Mid Wales & The Marches Assessment Centre Ltd

WALES TIMBER HARVESTING RESOURCE STUDY

REPORT TO THE WALES FOREST BUSINESS PARTNERSHIP

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SUMMARY

The Wales Forest Business Partnership, working through and with the Welsh Assembly Government and Forestry Commission Wales commissioned a study to assess the availability of harvesting resource in Wales and to investigate future trends and possible developments.

Timber harvesting contractors in Wales were asked to contribute data on the type and make of machinery used, the size / age / experience distribution of the workforce and their estimated timber output.

In addition the contractors were given the opportunity of indicating how the harvesting resource could be developed and the existing constraints that they perceived for their own businesses and the timber harvesting industry as a whole.

Of the likely resource total in Wales, 60% of the contractors completed a questionnaire and the results are presented in the Timber Harvesting Resource Study. The report shows the distribution of the contractors in Wales is across all regions. The machines, except for fully mechanized harvesting equipment, are old with little chance of replacement in the current economic climate within the home-grown timber sector, especially the line wire machines (winches, skidders and cable crane / skyline equipment).

The workforce, with a long cumulative length of experience in the industry, is ageing (41 years average age of operators), and is predominantly employed in small gangs. One third of the contractors have left the industry in the last few years yet the remaining firms have difficulty recruiting trained staff, indicating that the workforce is moving on and not around.

Contractors were asked if they were willing to expand operations in future if the opportunity was there - half of the respondents affirmed that they would wish to expand, including an expansion of the scarce line wire working activities. This matches the observation from comments made by the contractors that they consider themselves to be highly skilled and committed to the timber harvesting sector.

The opportunity was given to express views on the internal and external constraints to the contracting businesses and the timber harvesting industry as a whole. The comments were collated and strengths versus weaknesses, opportunities and threats perceived were introduced into a "SWOT" analysis in order to quantify the results and develop an action strategy for the industry. The opportunity can now be taken to develop the findings from this study into action plans for the Welsh

Woodland Strategy to ensure the survival of, in particular the small, flexible, traditional timber harvesting gangs upon which good forest and woodland management depend.

It was concluded that both contractors and forest / woodland managers need to work together to meet the changes the industry is undergoing in order to survive at all. There is an open question as to whether a proportion of the work undertaken is more amenity, recreation, landscape or conservation work than timber harvesting *per se* and needs supporting by those industries and not be dependent on timber income to sustain what are in reality marginal harvesting exercises.

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INTRODUCTION

This study was commissioned by the Wales Forest Business Partnership (www.wfbp.org) to investigate the timber harvesting resource in Wales, early spring 2007.

A similar report by the Forestry Commission Wales (WHaM - Wales Harvesting and Marketing) was already in preparation, ascertaining the Wire Rope Harvesting Resource in Wales. This data was gathered by telephone interview of timber harvesting contractors working for WHaM December 2006.

The WFBP study complements this work, in that a wider group of contractors were contacted and the subject area expanded to all harvesting machines and operations.

The original intention was to collate data from the private sector only, but many contractors work in both the private and public sectors so no distinction could be made: The contractors who contributed to this study harvest timber from Welsh woods and forests as a whole.

At present very roughly half of the Welsh forest and woodland area is managed for the Welsh Assembly Government by the Forestry Commission (the public sector) and half is in private ownership and management. The harvested volume is greater by proportion from the public sector.

212 contractors were mailed with a four part questionnaire in January 2007 to ascertain if they were carrying out harvesting operations, where they were based, what machinery they were using, details of the labour force, timber outputs, the prospects for future development of line wire work and in each contractor's view, what they perceived to be the main strengths, weaknesses, opportunities and threats to the timber harvesting sector.

A proportion of the recipients of the mailing list were phoned at random to increase the percentage response: Mailing of questionnaires will often not have a response exceeding 5% but a 50% response was attempted to gain the results that could be viewed with credibility. A number of contractors were e-mailed in addition to the postal survey but the response to this was very low.

The returns represent a snapshot of the harvesting resource across a wide cross-section of the industry, ranging from small to large contractors working in all aspects of forestry and woodland work in Wales.

Presentation of the results is set out below, with further comment using a "SWAT" analysis of the contractors' own comments.

THE RETURNS RECEIVED

Of the 212 contractors mailed and/or telephoned or e-mailed 63 responded with a completed questionnaire. A further 63 comprised 10 contacts who were agents, referring us to another source for data, 28 were not harvesting contractors (e.g. worked solely in the arboricultural industry) and 25 responded that they were now out of the Timber Harvesting Industry (i.e. were contracting previous to the survey). The remainder did not respond (86 in total)

The response is summarised in Table 1.

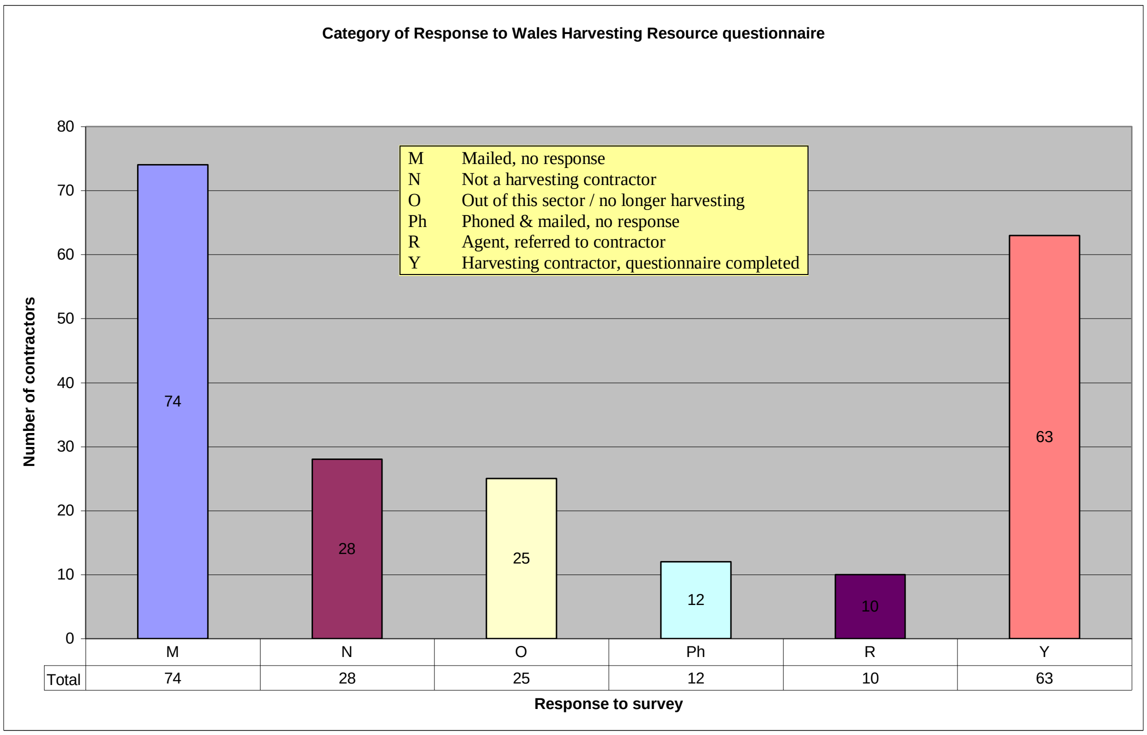


Table 1 Category of response to Wales Timber Harvesting Resource Questionnaire

The 63 contractors completing the questionnaire are therefore the sample that represents the Harvesting Resource in Wales for all the subsequent analyses.

Taking the proportions of each type of response into account, of the 86 contractors not responding it is reasonable to surmise that 43 of these could be contracting: Hence the sample of 63 used could well represent 60% of the actual timber harvesting resource available.

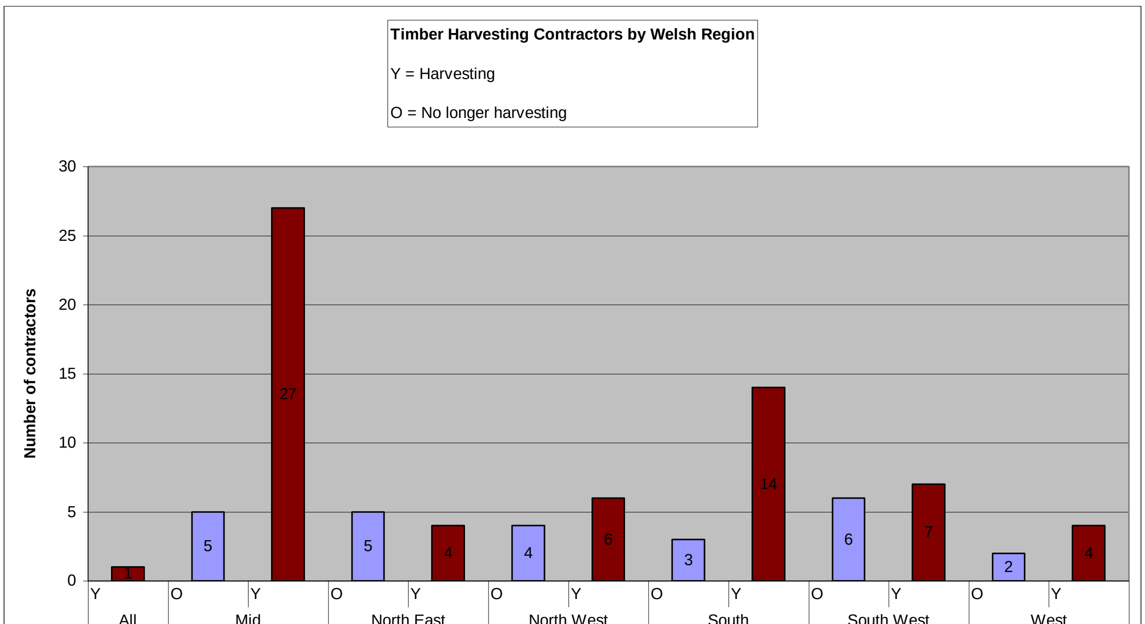
QUESTIONNAIRE SECTION 1: REGIONAL BASE FOR CONTRACTORS

The base address for those contractors still harvesting timber and those who had recently given up were allocated to a geographical area in Wales as follows in Table 2:

North East Wales (Gwynedd, Ynys Môn)	**North West Wales (Conwy, Denbighshire, Flintshire)**
West Wales (Ceredigion)	**Mid Wales (Powys)**
South West Wales (Pembrokeshire, Carmarthenshire, Swansea)	**South Wales (10 Valley Counties & Monmouthshire)**

Table 2: Geographical area by County in Wales

The results are summarised in table 3:



	All	Mid		North East		North West		South		South West		West	
	Y	O	Y	O	Y	O	Y	O	Y	O	Y	O	Y
Total	1	5	27	5	4	4	6	3	14	6	7	2	4

Table 3: Timber Harvesting contractors by Welsh region.

