

Production of Preservative Treated Wood in the Nordic Countries in 1994

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Nordic Wood Preservation Council

Production of Pressure Treated Wood in the Nordic Countries in 1994.

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1. Summary

The Nordic countries produced in 1994 a total of 1.24 million cubic meter pressure treated pine wood. This is an increase of 5 % compared with 1993. Sawn and planed wood were the main products (74 % of the total volume) and increased 4 % compared with 1993. The building companies and "Do-it-yourself"-buyers are still the main users of pressure treated wood. Poles cover 14 % of the total volume.

Sweden had the highest production volume with a total of 433,200 m³ (34.9 %), while Iceland had the lowest with 9,500 m³ (0.8 %). Finland produced 22.0 %, Norway 22.8 % and Denmark 19.4 %. **These figures do not include pressure treated spruce.** Pressure treated spruce, was produced in a volume of 152,900 m³ which is 12 % of the total production of pressure treated pine. In Sweden pressure treated spruce was 28 % of the total production of pressure treated pine, the same as in 1993.

Approx. 82 % of the Nordic production in 1994 was supervised by the different national voluntary control schemes. This is 2 % higher than in 1993. The Nordic standard INSTA 140 and NWPC-document 1.6.1/89 state the requirements for pressure treated pine wood. 64 % of the treated spruce production in Denmark meets the requirement of the NWPC recommendations for pressure treated spruce¹.

1. Sammendrag

Det ble produsert ca. 1,24 mill. kubikkmeter trykkimpregnert furu i Norden i 1994. Dette er en økning på 5 % i forhold til 1993. Skur- og høvellast utgjorde det største produserte volum av de noterte produktene med 74 % av den totale produksjonen, og økte med 4 % i forhold til 1993. Byggebransjen og hobbysnekkere ("Gjør-det-selv") er derfor de største forbrukere i volum. Den nest største gruppen var stolper, som utgjorde 14 %.

*Sverige var det største produsentland med 433.200 m³ (34,9 %), mens Island var det minste med 9.500 m³ (0,8 %). Finland hadde 22,0 %, Norge 22,8 %, mens Danmark hadde 19,4 % av totalvolumet. **Impregnert gran er ikke tatt med i disse tallene.** Trykkimpregnert gran utgjorde imidlertid 152.900 m³, noe som er 12 % av den totale produksjon av trykkimpregnert furu. Andelen trykkimpregnert gran i Sverige utgjorde 28 % av den totale produksjon av trykkimpregnert furu, det samme som i 1993.*

Ca. 82 % av den totale nordiske produksjon var underlagt frivillig impregneringskontroll, og dette er 2 % høyere enn i 1993. Kontrollenes krav til trykkimpregnert furu er gitt i den nordiske standard INSTA 140 og NTR-dokument 1.6.1/89. 64 % av den trykkimpregnerte granen i Danmark møter kravene i NTR's rekommandasjoner for gran ¹.

¹ All the recommendations are in Nordic languages only:
No. 5/90 Pressure treated spruce for use in sea water. (*Gran i sjøvann*)
No. 6/90 Pressure treated spruce for use in ground contact. (*Gran i jordkontakt*)
No. 7/90 Pressure treated spruce for use in windows. (*Gran i vinuer*)
No. 8/91 Pressure treated spruce boards for use above ground. (*Granbord over bakken*)

2. Introduction.

Nordic Wood Preservation Council (NWPC) has since 1972 published statistics for production of pressure treated wood in the Nordic countries. The production volume has, however, been available in some of the countries from the 1960's. Each country collects the production volume figures differently. This NWPC-information is based on the national production statistics. To get a more correct information of the production volume in each country, please contact the national organisations that collected the data - see the addresses below. These statistics do not specify the production volume of the different preservation classes M, A, AB and B defined in the Nordic standard INSTA 140.

Forsøgstekniker K. H. Henriksen², Denmark, dir. E. Kangas³, Finland, siv. ing. R. Gislason⁴, Iceland, ing. B. Nossen⁵, Norway and fil. kand. K. Nilsson⁶, Sweden have made the national collections of the production volumes.

