

FORESTRY USE OF THE HELICOPTER

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THE ITALIAN SITUATION

- more than 30 helicopter service companies working in the agriculture-forestry area
- log transport generally not performed by helicopter due to the limited market value of woods that does not cover the high helicopter hourly cost (more than 1.000 €/h)
- Flight performed in the forestry sector are limited to material transport for camping/hiking hut construction/repair and infrastructure and engineering project.

THE STUDY AIMS

- 1 - To analyze the helicopter transport activities of an Italian aircraft company**
- 2 - To calculate the hourly cost of an helicopter (Eurocopter AS350 “Ecureuil”) used for skidding timber**
- 3 - To determine the helicopter skidding costs and compared to those of a cable crane**

1 – THE COMPANY DATA RECORDED

- **daily flight hours**
- **yearly helicopter maintenance and flight hours**
- **service type provided**
- **take off and landing times**
- **refueling and inspections events**

The collecting data period considered has been of five years and of more than 12.000 flight hours

2 – THE HELICOPTER HOURLY COST DETERMINATION

Eurocopter AS350 “Ecureuil”



Nom. engine power (kW)	Max take-off weight (kg)	Max load (kg)	Cruising speed (km/h)	Max distance of work (km)	Market value (€)
624	2.250	1.076	226	670	1.200.000

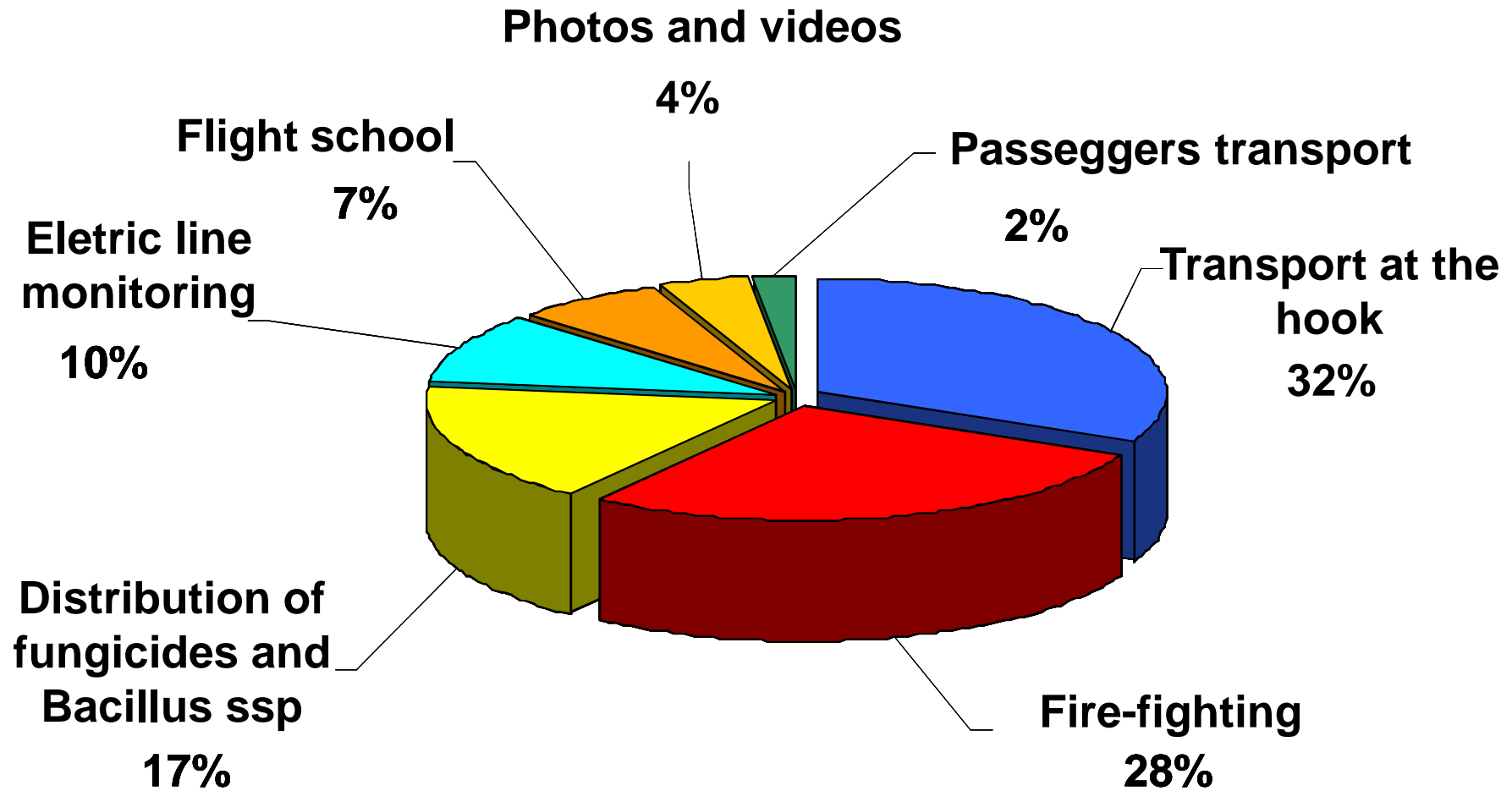
3 - HELICOPTER SKIDDING COST VERSUS CABLE CRANE

Main theechnical and operative characteristics of the skidding system analyzed

	Cable crane	Helicopter
Model	Mobil station	Eurocopter AS350
Nominal power (kW)	104	624
Average skidding distance (m)	450	
Timber skidding Volume (m ³)	750	
Load max (t)	2,5	1,0
Skidding direction	downhill	
Carriage type	motorized	-
Workers (n°)	1+2+1	2+2
Manpower cost (€ h ⁻¹)	12,00	