Of the 88 contractors represented, 25 have recently given up harvesting, representing a 30% loss to the industry, spread across the whole of Wales.

The anomalous figure of 27 contractors based in Mid Wales (40%) possibly indicates the fact that the survey was more likely to be responded to if the authors, who are based in Powys were known to a contractor.

QUESTIONNAIRE SECTION 2: EQUIPMENT, OPERATORS AND OUTPUT FOR EACH CONTRACTOR

Each contractor completing the survey sheets provided data on the following (Table 4):

Operation category (Harvesting)	Machine make.	Age of machine	How long will the present machine last?
No. of operators	Age of operators	Total years work experience	
Average tonnage per week softwood	Average tonnage per week hardwood		Comments

Table 4: Section 2 Type of Operations, data heading

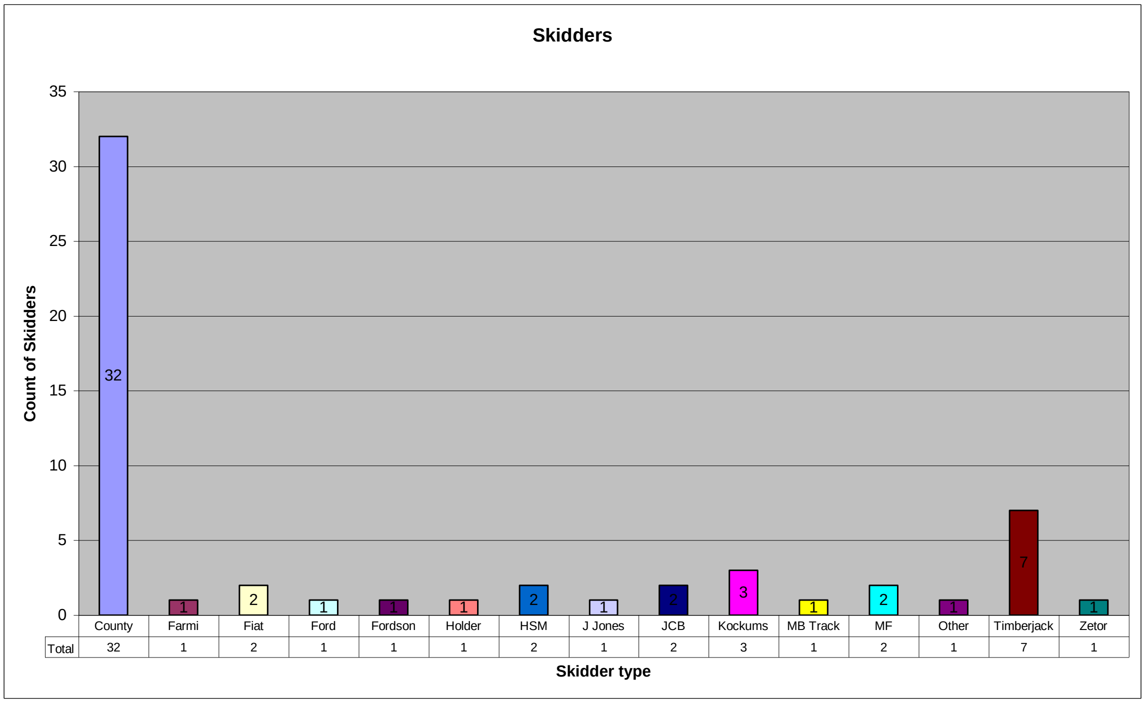
The quality of the data received in the returns was very variable, ranging from precise down to quite vague but an analysis of all the data received was possible.

1. OPERATION CATEGORY AND ANALYSIS OF MACHINE TYPES:

Data from the 63 contractors was collated to give the number count of each machine type by manufacturer for each of 5 Operation Categories (Tables 5 below); 194 machines were owned in total, average 3 per contractor:

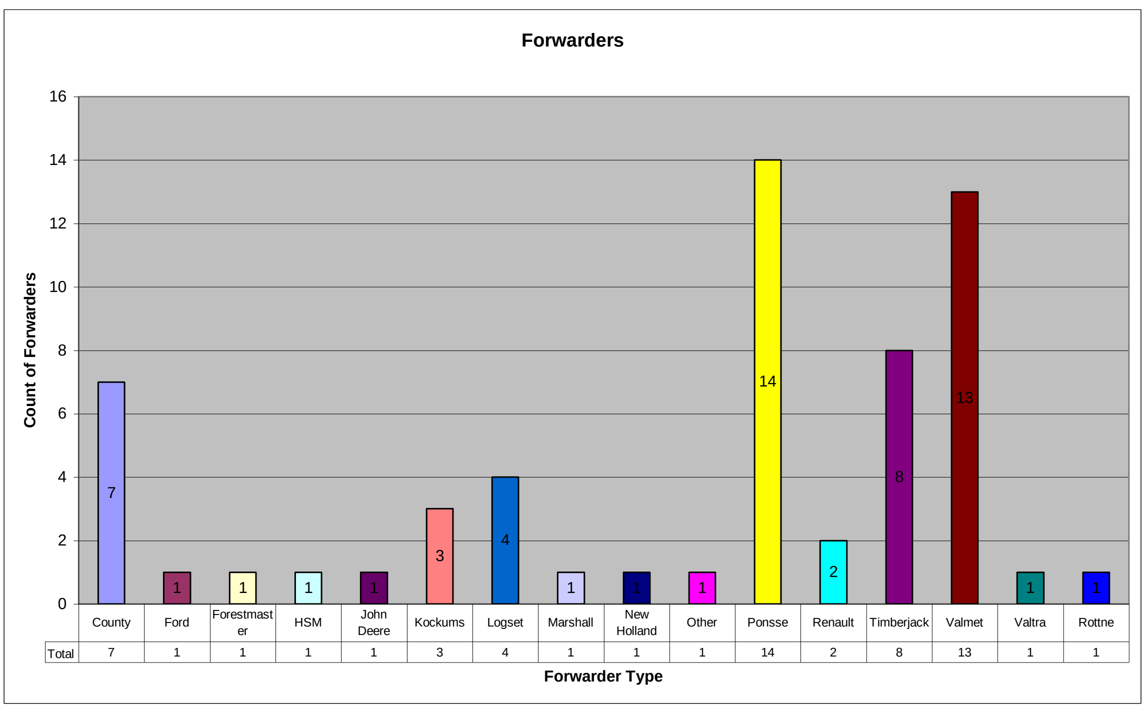
Forwarder type	No's	Processor Type	No's	Skyline type	No's	Skidder type	No's	Harvester Type	No's
County	7	County	1	Alp	3	County	32	CAT	1
Ford	1	Nokka	2	Cat	1	Farmi	1	CIFA	1
Forestmaster	1	Ponsse	1	Daewoo	3	Fiat	2	Daewoo	11
HSM	1			Ford	1	Ford	1	JCB	3
John Deere	1			Igland	1	Fordson	1	John Deere	2
Kockums	3			Syncrofalke	2	Holder	1	Kobelko	2
Logset	4			Timbermaster	6	HSM	2	Logset	4
Marshall	1					J Jones	1	Norcar	2
New Holland	1					JCB	2	Ponsse	16
Other	1					Kockums	3	Silvatec	2
Ponsse	14					MB Track	1	Thor	1
Renault	2					MF	2	Timberjack	8
Timberjack	8					Other	1	Valmet	2
Valmet	13					Timberjack	7		
Valtra	1					Zetor	1		
Rottne	1								
Total	60	Total	4	Total	17	Total	58	Total	55

The distribution of machines is represented in chart form in Figures 6 - 10, below:



	County	Farmi	Fiat	Ford	Fordson	Holder	HSM	J Jones	JCB	Kockums	MB Track	MF	Other	Timberjack	Zetor
Total	32	1	2	1	1	1	2	1	2	3	1	2	1	7	1

Table 6: Number of Skidders by manufacturer used by contractors completing survey



	County	Ford	Forestmaster	HSM	John Deere	Kockums	Logset	Marshall	New Holland	Other	Ponsse	Renault	Timberjack	Valmet	Valtra	Rottne
Total	7	1	1	1	1	3	4	1	1	1	14	2	8	13	1	1

Table 7: Number of Forwarders by manufacturer used by contractors completing survey

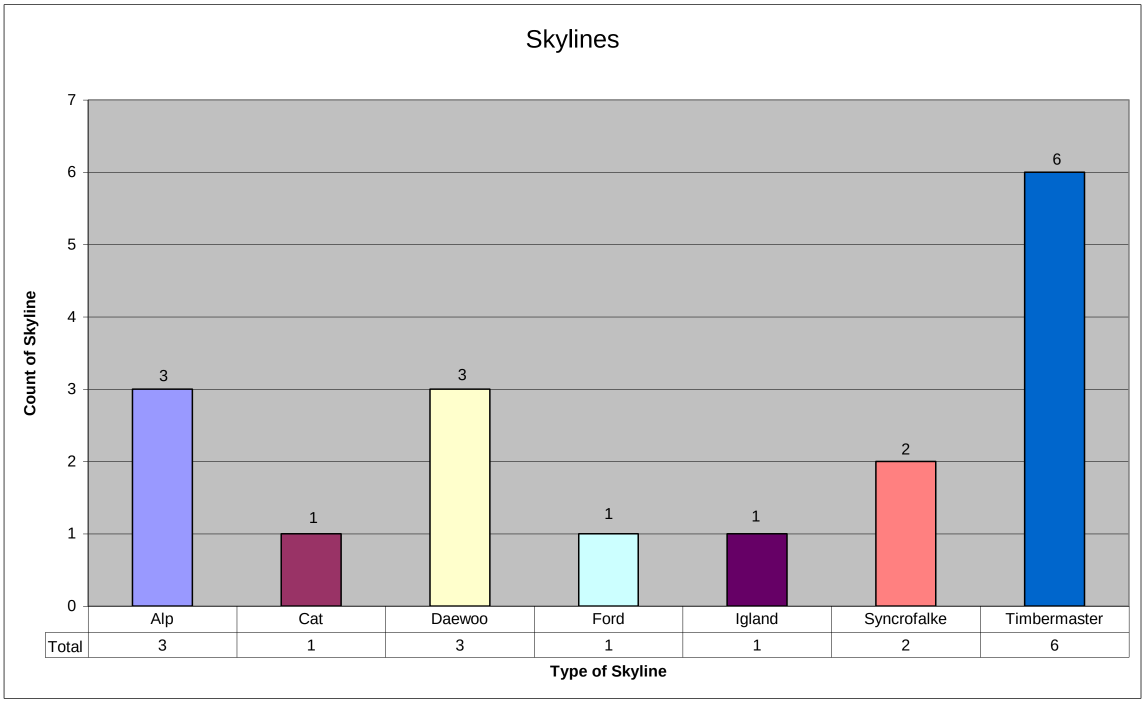


Table 8: Number of Skylines by manufacturer used by contractors completing survey

