includes a range of other activities in addition to the 'Repair or reconditioning of wooden pallets, shipping drums or barrels (manufacture)'. These include 'repairs to ceramic pipes and systems thereof in industrial plants, tarpaulins, sails, ropes, rigging, plexiglas plane windows and pinball machines and other coin operated games'. ONS will extract the data relating to repairs to pallets, but sampling decisions will be made by ONS based on all the activities listed in this category and not just in relation to repairs to wooden pallets. ONS statistical coverage of repairs to pallets and packaging will therefore not be as comprehensive and as accurate as it would be if the repair of pallets and packaging had a specific SIC code of its own.

- If there are no companies repairing pallets that employ 250 or more people that initially registered with a SIC code of 33190 then there will be no companies that supply statistics to ONS on an annual basis for this particular SIC code. As a result, ONS' statistics will be based on intermittent sampling of companies of different employment size categories of less than 250 people.

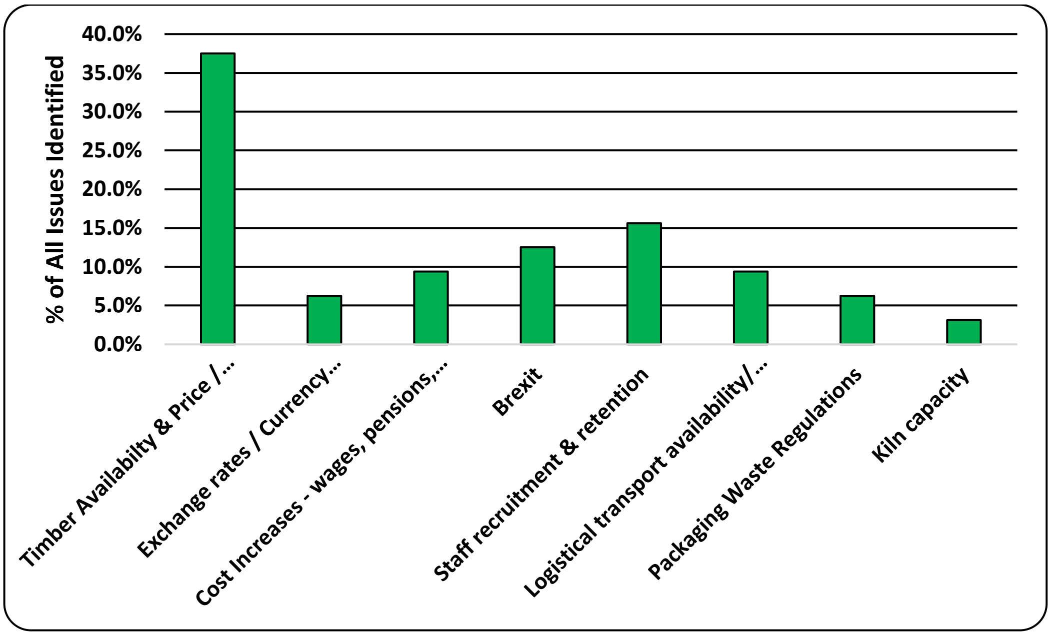
10.11. As there is a specific SIC code for the manufacture of pallets (16240 – Manufacturing of wooden containers), the ONS estimates should match fairly closely with the figures coming from TIMCON's annual market survey as they have been doing. The situation is different for ONS' statistics for the repair of pallets as there is no SIC code specifically and only relating to the repair of pallets. Sampling will be based on the whole range of activities in this SIC code (33190 see bullet point 4 above) not just on pallets and packaging activities. The sampling will probably be almost entirely based on the intermittent sampling of companies undertaking pallet repairs in 5 different employment size bands. This means that ONS' statistical coverage will not be as comprehensive for pallets and packaging repairs and therefore the TIMCON market survey results can be expected to diverge from ONS' figures as they have been doing.

