

Measuring and pricing models for sawmill chips in Sweden

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Area 185 000 km²
Population 6.4 million



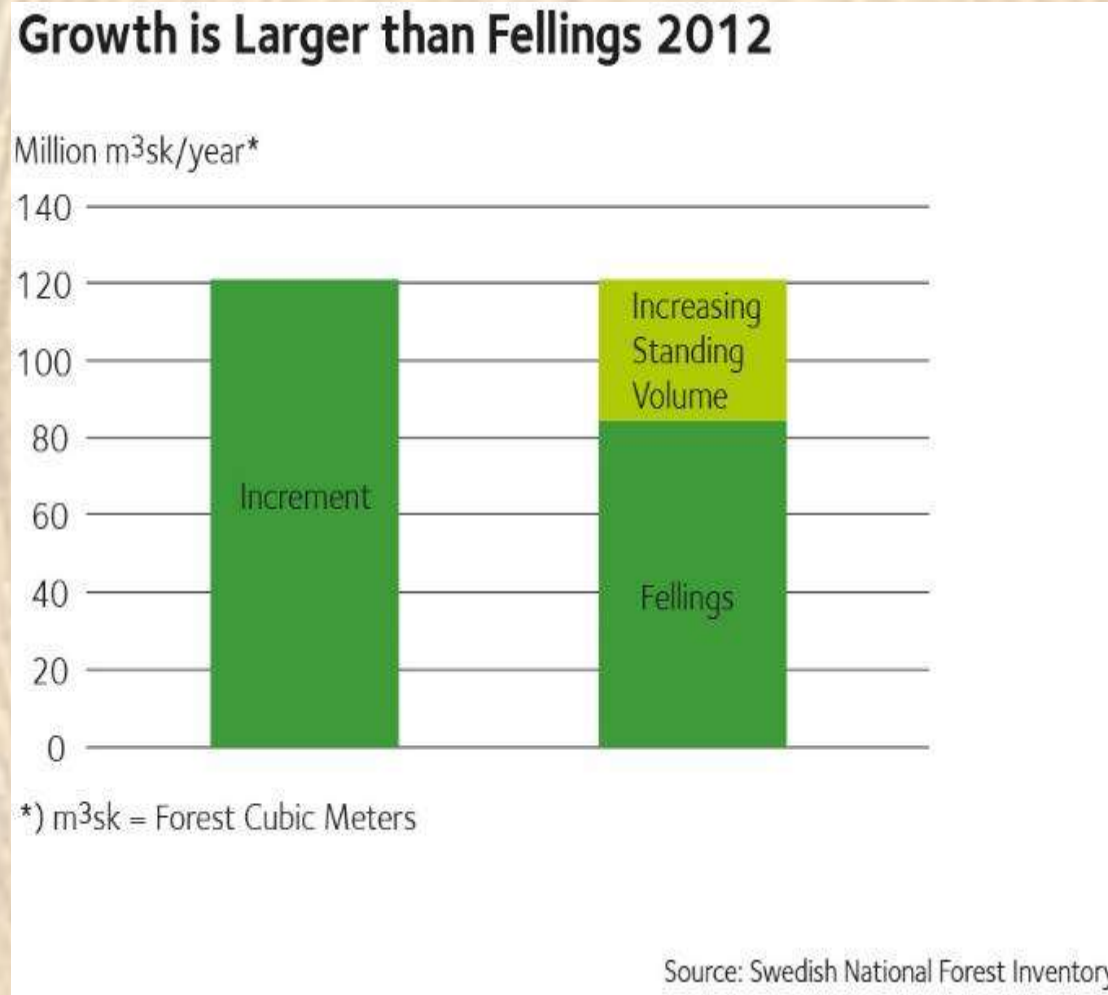
Area 255 000 km²
Population 3.7 million