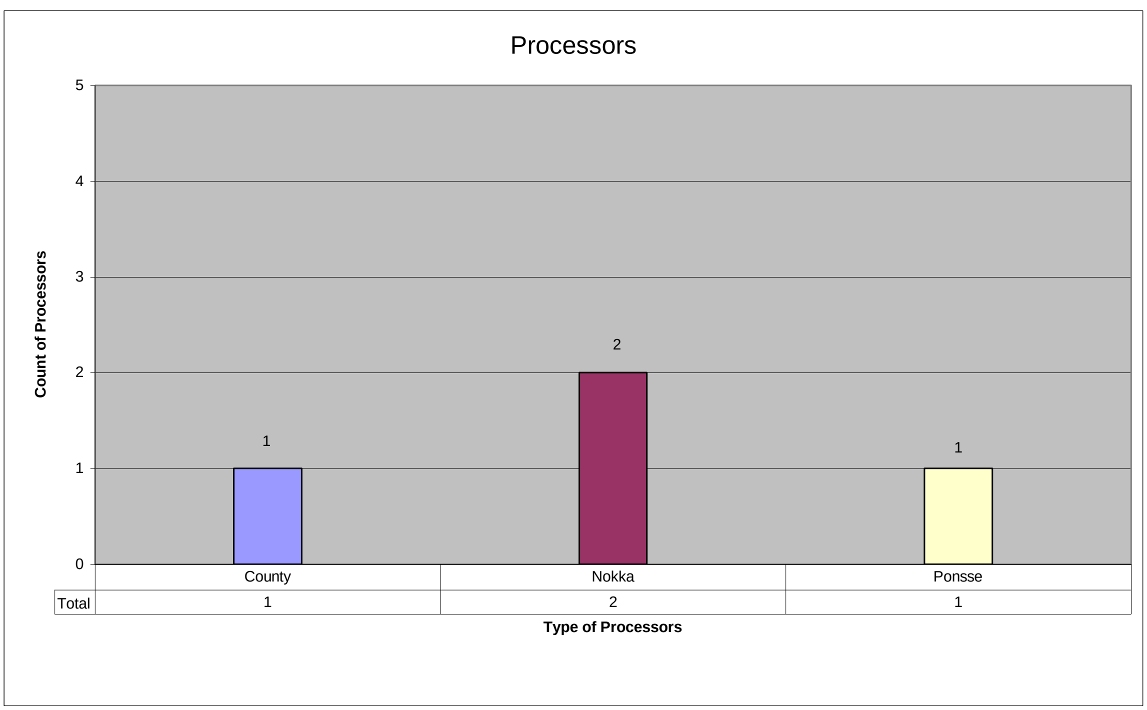


Table 9: Number of Processors by manufacturer used by contractors completing survey

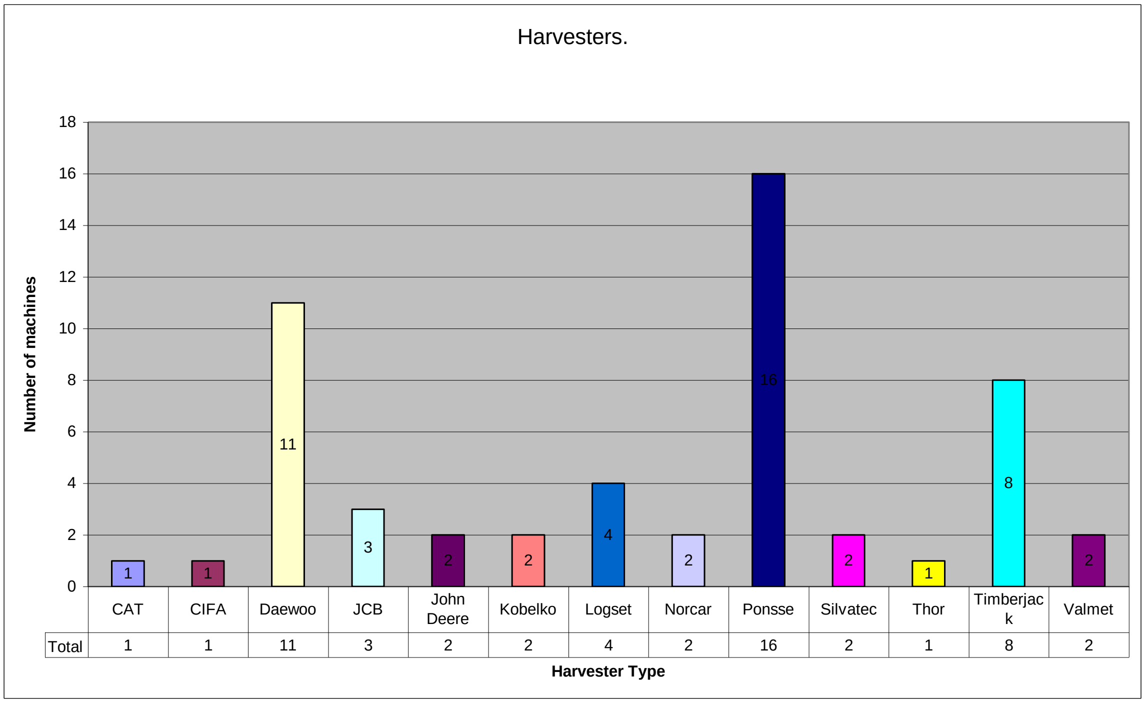


Table 10: Number of Harvesters by manufacturer used by contractors completing survey

2. AGE DISTRIBUTION OF MACHINES

The machines and equipment were allocated to one of the following 5 operation Categories:

Skidders, Forwarders, Processors, Skylines and Harvesters.

No distinction was made as to whether the machines were e.g. purpose-built or agricultural-based and it was accepted that some agricultural-based machines would double up as e.g skidders and forwarders depending on which equipment was attached.

The ages of the machines stated by each contractor were categorized as follows:

< 5yrs	5>9yrs	10>14yrs	15>19yrs	20>29yrs	Over 30yrs

These are presented in chart and table form below for each Operation category (Tables 11 - 15):

