

TECHNICAL NOTE

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SUMMARY

This Technical Note contains information on the 1999 and 2001 harvesting machine censuses. As 31% fewer returns were received in 2001 a meaningful comparison of numbers cannot be made but an indication of trends is given.

Purpose-built harvesters account for the largest holding at 57% of the total, compared to 50% in 1999; tracked based harvester holdings have reduced from 47% to 40%. Other harvesting machines, converted forwarders, etc., account for the remaining machines.

In the 2001 census, 65% of the machines are between 0 and 5 years old, 90% are between 0 and 10 years old and the remaining 10% are over 10 years old. The number of processors has reduced during the period, and accounts for only 5% of harvesting machines. The processors used now tend to be over 10 years old. The forwarder fleet is predominately owned by the private sector. The proportion of tractor trailer units in relation to purpose built machines is reducing.

Forest Enterprise no longer own any cableway systems; all machines are owned by the private sector. The percentage of cableway systems as a proportion of all harvesting extraction systems remained the same from 1999 to 2001. Most cableway systems are over 10 years old.

Skidder ownership is split 96% private sector, 4% Forest Enterprise. Skidders now form 24% of the extraction fleet compared to 32% in 1999. In the 2001 census clambunks have been recorded for the first time.

A typical purpose-built harvester



INTRODUCTION

The aim of this Note is to continue to build on information obtained from previous censuses of harvesting machines used in the UK. The census is based on information supplied by the Forestry Commission (FC), Forest Enterprise (FE) and the private sector through the support of the Forestry Contracting Association (FCA). The analysis of the data identifies trends and patterns of machine types in use.

The census does not take into account harvesting machinery under repair or not declared by the individual owner. The results from the 1999 and 2001 censuses are shown together with those obtained from previous years. A direct comparison cannot be given due to the variation in the number of returns obtained from each census. Although the same number of requests for information were made as in 1999, 31% less returns were received in 2001. However, the results are an indication of trends and developments currently taking place in the UK.

This report was commissioned to advise Forestry Commission staff. The information is made available to the wider forest industry but it is not intended as an endorsement or approval by the Forestry Commission of any product or service to the exclusion of others which may be available.

MACHINE TYPES

The information covers the following machine types:

- Harvesters:** purpose-built, tracked excavator-based, other conversions.
- Processors:** purpose-built, forwarder conversions.
- Forwarders:** purpose-built, tractor-trailer combinations, others.
- Cableways:** tractor-trailer units, tractor-mounted, trailer mounted and excavator-based.
- Skidders:** purpose-built, agricultural tractor conversion.

Total regional holdings

The total regional holdings for the 1999 census and the 2001 census of machine categories are shown in Tables 1 and 2.

Table 1 Regional holdings 1999

Machine category	North Scotland	South Scotland	England	Wales	UK
Harvesters	109	57	94	66	326
Processors	9	6	12	19	46
Forwarders	110	59	134	100	403
Cableways	19	10	3	18	50
Skidders	25	20	68	97	210
Total	272	152	311	300	1 035

Table 2 Regional holdings 2001

Machine category	North Scotland	South Scotland	England	Wales	UK
Harvesters	89	65	103	50	307
Processors	4	5	4	4	17
Forwarders	79	71	111	58	319
Cableways	13	10	3	12	38
Skidders	7	9	55	40	111
Total	192	160	276	164	792

Machine numbers obtained from all censuses since 1994 are given in Table 3.

Table 3 Machine numbers recorded 1994–2001

Machine category	Census years			
	1994	1996	1999	2001
Harvesters	220	242	326	307
Processors	84	74	46	17
Forwarders	388	375	403	319
Cableways	69	56	51	38
Skidders	391	262	212	111
Total	1 152	1 009	1 035	792

Although the actual number of machines recorded in each category cannot be directly compared over the different years the proportion of different machines in a given census year gives a good indication of trends (Tables 4 and 5).