Area 450 000 km²
Population 9.6 million

Sweden has about the same area and population as Washington

Growing forests and expanding industry



Sweden

- **41 Pulpmills**

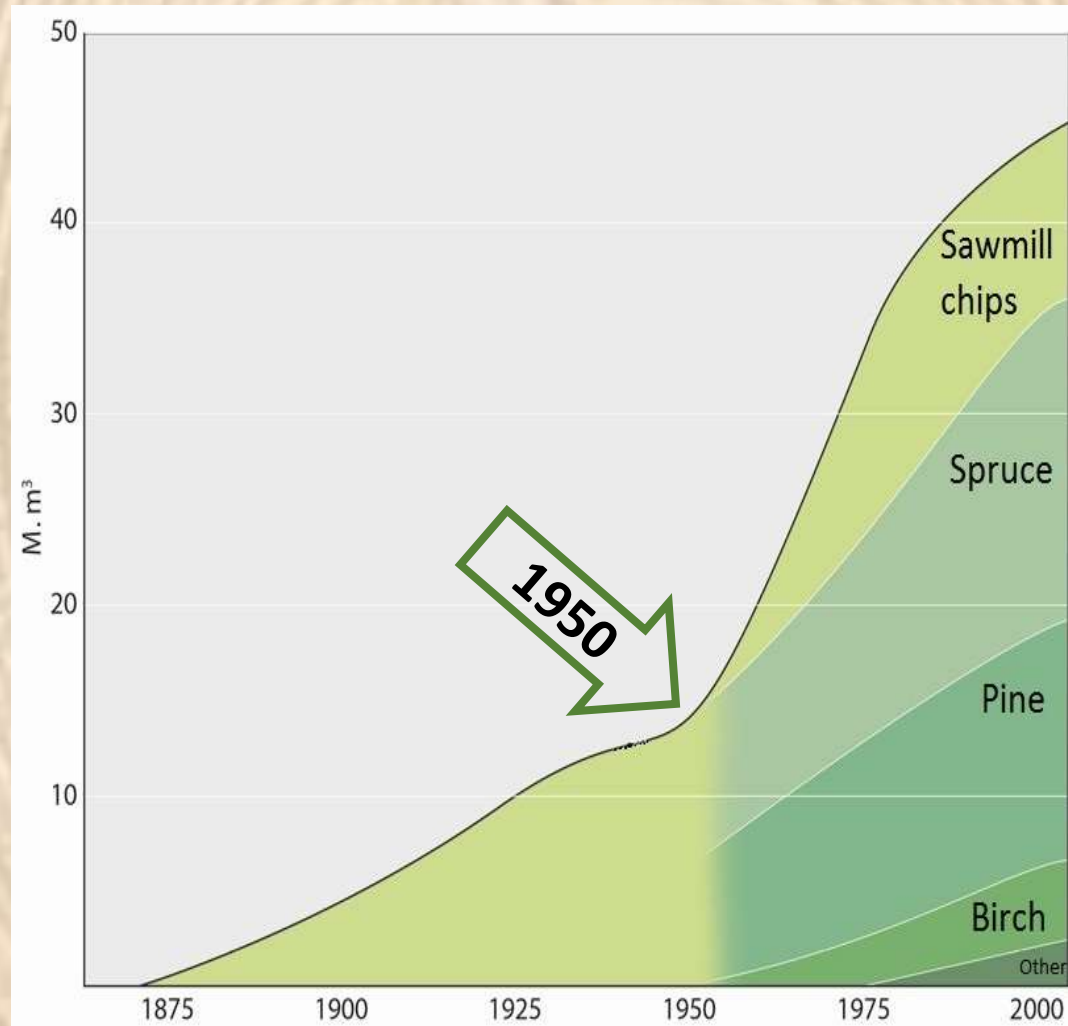
- Production: 12.6 million tonnes per year