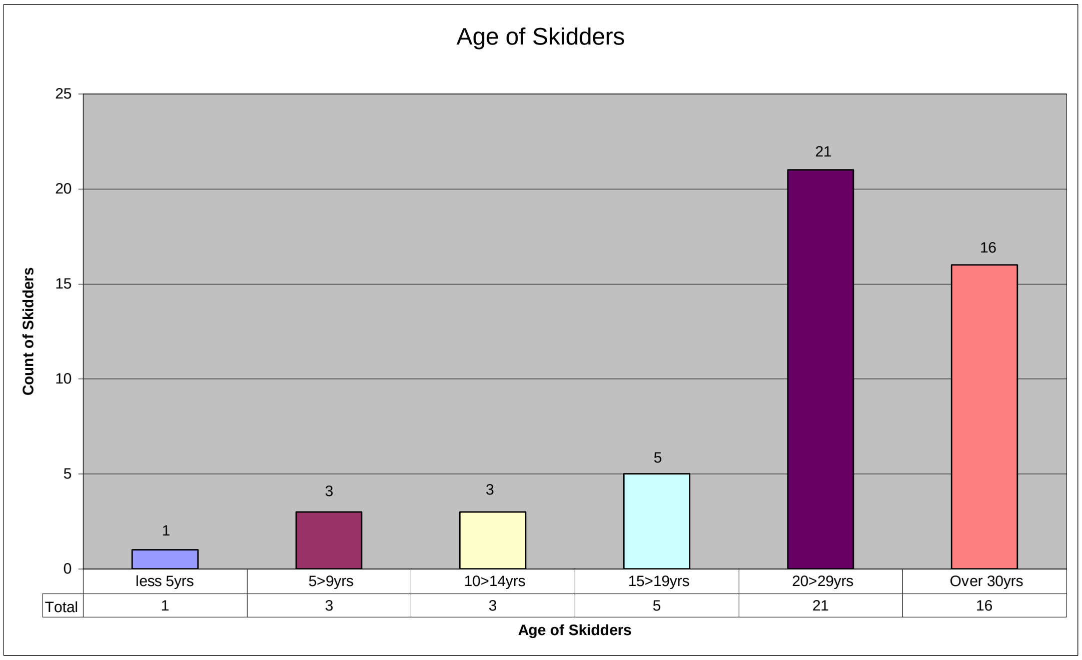


Table 11 Number of Skidders by Age Range

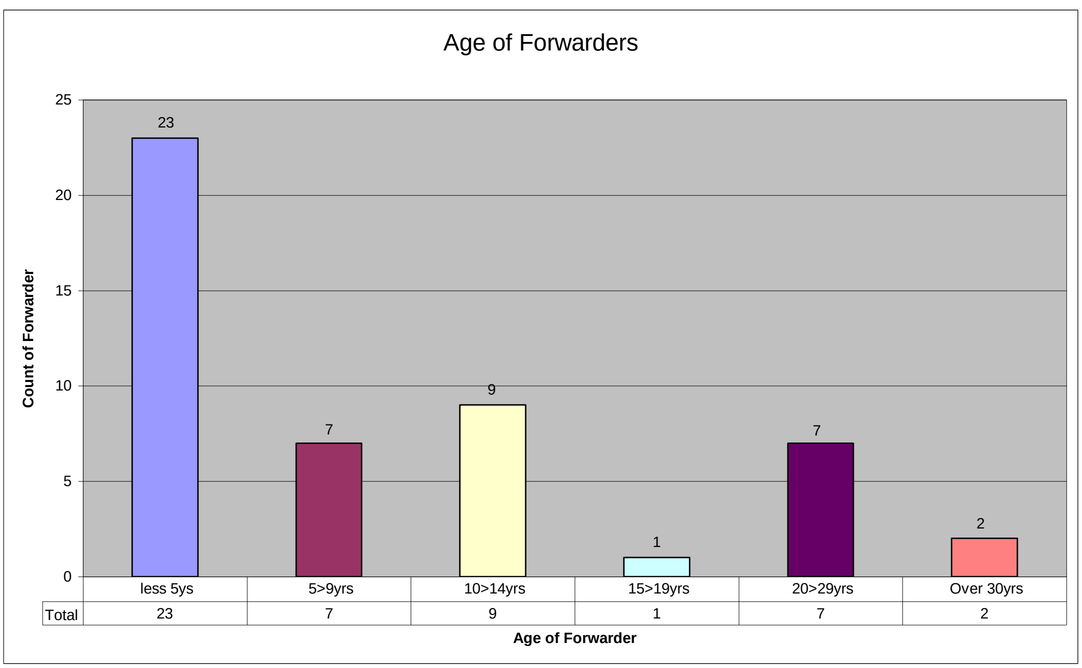


Table 12 Number of Forwarders by Age Range

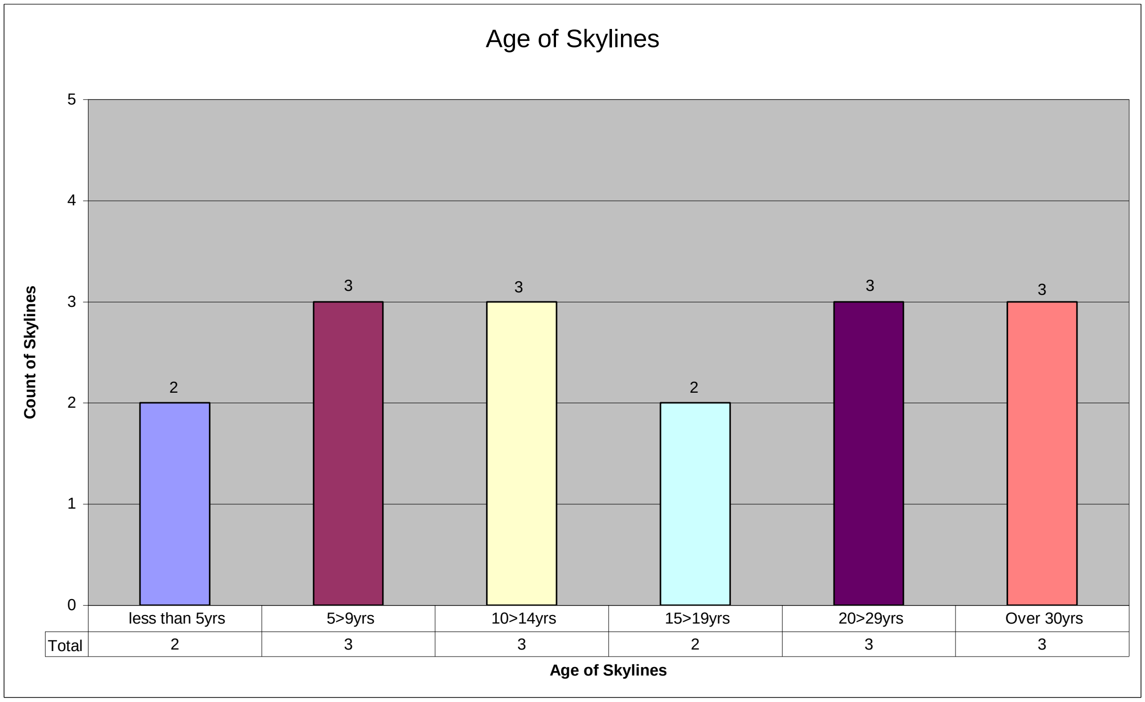


Table 13 Number of Skylines by Age Range

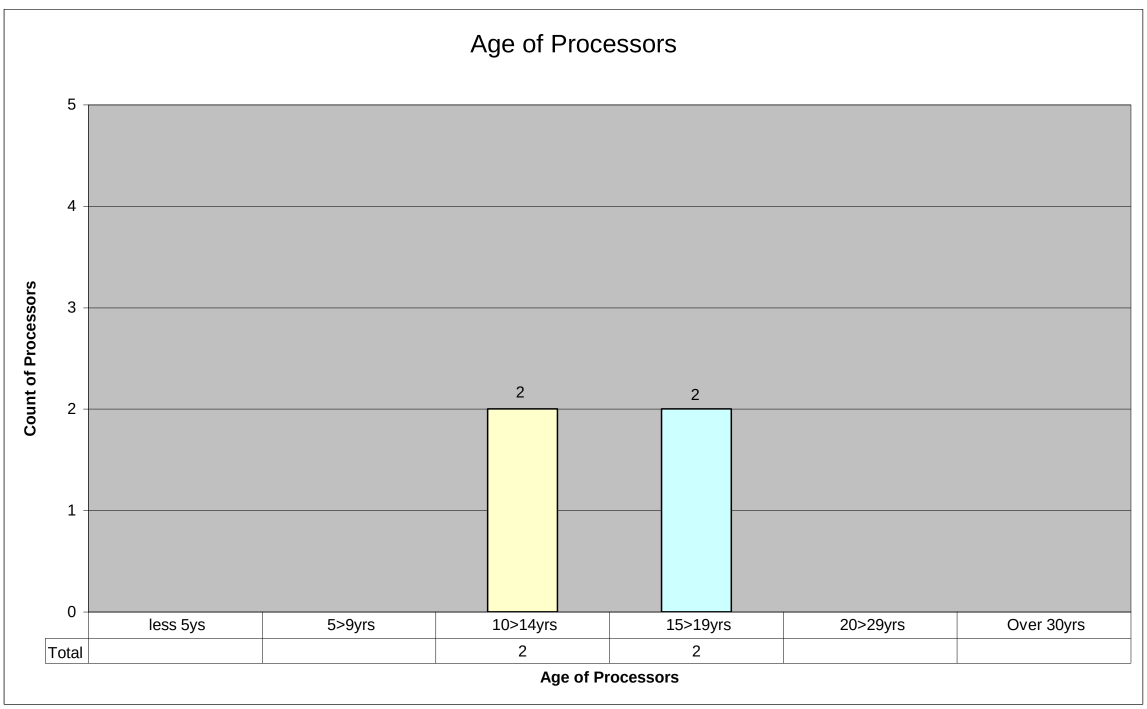
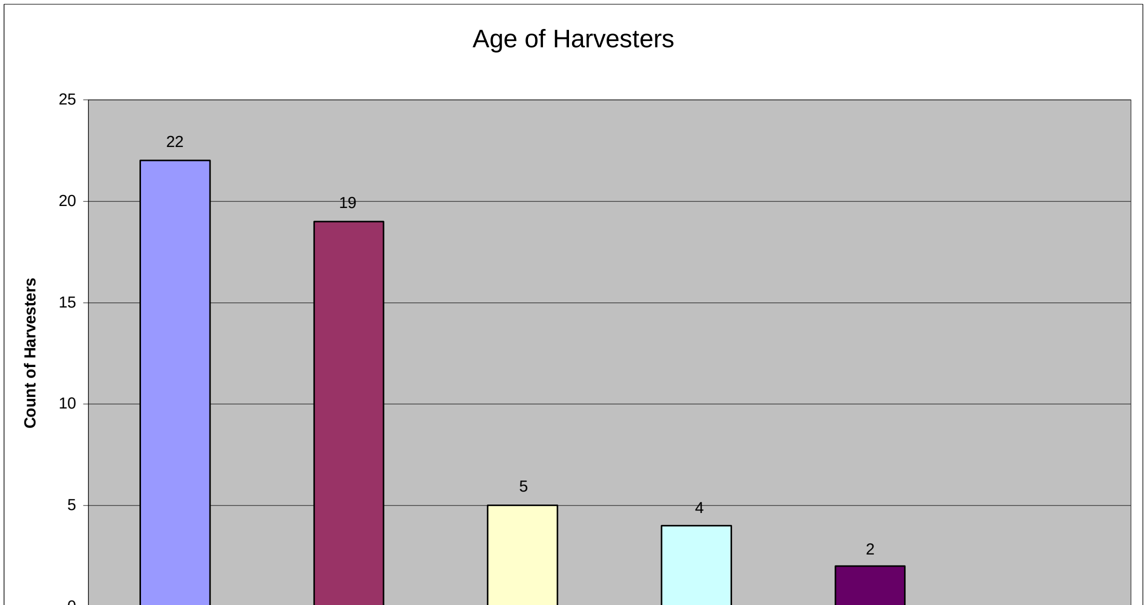


Table 14: Number of Processors by Age Range



	less 5ys	5>9yrs	10>14yrs	15>19yrs	20>29yrs	Over 30yrs
Total	22	19	5	4	2	

Table 15: Number of Harvesters by Age Range

3. DISTRIBUTION OF AGE, YEARS OF EXPERIENCE OF MACHINE OPERATORS & SIZE RANGE OF WORKFORCE

The data from the returns was analysed to show the distribution of the workforce in terms of age, size and experience. Some contractors submitting to the survey did not supply age data for workers but averages have been used to represent the distribution trend.

A. AGE OF WORKFORCE :

The ages of the machine operators stated by each contractor were averaged and categorized as shown below:

under 20	20>29	30>39	40>49	50>59	over 60

The average age class for each contractor's workforce was plotted against the number of contractors with operators in each age class: The resultant bar chart represents the age distribution of the timber harvesting workforce in Wales (Table 16).