Table 4 Proportion of harvesting equipment over the 7-year period (%)

Machine category	Census years			
	1994	1996	1999	2001
Harvesters	72	77	88	95
Processors	28	23	12	5

Table 5 Proportion of extraction equipment over the 7-year period (%)

Machine category	Census years			
	1994	1996	1999	2001
Forwarders	46	54	60	68
Cableways	8	8	8	8
Skidders	46	38	32	24

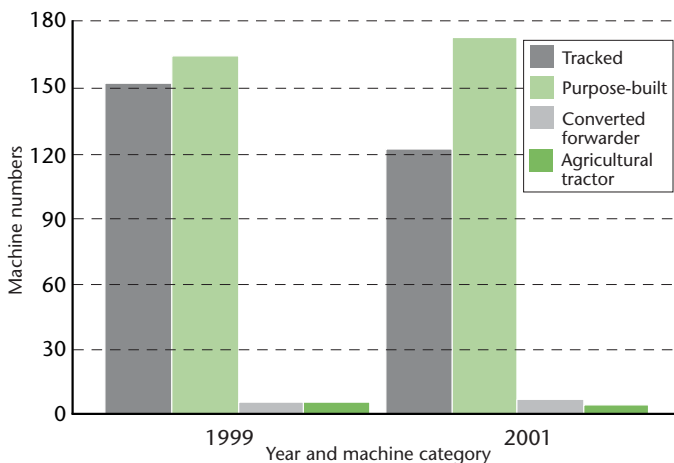
The percentage of harvesters compared to processors continues to increase. Extraction is predominately by forwarders. The breakdown of equipment used in 2001 is forwarders 68%, skidders 24% and cableways 8%. The percentage of forwarders also continues to increase while the skidder percentage decreases. The cableway percentage remains constant.

HARVESTERS

The private sector owns 84% of harvesters and FE owns 16%. Nearly 65% of the harvesters are between 0 and 5 years old and 25% are between 6 and 10 years. In the 2001 census purpose-built harvesters account for 57% which is an increase of 7% in the period from 1999. The proportion of tracked excavator-based harvesters reduced by 7% (47% in 1999 to 40% in 2001). The remaining 3% to 4% (1999 and 2001) is accounted for by forwarder and agricultural tractor converted units.

The distribution of purpose-built, tracked and other harvesters is shown in Figure 1 for 1999 and 2001. Figure 1 shows that there is an increasing trend for the purpose-built machine to be preferred over the excavator-based harvester.

Figure 1 Harvester base unit machines: 1999/2001



The breakdown of harvester age class is shown in Figures 2 and 3 for the 1999 and 2001 results. The indications are that the harvesting machines used predominately fall into the 0 to 5 year age bracket. The age of the harvesting fleet is reducing with newer models being preferred to the older machines.

Figure 2 Age structure of harvesters: 1999

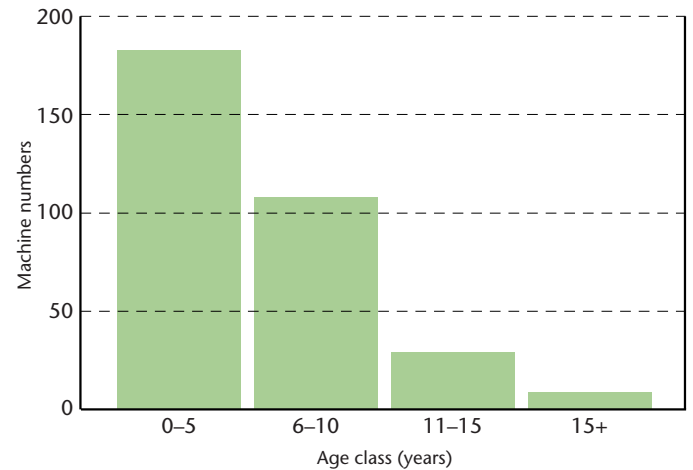
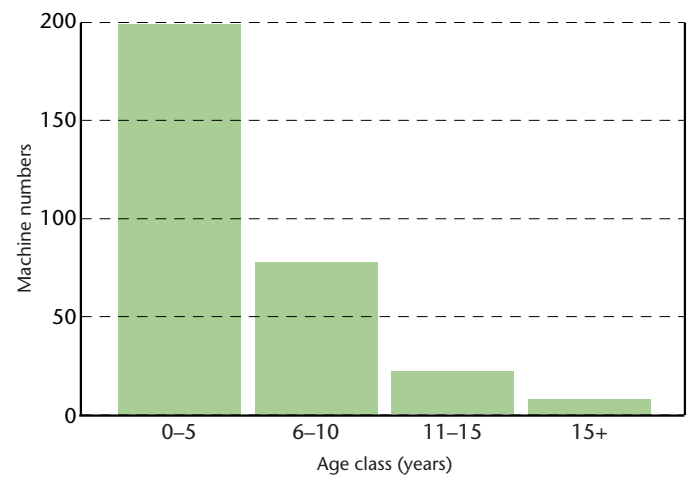