- **130 Sawmills**

- Production: 17 million m³ sawn wood per year

Raw material supply

75 % Pulpwood 25 % Sawmill chips



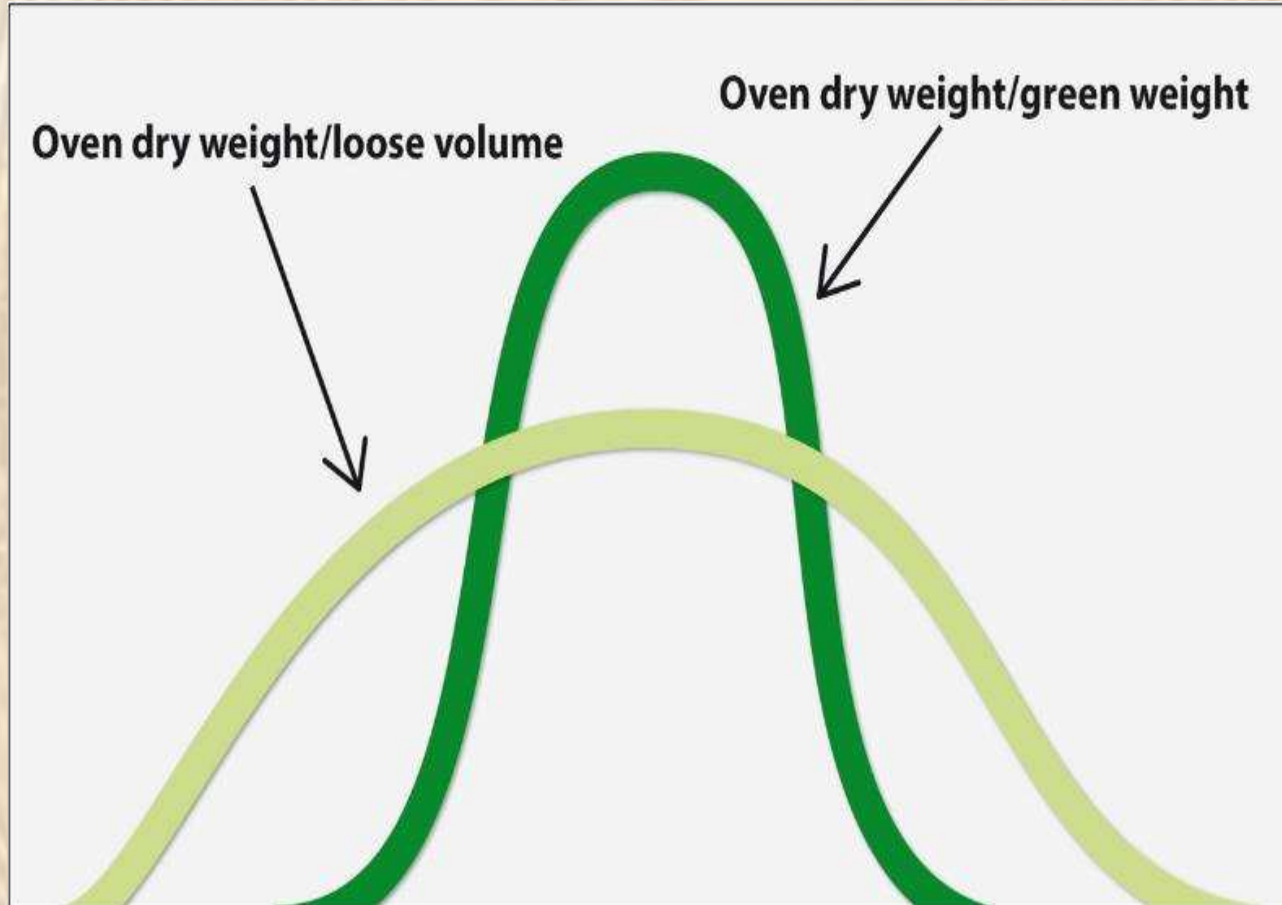
Transport



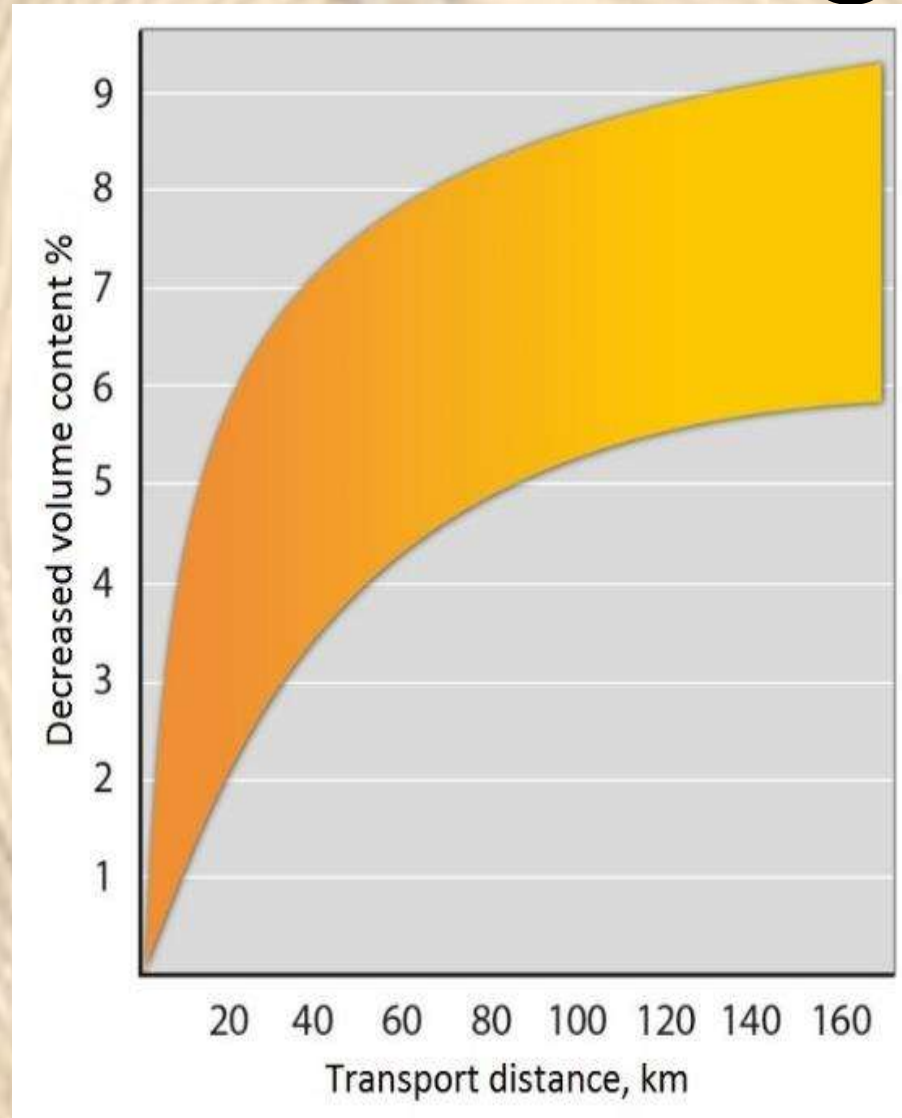
Transport



Measuring Quantity



Volume to weight