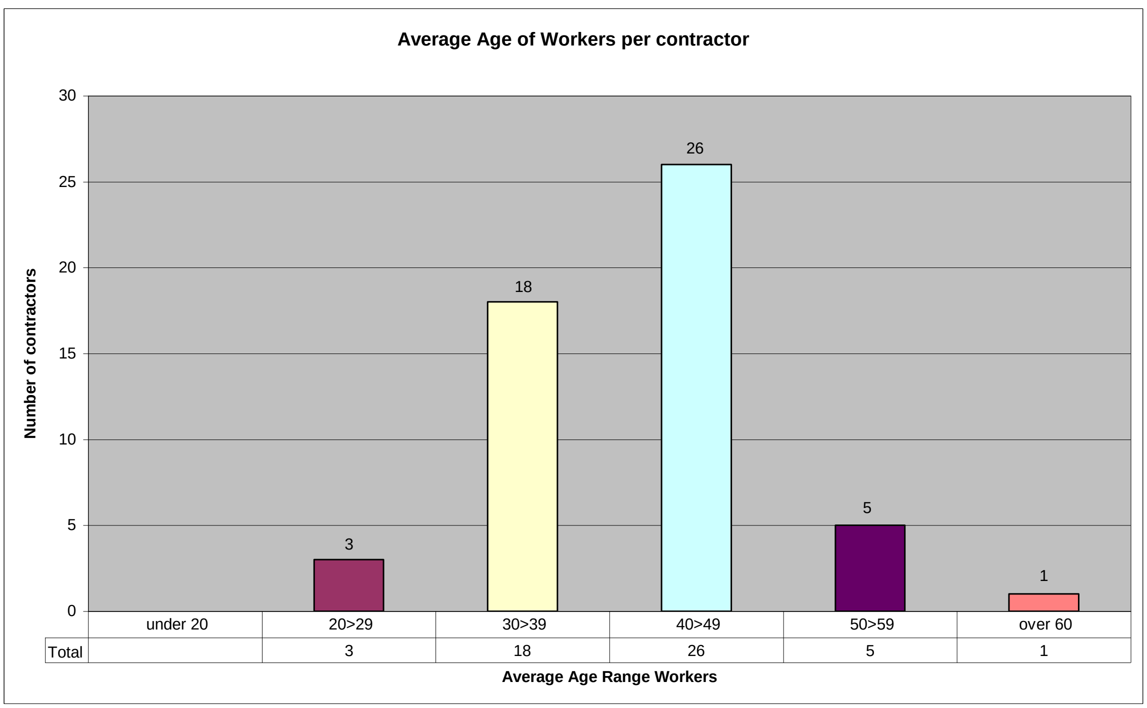


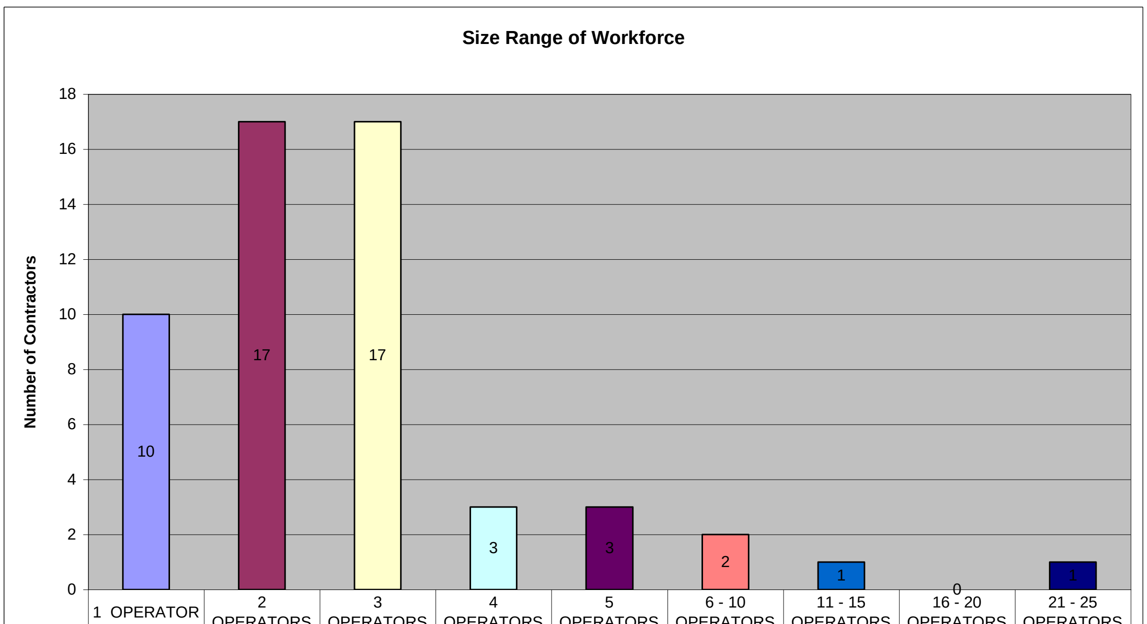
Table 16: Average age of Machine Operators

B. THE SIZE OF THE WORKFORCE

The number of operators employed by each contractor was represented as follows:

1 OPERATOR
2 OPERATORS
3 OPERATORS
4 OPERATORS
5 OPERATORS
6 - 10 OPERATORS
11 - 15 OPERATORS
16 - 20 OPERATORS
21 - 25 OPERATORS

The size classes were plotted against the number of contractors with operators in each size class. The resulting bar chart represents the size distribution of the workforce for the various contractors in Wales (Table 17)



	1 OPERATOR	2 OPERATORS	3 OPERATORS	4 OPERATORS	5 OPERATORS	6 - 10 OPERATORS	11 - 15 OPERATORS	16 - 20 OPERATORS	21 - 25 OPERATORS
Total	10	17	17	3	3	2	1	0	1

Table 17: The size range of the contractor workforce.

C. THE LENGTH OF EXPERIENCE OF THE WORKFORCE.

The average length of experience in timber harvesting operations for the workers employed by each contractor was allocated to a time class as follows:

1 to 5 yrs	6 to 10 yrs	11 to 15 yrs	16 to 20 yrs	21 to 25 yrs	26 to 30 yrs	31 to 35 yrs	36 to 40 yrs

This was plotted against the numbers of contractors with workers in each experience class. This represents the length of experience distribution for the timber harvesting workforce in wales (Table 18):

Table 18: The average number of years experience of the operators per contractor.

D. TOTAL EXPERIENCE IN YEARS OF EACH CONTRACTOR'S WORKFORCE

The data was further analysed to show the total number of years' experience of the workforce for each contractor. The number of years experience was allocated to a class as follows:

< 10 yrs	10 - 19 yrs	20 - 29 yrs	30 - 39 yrs	40 - 49 yrs	50 - 59 yrs	60 - 69 yrs	70 - 79 yrs	80 - 89 yrs	90 - 100 yrs	> 100 yrs

This was plotted against the number of contractors with workers in each cumulative experience class (Table 19). This chart represents the extent of operator experience contained within each of the timber harvesting contractor firms in Wales.

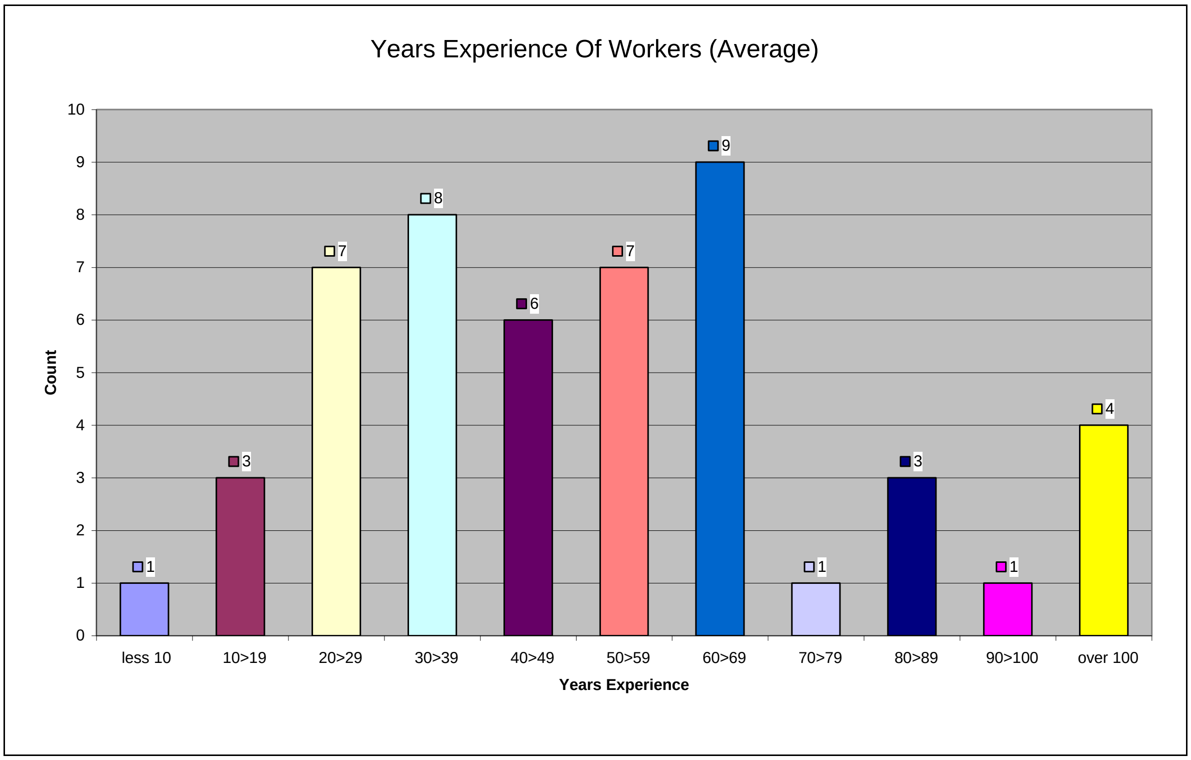


Table 19: The total years of experience of the contractor workforce

4. THE ESTIMATED OUTPUTS OF TIMBER FOR EACH CONTRACTOR IN THE SURVEY

The volumes per week estimated output were allocated into an output class and plotted against the numbers of contractors in each class ('count'). This was done for softwood and hardwood respectively (Tables 20 and 21);

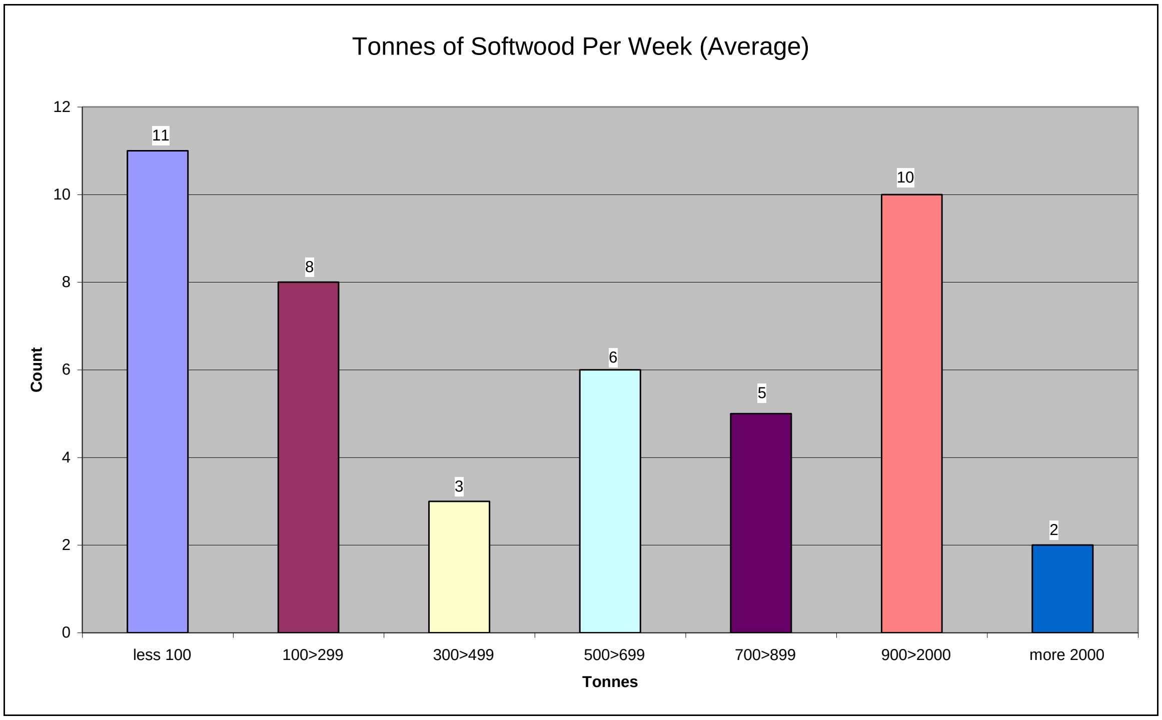


Table 20: The number of contractors in each of the various output classes for softwood