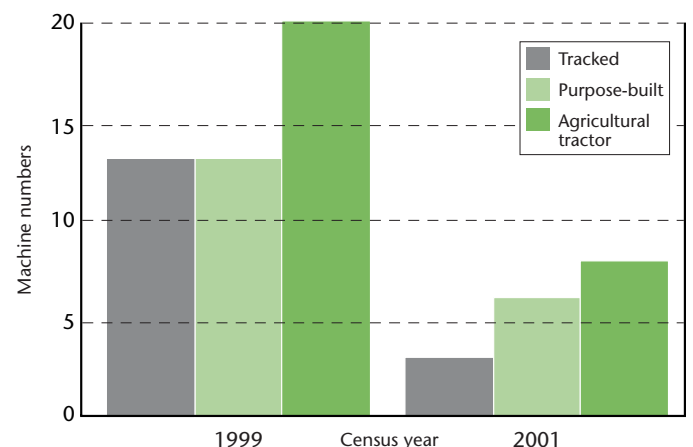
Figure 3 Age structure of harvesters: 2001



PROCESSORS

The processor ownership is divided between the private sector (95%) and FE (5%). For comparison, a breakdown of the base units for the 1999 and 2001 census is given in Figure 4.

Figure 4 Processor base unit types: 1999/2001



Overall, the proportion of processors in use has reduced from 12% to 5% during the two-year period between the censuses. There has been a reduction in all three processor types.

Returns show that *c.* 59% of the processor fleet are more than 10 years old. The age distribution of the processor units for the 1999 and 2001 censuses are given in Figures 5 and 6.

Figure 5 Age distribution of processors: 1999

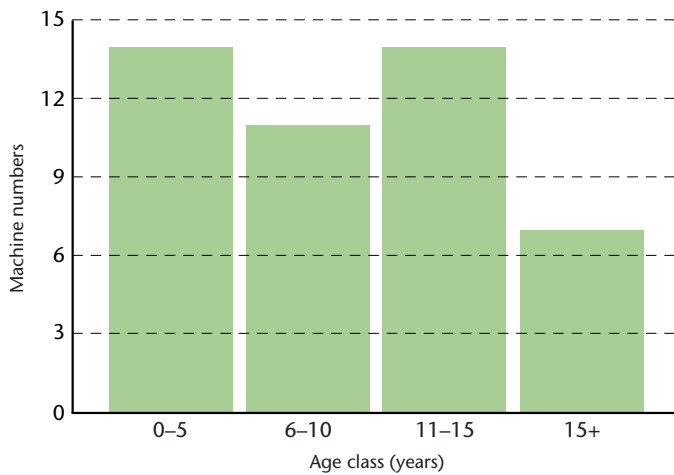
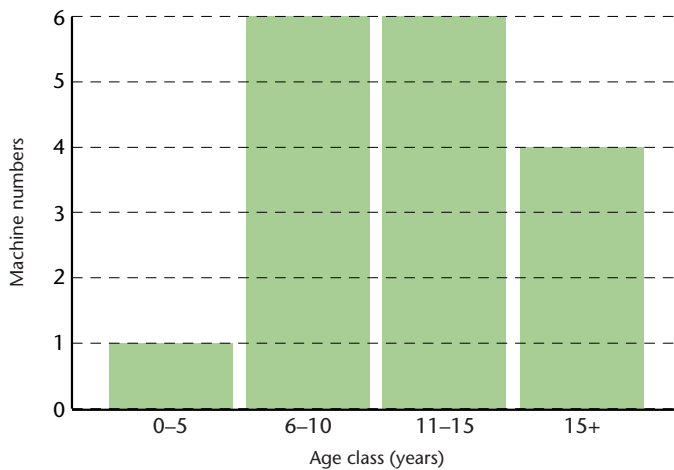