3. Total production.

In the Nordic countries the production in 1994 was 1,240,100 m³ pressure treated pine timber. Out of this volume, sleepers represent 5 %, poles 14 % and planed and sawn timber included fence posts etc. 74 %. Joinery - mainly windows and external doors - represent 7 %. There are only small changes compared with 1993.

The total production volume increased by approx. 5 % compared with the volume in 1993. All countries, except Finland, increased their production of pressure treated wood in 1994 compared with 1993. The production in Denmark increased by 9 %, in Iceland and Norway by 8 % and in Sweden by 4 %. In Finland the production decreased by 1 %.

See also table 1.

4. Produced volume distributed on preservatives and products.

4.1 Distribution of preservatives.

The volume of pressure treated wood treated with the different preservative are:

creosote:	171,400 m ³	= 14 %
water-borne salts:	976,100 m ³	= 79 %
light organic solvent preservative (LOSP):	92,600 m ³	= 7 %

This is almost the same distribution in percentage as last year, but with a small increase in creosote and a reduction in the water-borne salts. Table 1 gives a detailed information of the distribution of the preservatives in the different countries.

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⁵Norsk Treteknisk Institutt, P.O.Box 113 Blindern, N-0314 OSLO, Norway

⁶at the request of Svenska Träskyddsinstitutet, P.O.Box 5673, S-114 86 STOCKHOLM, Sweden

Table 1 Total production of pressure treated pine wood (m³) in the Nordic countries in 1994, types of preservative and country.

country	creosote	LOSP	water-borne	total	per 1,000 capita
Denmark	0	38,000 *	203,100 **	241,100	45.5
Finland	74,800	1,700	196,700	273,200	53.8
Iceland	0	2,700	6,800	9,500	35.8
Norway	20,800	30,400	231,900 ***	283,100	65.5
Sweden	75,800	19,800	337,600 ****	433,200	49.5
total	171,400	92,600	976,100	1,240,100	

* Exc. 100 m³ spruce

** Exc. 31,800 m³ spruce

*** Exc. 900 m³ spruce

**** Exc. 120,100 m³ spruce

The production volume of creosote treated wood has increased in Finland and Sweden compared with 1993, while Norway produced almost the same volume. The volume of products impregnated with LOSP has increased compared with 1993. Production of timber treated with water-borne preservatives has increased in all countries except Finland (Denmark by 6 %, Finland by -5 %, Iceland by 24 %, Norway by 7 % and Sweden by 3 %).

Figure 1 shows the production volume in the Nordic countries from 1984 to 1994. The total production, however, is not equal to the volume used in the Nordic countries. To calculate this volume, we have to subtract the volume of exported and add the volume of imported pressure treated wood, and the figures for export and import are very uncertain.