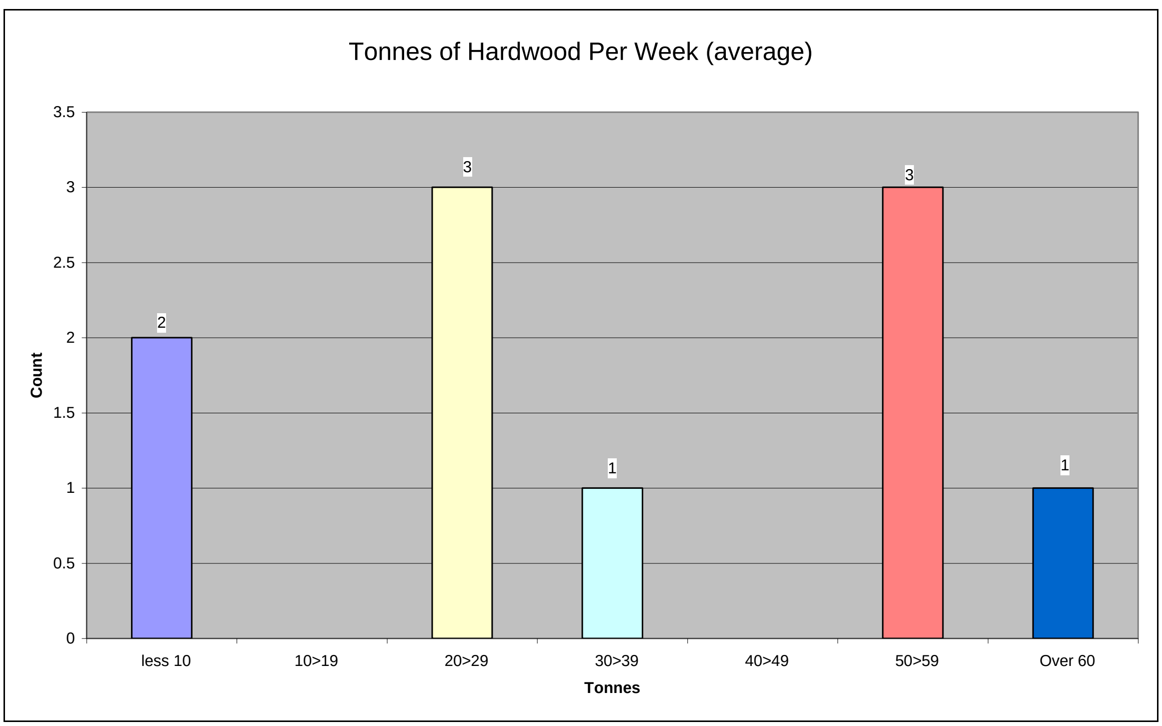


Table 21: The number of contractors in each of the various output classes for hardwood

QUESTIONNAIRE SECTION 3: POTENTIAL BUSINESS DEVELOPMENT IN TIMBER HARVESTING

1. THE CONTRACTORS VIEWS ON BUSINESS DEVELOPMENT:

Each contractor was asked to comment on their plans for their overall harvesting operations, and if they would be willing to expand, or otherwise, line skidding operations. This latter had been identified by WHaM as considerably under-resourced in Wales at the time of the survey. The number of contractors responding to each of the sections is shown in Table 22 below:

In the current business "climate" would you be:	Number of contractors	In an improved business "climate" would you be:	Number of contractors
1a. Planning to expand overall harvesting operations	34	2a. Willing to expand line skidder &/or cable crane operations	30
1b. Not planning to expand overall harvesting operations	14	2b. Not willing to expand line skidder &/or cable crane operations	8
1c. Planning to scale down overall harvesting operations	13	2c. Scaling down operations skidder &/or cable crane operations	5

Table 22: the number of contractors commenting on various aspects of potential business development

2. THE DEVELOPMENT OF LINE WIRE WORK (winching, skidding and cablecraning):

The contractors were asked, if responding positively to Sections 1a and 2a above, to give their views on ways of developing line wire work in Wales: The number of contractors interested given in Table 23:

To develop line wire work would you:	Number of Contractors responding positively	Notes
Be willing to co-operate with other contractors *	21	* COOPERATION: Is there scope for combining resources in some way to make gangs more efficient? e.g. – gang winches e.g.whole trees to roadside & another gang with harvesters / processors deals with timber at or close to roadside
Be willing to develop capacity to harvest using Combined operations **	21	** Combined operations: Is there scope for fully integrating line wire work (winching / skidding &/or cablecraning) into your own harvesting operations with modern / updated machinery

Table 23: The contractors views on options in developing line wire work in Wales

QUESTIONNAIRE SECTION 4: THE CONTRACTORS VIEWS

The contractors were asked for their views on the problems facing the timber harvesting industry in Wales. This was divided into comments on the strengths or weaknesses (internal factors) and opportunities or threats (external factors) affecting each business as perceived by the contractors themselves. The aim was to carry out a "SWOT" analysis of the categories and thereby develop an action strategy for the industry.

The views were very wide ranging, from vague to distinctly emphatic in the postal returns. Similarly with the telephone interviews but the main limitation to the effectiveness of this was the extended amount of time that contractors spent answering this section: Feelings were mostly running high (both negative and positive) and the respondents went into the issues in some depth.

The contractors' comments were grouped into categories based on similarity of response, the count of number of comments in each category being represented below in Tables 24 and 25:

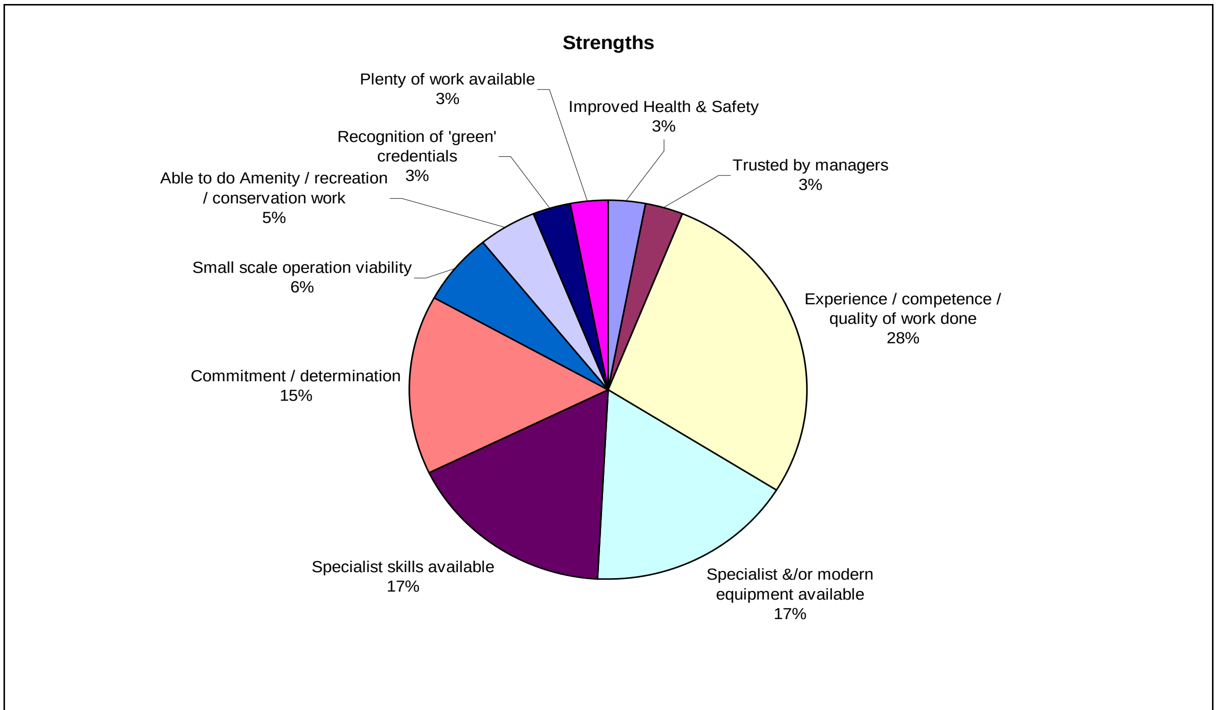
Strengths		***Weaknesses***	
Improved Health & Safety	2	Disillusionment / low morale / lack of encouragement	5
Trusted by managers	2	Transport shortage / costs	2
Experience / competence / quality of work done	18	Lack of co-operation between contractors / travelling distances	6
Specialist &/or modern equipment available	11	Cost of training & certification	2
Specialist skills available	11	Lack of chainsaw skills	8
Commitment / determination	10	Ageing workforce / loss of skills	17
Small scale operation viability	4	Wages / Contractor rates	6
Able to do Amenity / recreation / conservation work	3	Machine running costs	12
Recognition of 'green' credentials	2	Lack of investment / age of machines / nosuitable replacements	18
Plenty of work available	2	Low profitability / lack of viability to a successor	10
		Cashflow (dispatch v payment)	2

Table 24: The count of contractors comments on strengths and weaknesses in the timber harvesting industry in Wales.