Figure 6 Age distribution of processors: 2001



FORWARDERS

The forwarder ownership is split between the private sector (79%) and FE (21%). The breakdown of the national fleet shows that the proportion of purpose-built forwarders has increased from 52% to 68% in the two-year period between the 1999 and 2001 censuses.

An indication of the machine type distribution is given in Figure 7. The age class distribution indicates that the larger percentage of machines used is in the 0 to 5 year category, irrespective of the census year. The age distribution is given in Figures 8 and 9.

Figure 7 Forwarder type: 1999/2001

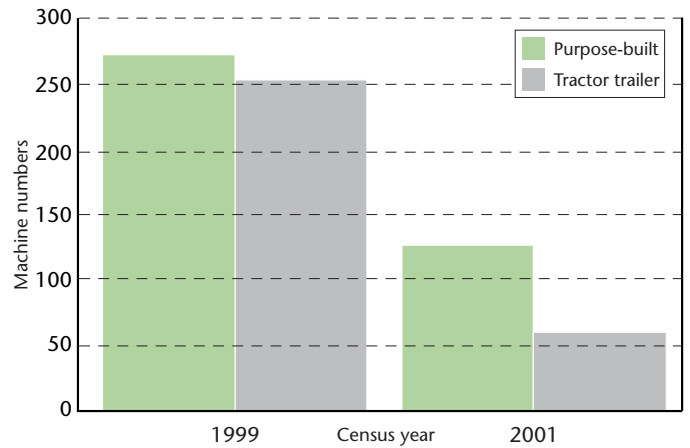


Figure 8 Forwarder ages class distribution: 1999

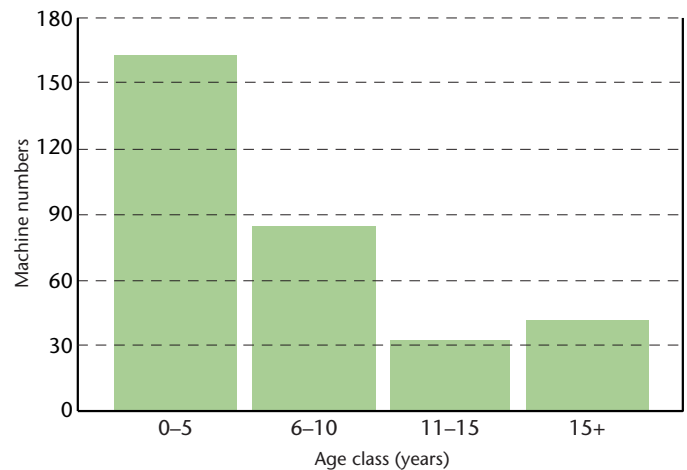
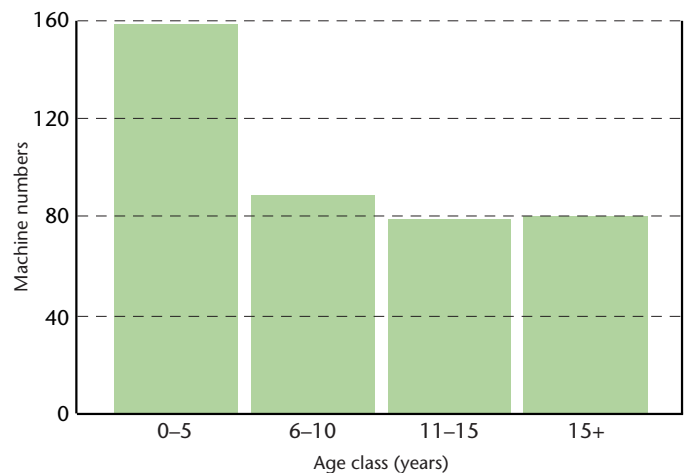


Figure 9 Forwarder ages class distribution: 2001



CABLEWAYS

The results from both the 1999 and 2001 censuses indicate that the proportion of cableways to total extraction machinery has remained the same. The 2001 census showed that FE owns no cableways.