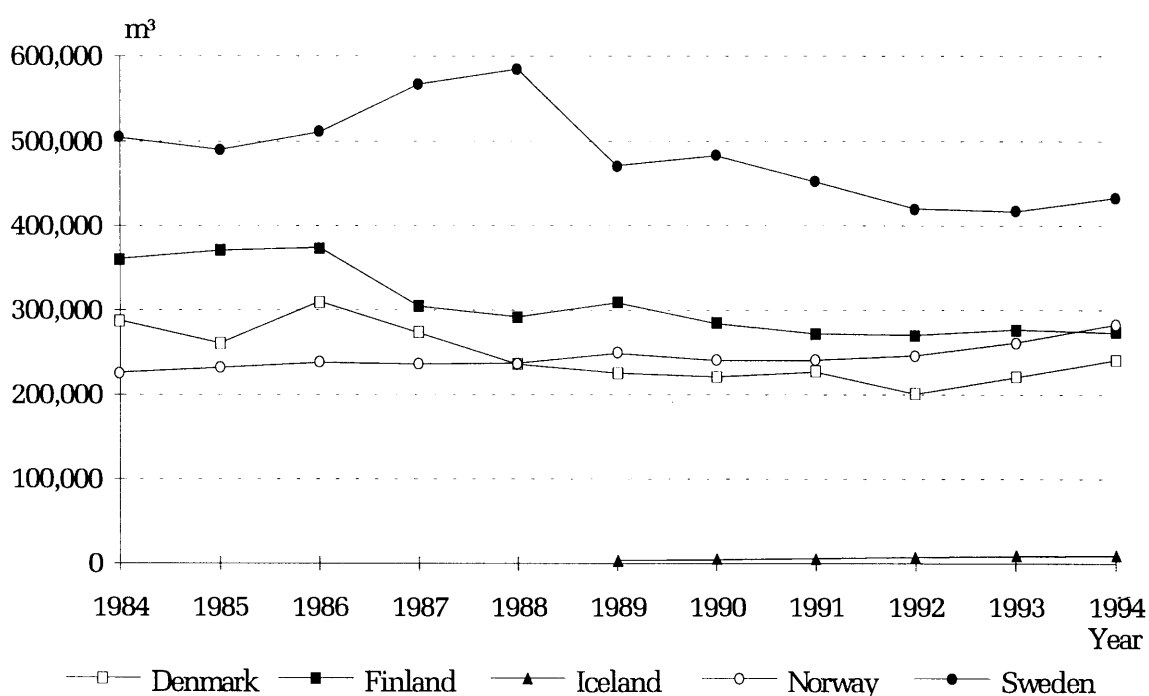


Figure 1 The total production of preservative treated pine wood in the Nordic countries 1984 - 94.

The figures 2 and 3 show the total volume in each country and volume per 1,000 capita in 1994 respectively.

The population in the Nordic countries was in 1993:

	Denmark	Finland	Iceland	Norway	Sweden
Population	5,297,408	5,077,912	265,064	4,324,815	8,745,109

Denmark incl. Faroe Islands and Greenland, Finland incl. Åland.

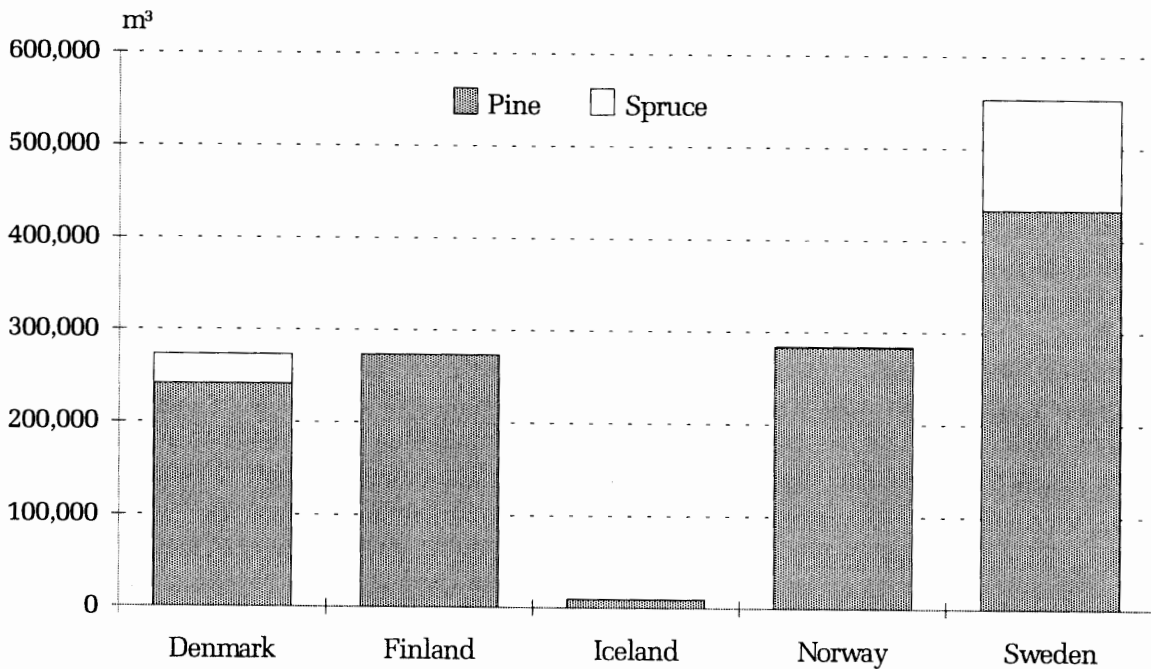


Figure 2 Total production incl. spruce in 1994 in the Nordic countries.