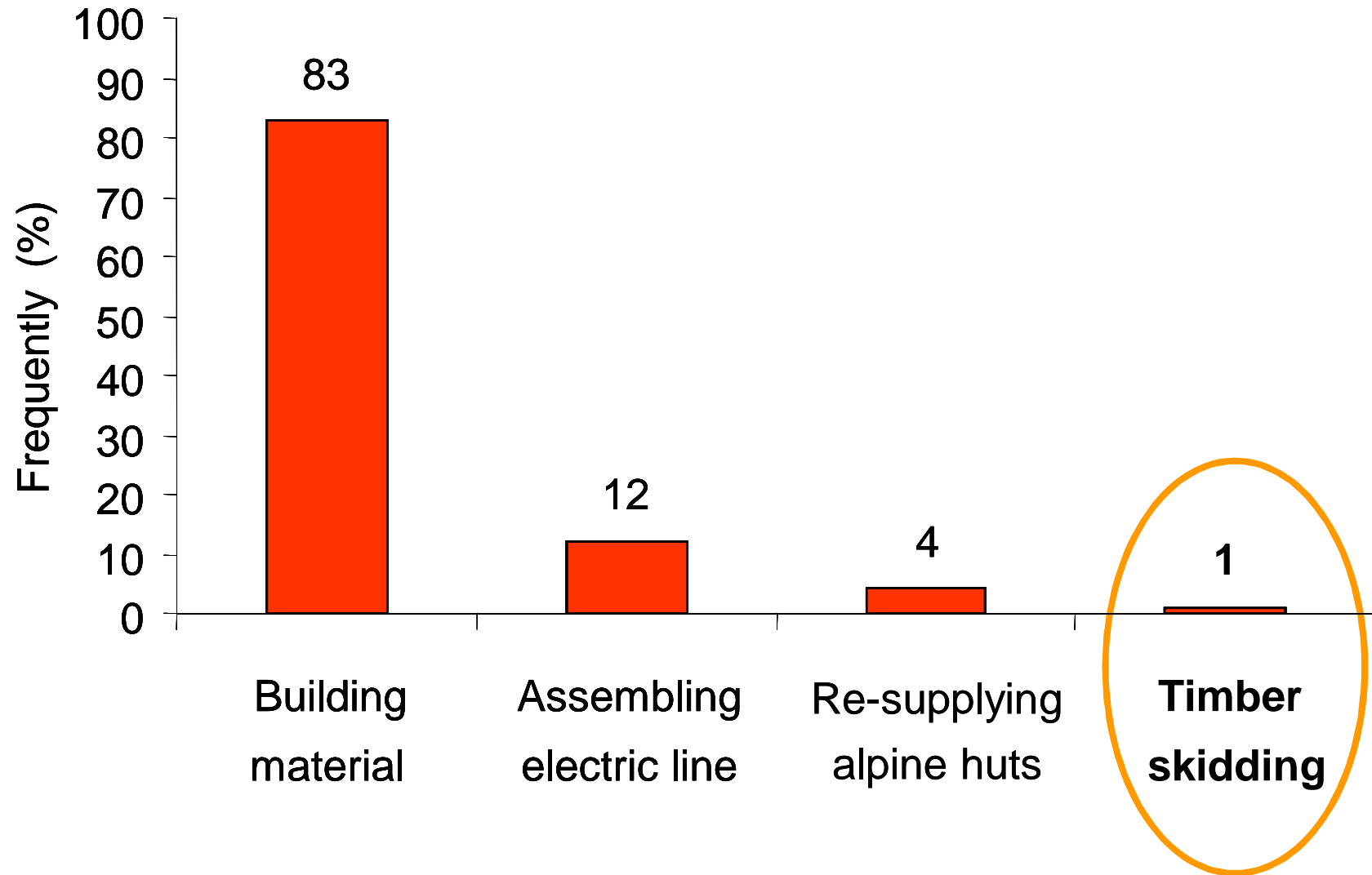
1 - COMPANY SERVICES PERFORMED

(Among the various services offered by the company, transport at the hook and fire-fighting were the two largest services provided)