The types of cableways in use are tractor trailer units (42%), tractor-mounted (18%), trailer-mounted (22%) and excavator-based (18%). The age class breakdown is given in Figures 10 and 11. In the 2001 census the largest numbers of the machines used (51%) are over 10 years.

Figure 10 Age class of cableway: 1999

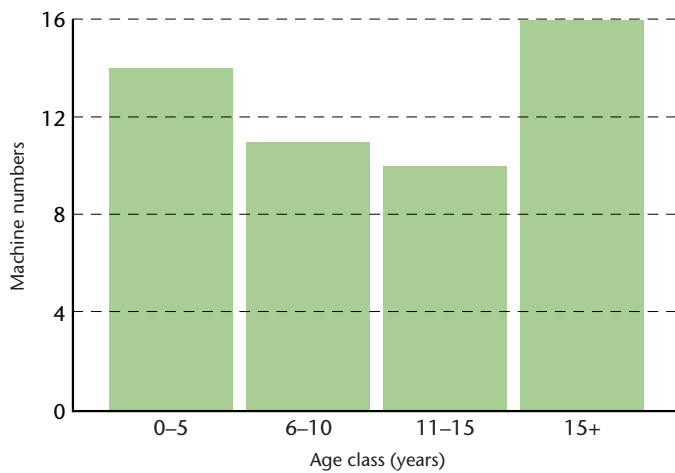
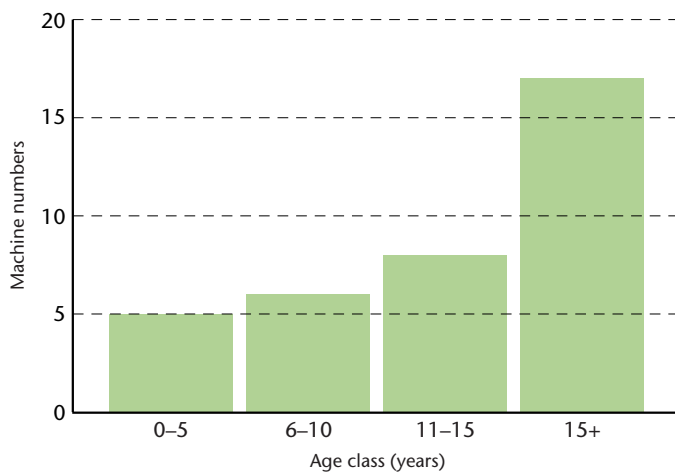


Figure 11 Age class of cableway: 2001



SKIDDERS

The skidder ownership is divided between the private sector (96%) and FE (4%). A breakdown of the of the machine types is given in Figures 12 and 13.

Figure 12 Skidder machine type: 1999

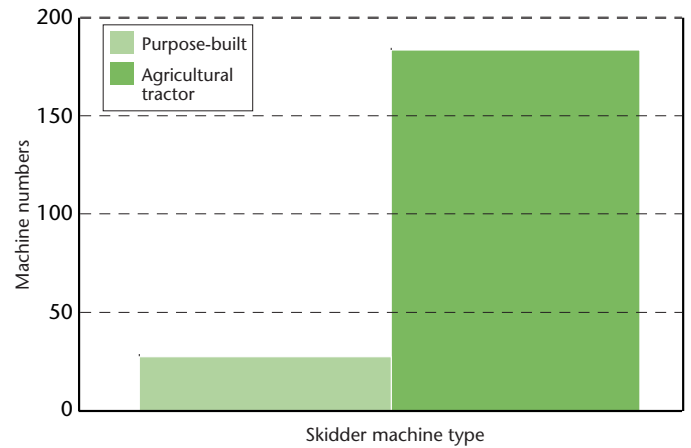
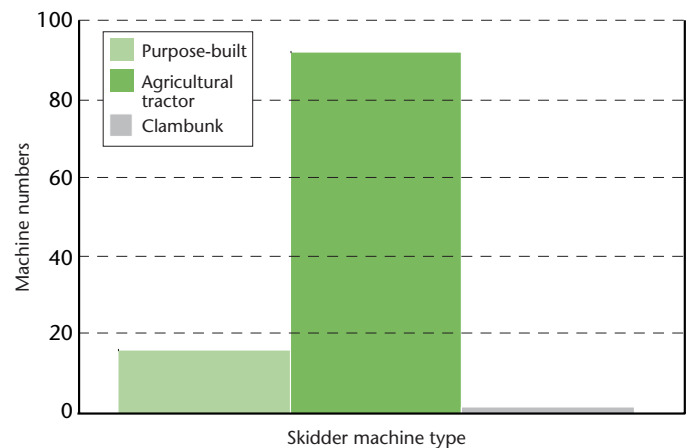