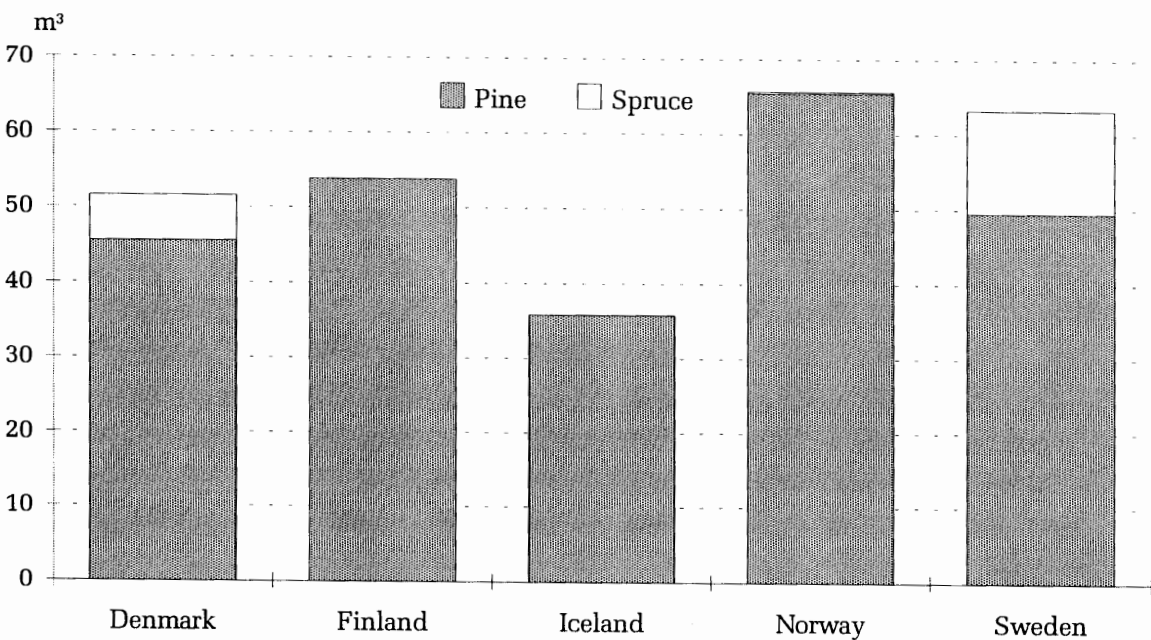


Figure 3 Total production in 1994 incl. spruce per 1,000 capita in the Nordic countries.

4.2 Production of sleepers

The production of sleepers has decreased by 18 % in the producing countries. Finland has the largest production that increased by approx. 4,300 m³ (27 %) in 1994. See also table 2.

Table 2 Production of pressure treated pine sleepers (m³) in the Nordic countries in 1994, types of preservative and country.

country	creosote	water-born	total	per 1,000 capita
Denmark	0	0	0	
Finland	35,200	0	35,200	6.9
Iceland	0	0	0	
Norway	0	0	0	
Sweden	29,400	1,900	31,300	3.6
total	64,600	1,900	66,500	

Figure 4 shows the production of sleepers in the different countries from 1984 to 1994.