11. TIMCON Members' Outlook for 2019

Issues Facing TIMCON Member Companies

11.1. TIMCON members were asked in the survey what they thought are the three biggest issues facing their company in 2018 /19. Responses were left up to the responders rather than asking them to select three from a list of pre-determined issues to avoid restricting answers. Some companies did not complete this section. Some of the answers given were very specific such as timber price increases, availability and price instability and, for the purposes of this analysis, they have been linked together as they all relate to timber. It could be argued that some of the other issues, such as 'Brexit' and 'exchange rate fluctuations' and 'labour availability' are all closely related, but they have been kept separate in chart 11.1.

Chart 11.1 Importance Attached to Issues in 2018 /19 as a Percentage of All Issues Chosen as the Three Most Important to them Identified by TIMCON Member Companies Returning 2017 Market Survey Forms



11.2. 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 is over timber price increases, timber availability and the instability of supply and prices. This is not surprising as 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 2017 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. Packaging Waste Regulations has been identified as a concern for the first time, probably reflecting the significantly higher packaging waste obligations in the UK compared to the EU.

TIMCON Member Companies' Turnover Expectations

11.3. TIMCON member companies were asked what increase or decrease in sales they expected in the year ahead. Of the companies that responded, that accounted for over 70% of TIMCON members' pallet production and repairs, 72.7% (69.2% in 2016) of responding companies expected turnover to grow in the year ahead by various amounts ranging from +1% to +25%, another 18.2% (30.8% in 2016) expected no change in sales and 9.9% of the companies responding expected a fall in sales compared with no companies in 2016. The weighted average expected total net increase in sales in the year ahead was 7.6% (5.0% in 2016) for responding companies. Some companies are clearly expecting to grow their turnover significantly and others may be anticipating an increase in turnover because of cost increases rather than an uptake in market activity.

12. CONCLUSIONS

12.1. This market assessment has provided some detailed information on the pallet and packaging industry in the UK in 2017. The key findings are:

- The estimated number of new pallets manufactured in the UK decreased by 2.6% compared with 2016 and the number of pallets repaired increased by 7.3% over the same period.

- The estimated turnover from manufacturing new pallets rose by 7.5% compared with 2016, and the estimated turnover from pallet repairs decreased by 7.6% for the same period. This decrease in the value of turnover repairs may possibly be due to the way some companies have chosen to answer the survey question.

- The average price of new pallets rose by 10.9% between 2016 and 2017. This increase in average price undoubtedly reflects rising costs of wages, fuel and materials and especially the cost of wood.

- The amount of wood used by companies that returned survey forms increased by 8.3% between 2016 and 2017. However, the amount of wood sourced from within the UK fell by 5.5% as a result of more timber being sourced from the Republic of Ireland and Scandinavia.

- TIMCON members taking part in the survey anticipate a weighted average increase in turnover of 7.6% in 2019, but a few companies anticipate no change or falling turnover.

- The production of kiln dried and heat-treated pallets increased by 28%, the production of heat-treated pallets increased by 4.0%, the production of kiln dried pallets increased by 14.9% and the production of green pallets fell by 6.9%. These changes are likely to be as a result of the increasing recognition of Plant Health Regulations and ISPM15.

12.2. The estimated figures given in this report do not match up closely with some key parameters for the wood pallet and packaging industry that are provided by ONS; particularly for the number of pallets repaired and the associated turnover. Their figures are collected as part of a broader survey of production in the UK, rather than specifically aiming to produce estimates for the pallets and packaging industry, and ONS use a different methodology.

12.3. The pallet and packaging industry figures given in this report are based on certain assumptions and 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.

12.4. Information on wood packaging activities in this report only relates to TIMCON members who are involved with these activities and who provided information for 2017. 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.

12.5. 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 UK economy, and in particular to the UK forest-based industry sector.

John Clegg Consulting Ltd

February 2019

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 2017 is very similar to that adopted for the previous seven 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 seven 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 GM in February 2019.