Measurement today



All trucks are weighed

- 25 trucks, samples are taken out of all trucks
- 100 trucks , samples are taken out of 30%
- 1.000 trucks, samples are taken out

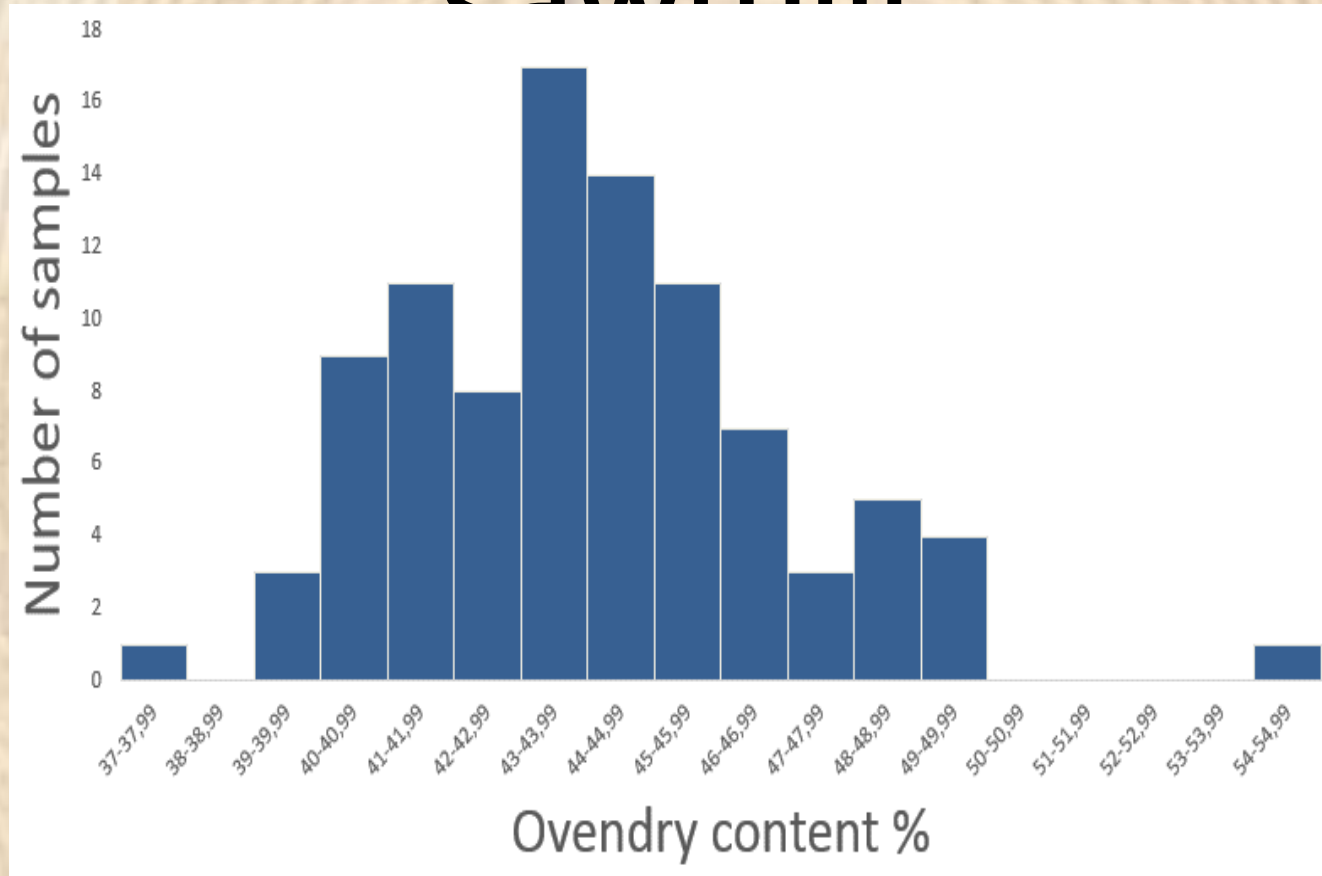
Sampling for moisture content and screening