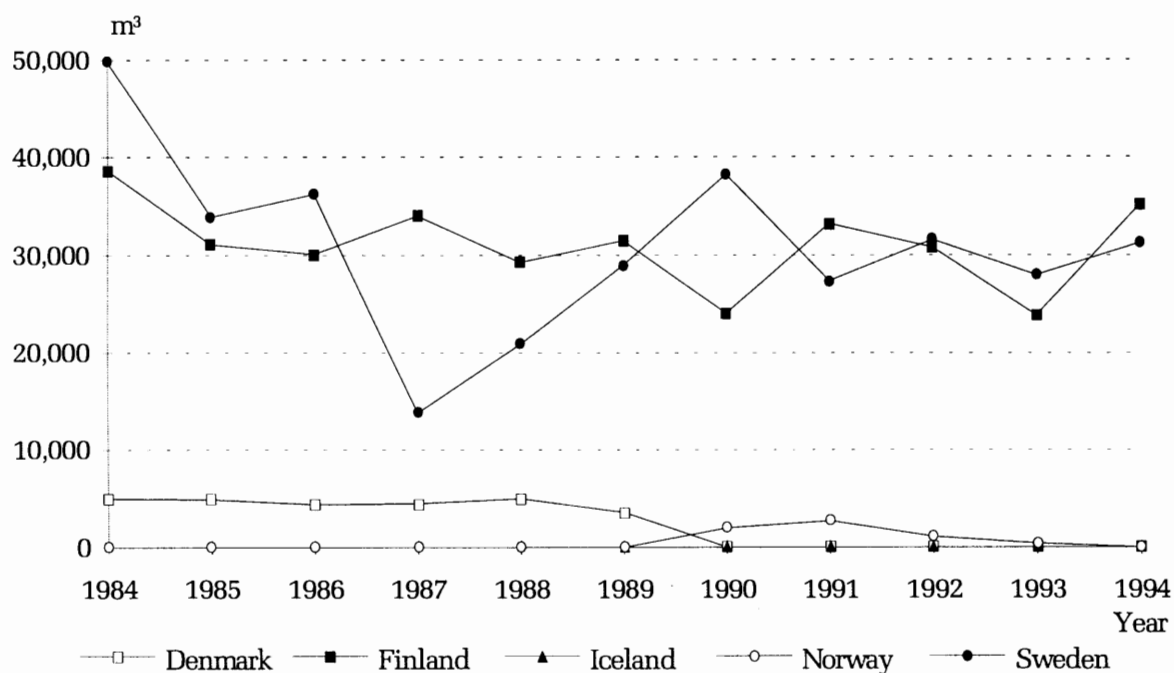


Figure 4 Production of pressure treated pine sleepers.

4.3 Production of poles.

Production of poles has decreased in volume by 2 % compared with 1993. Creosote treated poles have increased while water-borne poles have decreased. Denmark treats only spruce poles by sap-displacement. Finland has decreased the production with almost 14,000 m³ compared to 1993. Sweden has increased the production by 3 %, while Norway has increased the production by approx. 8,400 m³ (29 %) compared to 1993. See also table 3.

Table 3 Production of pressure treated pine poles (m³) in the Nordic countries in 1994, types of preservative and country.

country	creosote	water-born	total	per 1,000 capita
Denmark	0	0 *	0	
Finland	38,400	47,600	86,000	16.9
Iceland	0	0	0	
Norway	17,100	20,600	37,700	8.7
Sweden	46,000	4,600	50,600	5.8
total	101,500	72,800	174,300	

*Spruce poles 4,800 m³.

Figure 5 shows the production of poles from 1984 to 1994 in the different countries.