Opportunities		Threats	
New Woodfuel markets	9	Mills / outlets closing / lack of markets for low grade timber	7
Local / value added markets	7	Environmental change / environmental constraints	4
Increased timber availability in private sector	7	Poor machinery grant support	3
Grant Schemes eg BWW	5	Continuity / availabilityof work / no long term contracts	20
Modern Apprentice scheme	2	Payment rates / price of timber	22
Continuous Cover Forestry	2	Lack of operators / new recruits	27
More small scale / line wire work	5	Competition from foreign / cowboy labour	4
More woodland areas available	3	Tendering system - low prices / competition between contractors	3
Potential LTC's	1	Poor attitude, focus, coordination from management / bad management / variable policies	21
More focus from managers	1	Theft / vandalism	3
Increased timber need / demand	5	Regulation / legislation / bureaucracy / red tape	17
		Insurance costs	1
		Payments currently by weight rather than volume	2
		Competition from big outfits / cheap timber imports	12
		Lack of available better timber / low investment in planting / poor accessibility	6

Table 25: The count of contractors comments on opportunities and threats to the timber harvesting industry in Wales.

The data was further analysed to give a visual representation of the percentage of overall response for each of the categories above, perceived strengths and weaknesses, opportunities and threats. This is represented in chart form below (Tables 26 and 27):



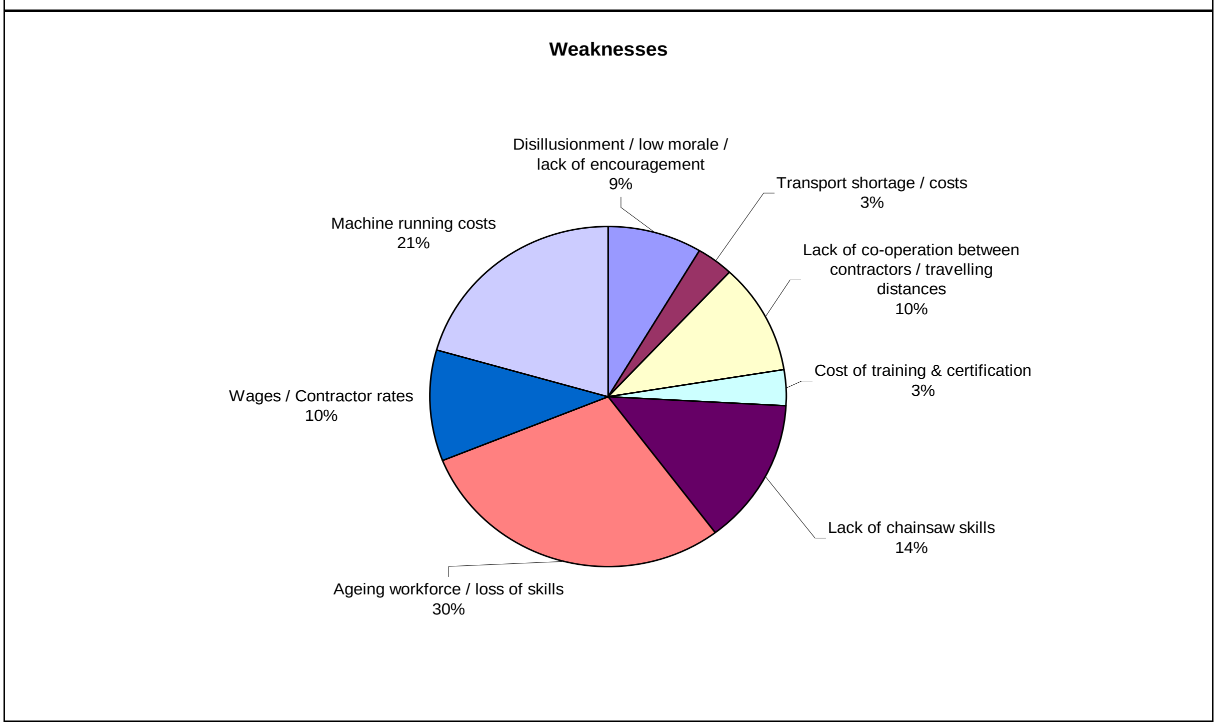
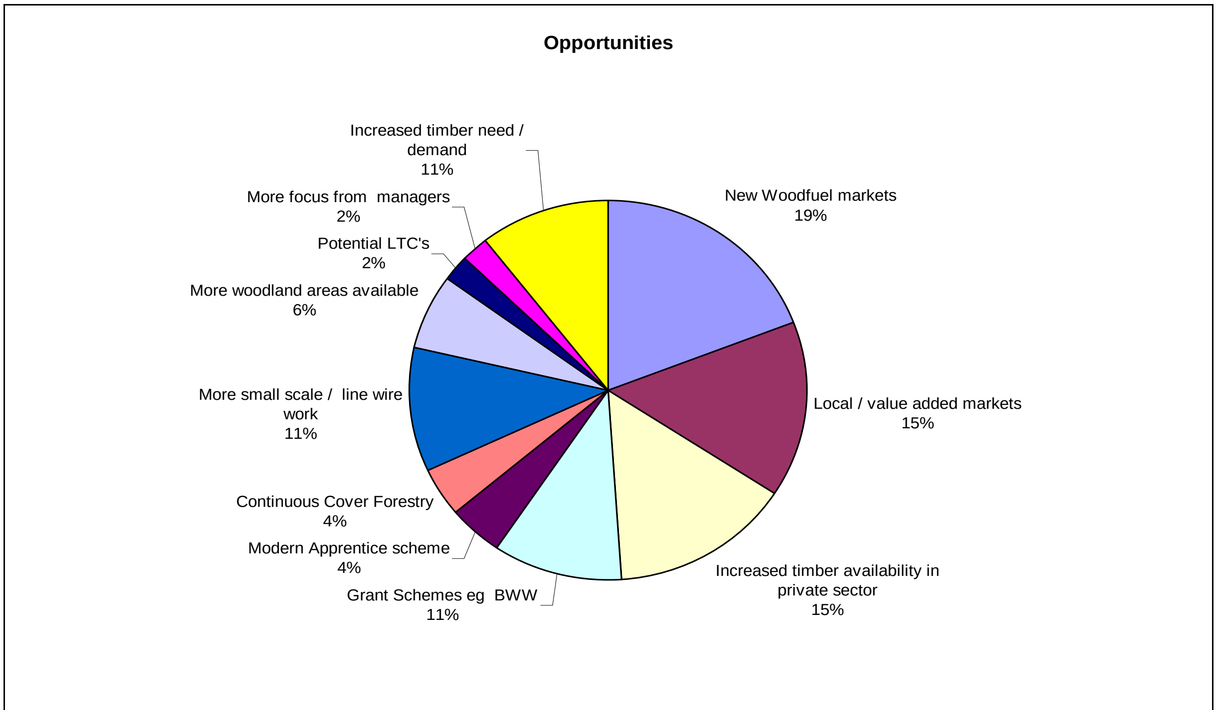


Table 26 : Perceived Strengths and weaknesses by percentage of comments from the timber harvesting contractors in Wales



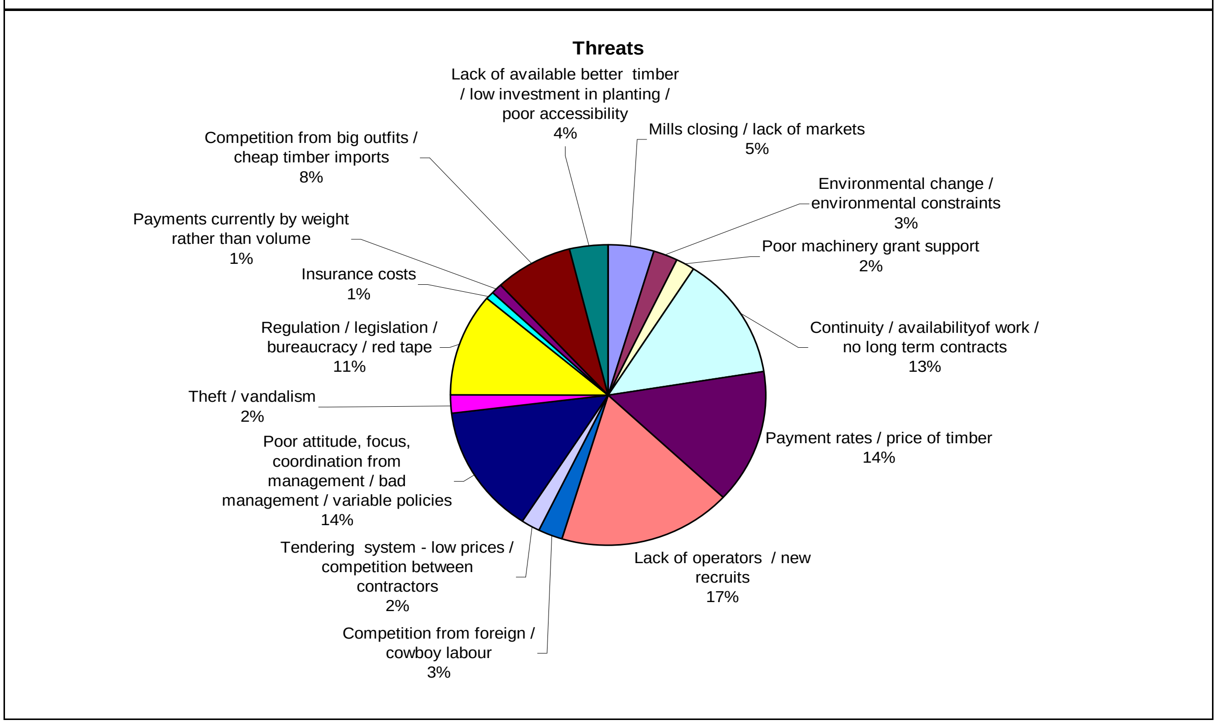


Table 27 : Perceived Opportunities and Threat,s by percentage of comments from the timber harvesting contractors in Wales

THE CONTRACTORS VIEWS: DEVELOPMENT OF AN ACTION STRATEGY FRAMEWORK

The data above was inserted into a classic "SWOT" analysis, creating a matrix from the two groups (Internal factors, Strengths and weaknesses and external factors, opportunities and threats) as shown in Table 28 below.

This method was originally developed by Albert Humphrey, who advocated that an action strategy could be developed using six categories, which we have adapted from the contractors' comments as follows:

Action Strategy framework:

Timber resource
Harvesting
Markets
Transport issues
Payment / costs / investment
Administration

Translating the SWOT issues into actions using the six categories means the issues are then more quantifiable and measurable, responsible teams can be more accountable and therefore the activities more manageable. Each of the four action sections in the SWOT matrix (areas from the categories to defend, for growth, to change and to avoid) are clearly marked out in the matrix below.

The four action categories thus derived show a clear way forward for the timber harvesting industry in Wales. This will need coordinating from the ground up: Top down manipulation of such a disparate industry is likely to lead to disaster, with an already alienated contractor network falling further into disarray.