Moisture content



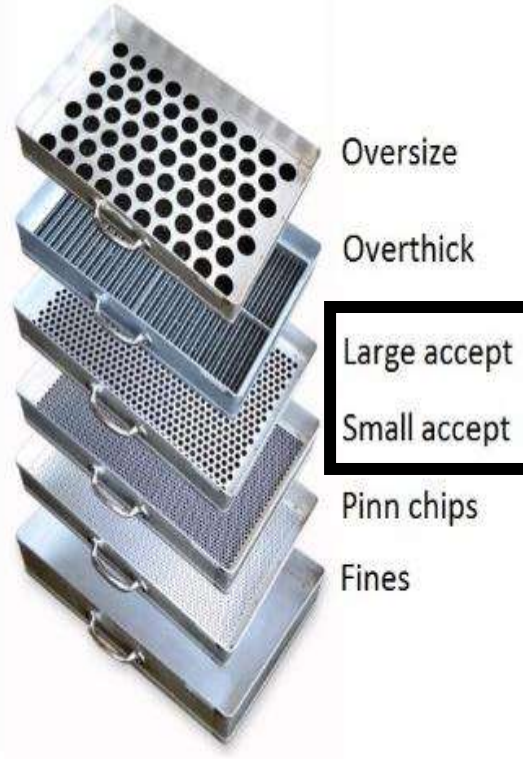
Example on output from a sawmill



Average for a year: 44%

95% Confidence interval for the mean 43.44% – 44.56%

Screening



Bark and rot content



Bark content

Jan- March: 0.26%

April – June: 0.21%

July- Sept: 0.12%

Oct – Dec: 0.18%

Result of screening

	Bark	Over size	Over thick	Large accept	Small accept	Pin chips	Fines
Average %	0.2	0.3	7.4	70.5	19.4	1.9	0.3
Standard deviation	0.2	0.4	7.4	6.3	4.7	0.9	0.2
Coefficient of variation	104	117	100	9	24	50	61

Pricing model

Table for value factors and screening limits					
Fraction	Value factor 1	Limit	Value factor 2	Cull limit	Cull value factor
Bark	-1.00	1.5%	-5.00	3%	0.45
Oversize	0.00	3%	-2.00	4%	0.45
Overthick	0.70	15%	0.30	20%	0.55
Large accept	1.20				
Small accept	0.90				
Pin chips	0.30	10%	0.0	20%	0.55
Fines	0.00	2.5%	-0.50	3%	0.45
Rot chips	-0.20	0.5%	-3.00	1%	0.45

Pricing model for sawmill

Table for value factors and screening limits

	Value factor 1	Limit	Value factor 2	Cull limit	Cull value factor
Fraction					
Bark	-1.00	1.5%	-5.00	3%	0.45
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Rot chips	-0.20	0.5%	-3.00	1%	0.45

How to calculate


Year delivery * price/ton OD * price factor =
Total price

100 000 tonnes OD * 78 USD * 1.1 = **8.58**

100 000 tonnes OD * 78 USD * 0.9 = **7.02**

million USD

the price factor will on average for a year be between 0.9 – 1.

A large, bold black question mark is centered on a background of concentric wood grain rings. The wood grain is light brown and shows a clear circular pattern, suggesting a cross-section of a tree trunk. The question mark is the central focus, with a thick, solid black fill. The background is slightly blurred, making the question mark stand out prominently.

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New techniques



New techniques



New techniques



New techniques





Thank You

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