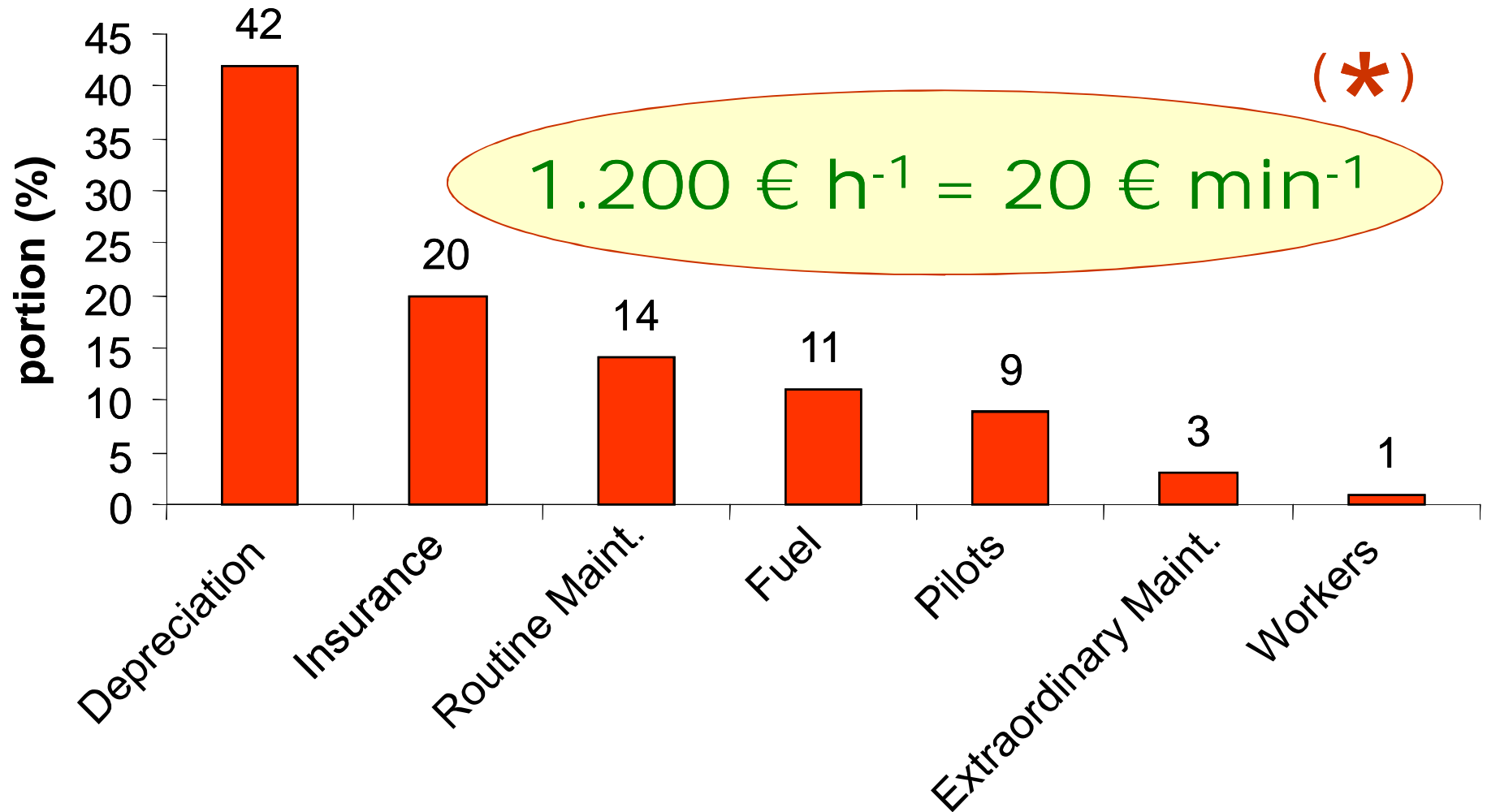


1 - COMPANY SERVICES PERFORMED

(Type of hook transport services)



2 - HOURLY COSTS OF THE EUROCOPTER AS350



(*) Value determined considering to flight 300 h x year and an annual operating cost of 360.000 Euro

3 - HELICOPTER SKIDDING COST VERSUS CABLE CRANE

	Cable crane	Helicopter
Assembly/disassembly line (days)	7	0
Skidding (days)	13	5
Work Period (days)	20	5
Timber volume (m ³ h ⁻¹)	7,5	19,0
Equipment hire cost (€)	2.700	45.000
Manpower cost (€)	8.000	2.000
Total cost (€)	10.700	47.000
Skidding cost (€m ³ -1)	14,30	62,30
Manpower incidence (%)	25	5

CONCLUSIONS

Forestry use of the helicopter

ADVANTAGES

- **Short working times**
- **Transport of log with higher length**
- **The possibility to work on a large scale without assembly/disassembly structures**

DISADVANTAGES

- **High hourly cost (about 4 times higher than the cable crane)**

In forestry, the helicopter might be preferable to use when the land conservation is considered a priority

A blue and white helicopter is landing on a construction site. A worker in a red suit is standing on a pile of sand in the foreground. The background shows a mountainous landscape with a valley. The text "Thanks for yours attention" is overlaid in large orange letters.

**Thanks for yours
attention**