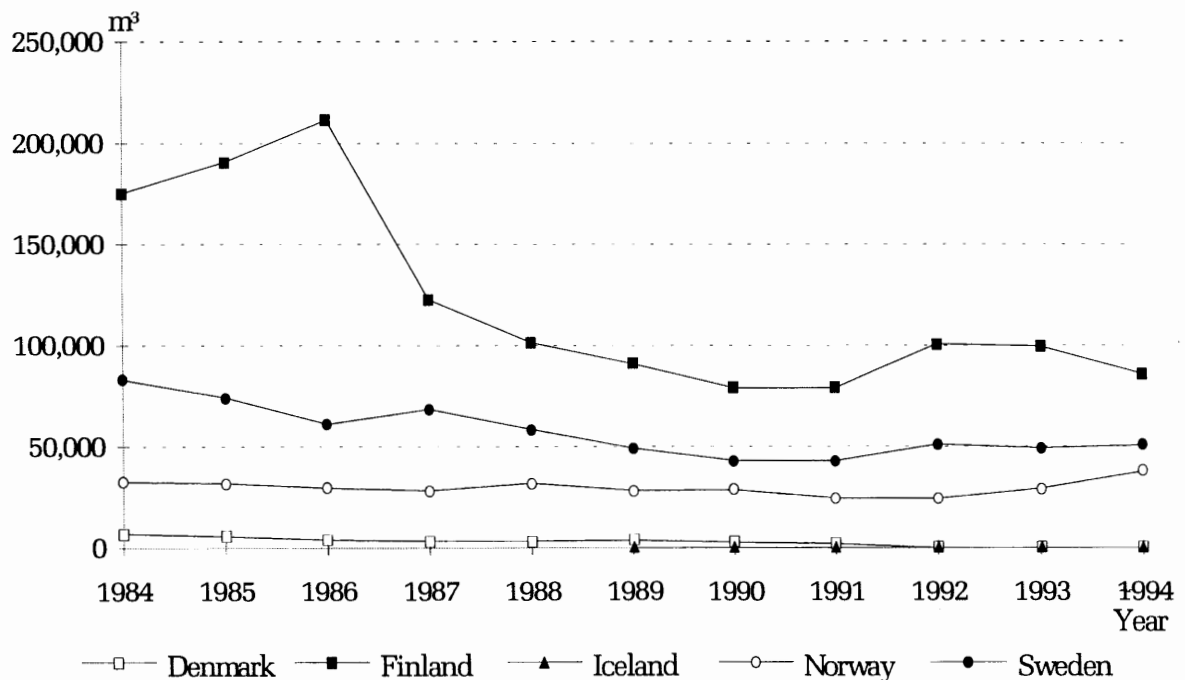


Figure 5 Production of pressure treated pine poles.

4.4 Production of sawn and planed timber, joineries etc.

The production of sawn and planed timber incl. other timber (such as fence posts) increased (13 %) compared with 1993. All countries except Finland increased their production volume, Denmark by 6 %, Finland by -1 %, Iceland by 14 %, Norway by 4 % and Sweden by 5 %. See also tables 4 and 6.

Table 4 Production of pressure treated sawn pine timber (m³) in the Nordic countries in 1994, types of preservative and country.

country	creosote	LOSP	water-borne	total	per 1,000 capita
Denmark	0	0	203,100 *	203,100 #	38.3
Finland	1,200	1,700	149,100	152,000 #	29.9
Iceland	0	1,600	6,800	8,400 #	31.7
Norway	2,600	0	183,100 **	185,700	42.9
Sweden	400	3,000	307,600 ***	311,000	35.6
total	4,200	6,300	849,700	860,200	

* Exc. 27,000 m³ spruce.

** Exc. 900 m³ spruce.

*** Exc. 120,100 m³ spruce.

Incl. fence posts.

Figure 6 shows the volume of sawn, planed and other timber (tables 4 and 6) in the Nordic countries from 1984 to 1994.