Figure 13 Skidder machine type: 2001



The proportion of skidders has reduced from 32% in 1999 to 24% in 2001. In the 2001 census the skidding systems include clambunks which are currently owned by FE. A breakdown by age class of the skidding machinery being used is given in Figures 14 and 15. The results of the 2001 census indicates that while the overall age of the skidder fleet is reducing this is most dramatic in the 15+ age class.

Figure 14 Age class of skidders: 1999

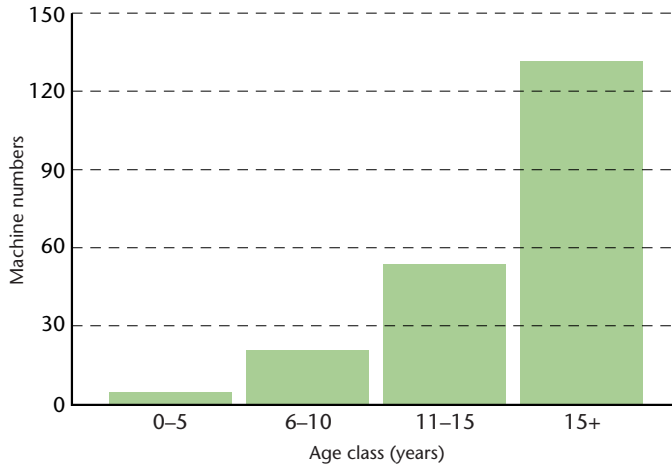
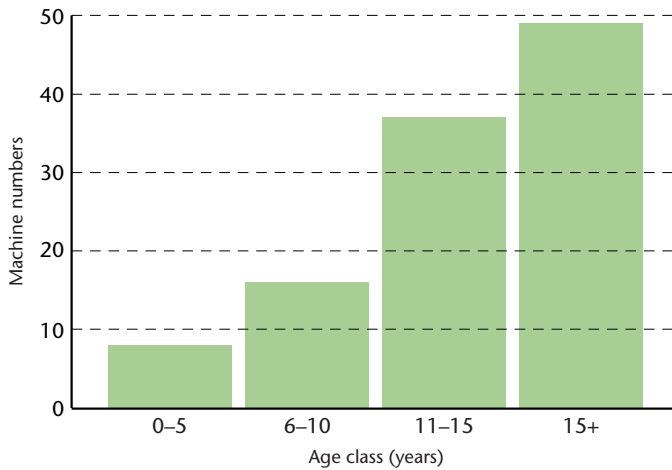


Figure 15 Age class of skidders: 2001



CONCLUSIONS

Harvesting Machinery

- Purpose-built harvesters account for the largest holding with a 7% increase from the 1999 results.
- 65% of harvesters in use are between 0 to 5 years old.
- The number of processors continues to reduce, and accounts for only 5% of harvesting equipment.

Extraction Equipment

- The forwarder fleet is predominately privately owned with 68% purpose-built machines.
- FE does not own any cableway systems. Of the privately owned, 51% are over 10 years old.

- The number of skidders has reduced from 32% in 1999 to 24% in 2001. Of these 96% are owned by the private sector.

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