At two extremes, some contractors (a minority from the survey returns) are happy with their lot whilst others are about to "throw in the towel" (whether it be from economic, management, machine, timber resource or recruitment shortfalls). The remainder lies between these two extremes, but ALL have problems facing them which other more structured industries do not encounter so unilaterally.

To structure the industry using the action points below will take an enormous commitment towards positive change, both on the part of the contractors and the managers and agents controlling the land, the work and the marketing.

As an example, better co-operation between contractors and managers is already happening in some areas, but only when there is a commitment from managers to care about the long term health of the contractors' businesses. However better management will only come about if contractors are able to be more flexible in their approach to a changing industry. It is a closed loop in that each party needs the other so both will need to adapt, with mutual benefit, to survive.

Table 28 follows:

SWOT Analysis **Wales Timber Harvesting Resource Study** **Development Strategy framework:** Timber resource Harvesting Markets Transport issues Payment / costs / investment Administration	***Strengths*** (maintain, build 7 use leverage)	***Weaknesses*** (remedy or exit)
	• Improved Health & Safety • Trusted by managers • Experience / competence / quality of work done • Specialist &/or modern equipment available • Specialist skills available • Commitment / determination • Small scale operation viability • Able to do Amenity / recreation / conservation work • Recognition of 'green' credentials • Plenty of work available	• Disillusionment / low morale / lack of encouragement • Transport shortage / costs • Lack of co-operation between contractors / travelling distances • Cost of training & certification • Lack of chainsaw skills • Ageing workforce / loss of skills • Wages / Contractor rates • Machine running costs • Lack of investment / age of machines / no suitable replacements • Low profitability / lack of viability to a successor • Cashflow (dispatch v payment)
Opportunities (Prioritise & optimise)	SO - Growth	WO - Change
• New Woodfuel markets • Local / value added markets • Increased timber availability in private sector • Grant Schemes eg BWW • Modern Apprentice scheme • Continuous Cover Forestry • More small scale / line wire work • More woodland areas available • Potential LTC's • More focus from managers • Increased timber need / demand	• Take advantage of new woodland areas coming into management (e.g. BWW schemes) and private sector release of timber as need / demand improves • Enhance good relationships & continuous working with focused managers, plus LTC's • Encourage specialist teams with modern equipment to carry out line wire / small scale harvesting • Develop woodfuel harvesting systems in tandem with market development • Gain further expertise in amenity / conservation-based and CCF working • Continue with professional development by contractors to maintain management of H&S	• Re-introduce grant aided skills training for use of chainsaw, winches, etc • Reduce transport problems by developing local / value added markets • Help cashflow by paying for work done via prompt dispatch • Use opportunity from new / expanding markets to improve profitability • Initiate uptake of Modern Apprenticeship scheme to upgrade & expand workforce • Support investment in new machinery fit for purpose through LCT's • WAG pay for thinning and other improvement work through e.g. the public purse not from timber sales *per se*, in return for public access etc.
Threats (counter)	ST - Defend	WT - Avoid
• Mills / outlets closing / lack of markets for low grade timber • Environmental change / environmental constraints • Poor machinery grant support • Continuity / availability of work / no long term contracts • Payment rates / price of timber • Lack of operators / new recruits • Competition from foreign / cowboy labour • Tendering system - low prices / competition between contractors • Poor attitude, focus, coordination from management / bad management / variable policies • Theft / vandalism • Regulation / legislation / bureaucracy / red tape • Insurance costs • Payments currently by weight rather than volume • Competition from big outfits / cheap timber imports • Lack of available better timber / low investment in planting / poor accessibility	• Trust contractors to manage sites longer term to reduce administration and benefit from commitment to quality work • Educate / raise public awareness of skill variety in forest / woodland industry to target new recruits • Concentrate on issuing work to smaller firms with specialist skills and equipment to improve quality of timber stocks over time • Lobby WAG to accept that smaller scale and specialist work will need paying for, avoiding 'lowest common denominator' mentality • Continue to develop woodfuel market (including firewood in 2nd phase of WEBS) to consume low grade timber • Co-ordinate work programs to gain continuity of work through better management of contracts • Monitor Better Woodlands for Wales scheme to ensure it is encouraging investment into improvement of timber quality and increased stocking / replanting / planting and modify accordingly	• Change tendering system to encourage co-operation between gangs to maximise value of timber & reduce competition on price • Train managers in HR skills to diffuse 'us & them' ethos & improve relations • Reduce bureaucratic burden and 'tick box' approach to paper management systems • Interpret legislation / regulation pragmatically in consultation with contractors (the current HSE approach) • Write into Welsh Woodland Strategy the need for consistent & long-term policies to both retain contracting firms & skills and promote new entrants into the industry • Promote co-operation between the public and private sectors to keep contractors continuously active in their particular skill areas • Give smaller contractors higher rates for smaller scale / more complex working – they can't run businesses unless there is profit • Accept that under-managed woodland & forestry will need investment to become manageable! • Shift attitude of harvesting companies / managers from insistence that 'making a living' is sufficient for a contractor, to ensuring a profit is made, to everyone's benefit.

CONCLUSIONS: THE FUTURE FOR THE TIMBER HARVESTING INDUSTRY IN WALES

1. THE CURRENT RESOURCE

The percentage response to the survey shows on the one hand some contractors happy to respond with positive comments and others keen to air negative views of the current state of the industry. The lack of response from half those contacts perhaps also indicates inertia within the harvesting sector where a large proportion of the workforce is disappearing from lack of investment, low profitability, difficulty in retaining staff and poor confidence in harvesting management.

The workforce is spread across the whole of Wales and is not confined to those areas receiving special support from European Grants at present. Little support is possible in such a disparate workforce, and with margins tight or non-existent the chance of being able to attract support with its overwhelming bureaucracy is slim for most harvesting firms.

The mechanized harvesting sector is well catered for as far as availability of modern machinery is concerned although over-resourcing means a number of contractors are moving out of Wales altogether to avoid the downward spiral of prices inevitable with excess competition.

The line wire operators, now a scarce resource and the gangs are predominantly small, are operating with equipment that is now, in the case of the "County" tractor (although dominating half of the machines in operation), is on average 24 years old. The spares are still available for these machines and contractors arte often highly skilled themselves in maintaining them. However, down-time is high and key structural components are not available except by "cannibalising" machines that were last manufactured in the mid 1980's.

2. THE FUTURE FOR THE RESOURCE

Replacement of machines approaching obsolescence is impossible with margins so low at present, no real alternative being manufactured and in many cases no confidence in the future of the industry in its present form.

The time has obviously come, from the nature of the responses to the survey, to completely re-think how marginal areas are to be harvested especially when many areas will need thinning to avoid dereliction.

There is an open question as to whether a proportion of the work undertaken is more amenity, recreation, landscape or conservation work than timber harvesting *per se* and needs supporting by those industries and not be dependent on timber income to sustain what are in reality marginal harvesting exercises.

Contractors recognize the high level of skill and commitment that is ensuring their survival in a difficult social, economic and environmental arena. This is good news for Wales but not a lot of use if

a. working difficult land is not supported by the people who want to enjoy that land,

b. the workforce has a poor training infrastructure in that it is at present geared around obtaining "tickets" to work instead of building up skills over a lifetime and

c. the machines man enough to do the job are prohibitively expensive to purchase.

Availability of men and machines is paramount to a successful business, as is continuity of work with forest and woodland managers working alongside the contractor rather than against him.

This does work both ways as some contractors will need to become more flexible in the type of work they can do, but getting out of the loop is a difficult task when management is inept, unfocussed or in post for such a short period that long-term purpose is non-existent.

3. DEVELOPMENT OF THE ACTION STRATEGY FOR THE TIMBER HARVESTING RESOURCE IN WALES

The framework for action strategy indicated in the "SWOT" analysis above is self-evident in the various opportunities for growth and change, and the areas to defend or avoid. All the action points bulleted in the matrix are achievable given the commitment of all parties from Government (the top) to the contractors (the ground).

Some examples are expanded below:

a. NEW MARKETS AND NEW WAYS OF WORKING

Despite the fact that the contractors' views and aspirations have been analysed to create the action plan, nonetheless it is up to the contractor to commit to implementation of initiatives as they start to develop. This is especially true where new areas (such as timber supply for energy markets) open up.

Some contractors have already moved into areas only loosely associated with harvesting such as landscape, amenity, conservation and recreation work to good effect, whilst others have diversified into processing their timber to add value.

Both these examples of "from the ground, up" initiatives increase profitability but not all contractors can think or act laterally with ease.

The "ground up" not "top down" approach to the survival of the industry will depend on a major change in attitude; not just from woodland managers but the contractors themselves to dismantle the "us" versus "them" culture that has arisen in some areas.

There are certainly managers out there who care about the workforce, and there are contractors who have a great deal of respect for the forest and woodland managers keeping them in work. It is an issue to pursue: However, to enhance these favourable points, solid support from the top is the best way of ensuring ground up progress.

b. INDUSTRY REPRESENTATION

With the recent demise of the Forestry Contractors Association Officers in Wales, the industry lost its independent liaison between parties and the channel through which many contractors were able to send and receive information and gain help and support.

In a disparate industry that no longer has such ubiquitous representation, the Welsh Assembly Government could support posts such as this, a role very successfully maintained by Forestry Commission in the past but sadly no longer there.

Re-instatement of such a communication channel will go a long way towards motivating a contractor network that has a structure of fiercely independent operators who nevertheless need to keep in touch with the wider industry.

c. MODERN APPRENTICESHIPS

Whilst the myriad of skills encountered in the timber harvesting industry still exist, further room for development of the workforce is offered in the form of the Modern Apprenticeship scheme in forestry. However, new recruits are expensive to train properly and difficult to retain especially when other occupations with similar skills pay far better than the timber industry at present.

The National Vocational Qualification framework melds perfectly with the current NPTC Certificates of Competence system; what is missing is a comprehensive training infrastructure for timber harvesting skills other than chainsaw and ancillary machines.

Training on harvesting and extraction machinery in Wales is currently carried out *ad hoc* and is usually in-house with varying degrees of quality, intensity and commitment to fully meeting training objectives. The apprenticeship scheme is ideal for enhancing the skills base of the workforce but only if financially support for participants can be obtained through training initiatives; at present there are none available within the industry.

Trainees will develop ability and understanding in a number of skills so they will have a better grounding and be able to work different aspects of the job demonstrating more flexibility: In fact, these are the very attributes held by many of the current contractors who started on the ground and from that foundation built up their skills, enabling them to survive in the harsh business climate of today.

We need to see a system where such broad based and fundamental skills are developed now and into the future so that they do not disappear.

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