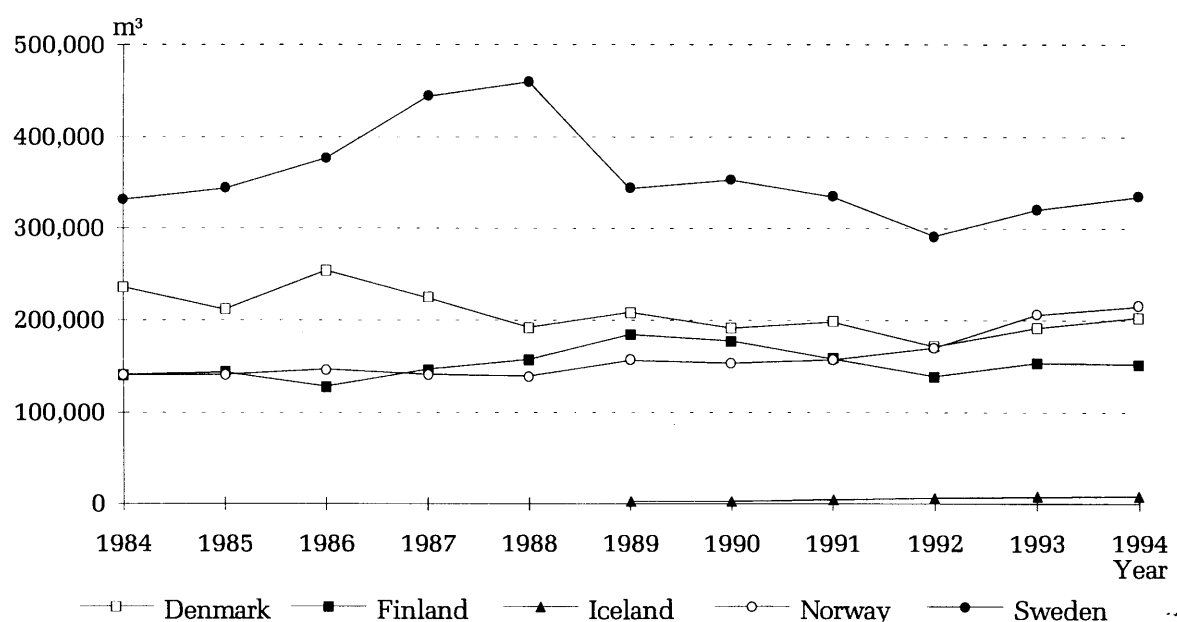


Figure 6 Production of sawn and planed pressure treated pine timber incl. other timber products (fence posts etc.).

The production for joinery has increased with 17 % in the Nordic countries during 1994 compared to 1993. Denmark and Norway have increased the production, Finland also, but Iceland and Sweden have a decreasing production compared with 1993 (Denmark 31 %, Finland 0 %, Iceland -21 %, Norway 28 % and Sweden -14 %). See also table 5.

Table 5 Production of treated joinery (pine) (m³) in the Nordic countries in 1994, types of preservative and country.

country	LOSP	water-borne	total	per 1,000 capita
Denmark	38,000 *	0	38,000	7.2
Finland	1,700	0 **	1,700	0.3
Iceland	1,100	0	1,100	4.1
Norway	30,400	0	30,400	7.0
Sweden	16,800	100	16,900	1.9
total	88,000	100	88,100	

* Exc. 100 m³ spruce

** In Finland 7,000 m³ class A-timber was used by joinery factories in 1994.

Figure 7 shows the production of joinery in the Nordic countries 1984 to 1994.

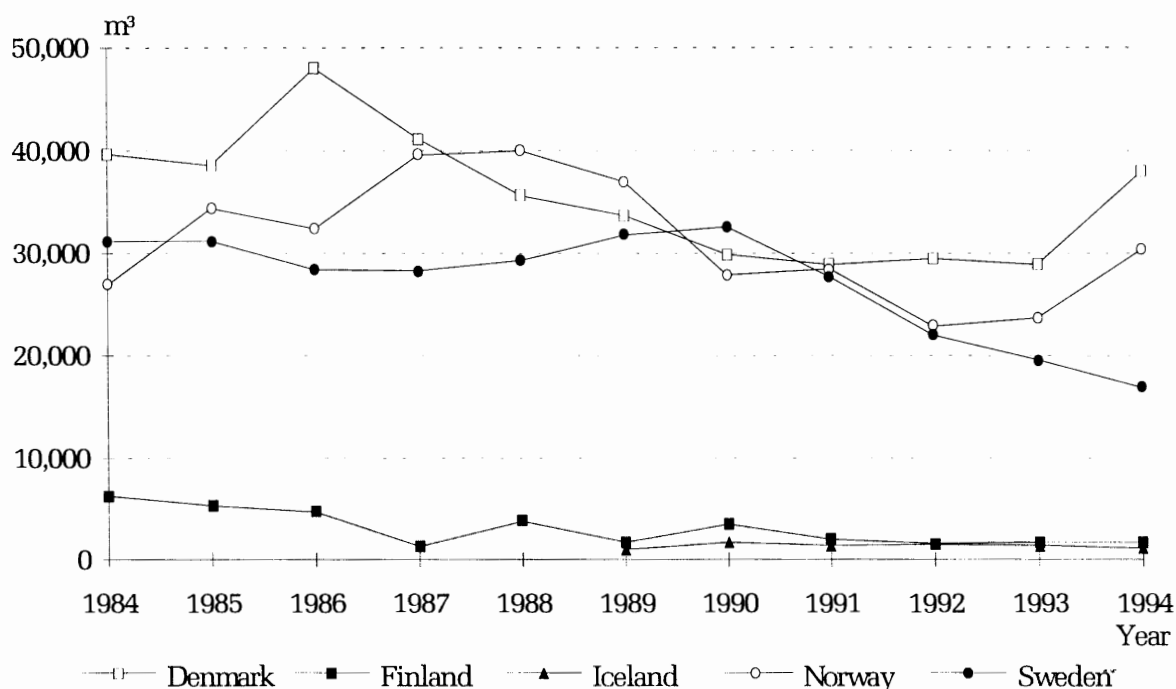


Figure 7 Production of pressure treated joinery (pine).

The notion "other timber" includes other timber products than those mention above. Only Norway and Sweden register these products. For the other countries these products are in the group sawn and planed timber. The main products in "other timber" are poles for road rails and fence posts.

Table 6 *Production of other pressure treated wooden pine products such as fence posts etc. (m³) in the Nordic countries in 1994, types of preservative and country.*

country	creosote	water-borne	total	per 1,000 capita
Denmark*	-	-	-	
Finland*	-	-	-	
Iceland*	-	-	-	
Norway	1,100	28,200	29,300	6.8
Sweden	0	23,400	23,400	2.7
total	1,100	51,600	52,700	

*not specified

5. Export of pressure treated wood

Sweden is the country with the largest export - approx. 241,600 m³. The export volume from Sweden has increased by approx. 20,000 m³ (8 %). The export from Finland has also increased by 15,000 m³ (31 %) compared with 1993, and Finland has become the second largest export country. See also table 7.

The export volumes are uncertain for all countries. This registration is only the direct export from the impregnation plants. The export from timber yards, timber agents etc., is unknown. It is also difficult to use official export statistics because these figures include some dipping and surface treatments.

Table 7 *Export of pressure treated wood (m³) from the Nordic countries in 1994, types of preservative and country.*

country	creosote	LOSP	water-borne	total
Denmark	-	?	?	> 54,200
Finland	37,500	0	25,700	63,200
Iceland	0	0	0	0
Norway	3,100	4,300	15,700 *	23,100
Sweden	17,200	3,000	221,400 **	241,600
total	57,800	> 7,300	> 262,800	> 382,100

* Incl. 900 m³ spruce.

** Incl. 113,800 m³ spruce.

6. The Nordic control scheme.

All the Nordic countries have a quality scheme for pressure treated wood. The control schemes are identical and have the same quality requirements to the treated wood. The scheme is voluntary and the number of plants that are members in the schemes differ in each country. As table 8 shows, 82 % of the total produced volume is controlled. This is an increase of 2 % compared with 1993 and it seems as the negative trend we had last year has turned. Most of the treated spruce in Denmark is used domestically and 64 % of the pressure treated spruce therefore meet the requirement of the NWPC-recommendations for spruce. Norway and Sweden export most/all of their treated spruce and therefore have to meet the requirement of other countries.

The Nordic standard INSTA 140 and NWPC-document 1.6.1/89 gives the requirements for the pressure treated wood.

The pressure treatment plants which are members in the different countries' control schemes are listed in NWPC's annual report. Updated lists can also be ordered from the secretariat for the different countries' control schemes.

Table 8 Volume of controlled and not controlled pressure treated wood (%) in the Nordic countries in 1994.

country	controlled	not controlled	total
Denmark	88	12 *	100
Finland	86	14	100
Iceland	96	4	100
Norway	85	15 **	100
Sweden	74	26 **	100
total	82	18	100

* Incl. spruce, 64 % of the treated spruce meet the NWPC-recommendation for spruce ** Incl. spruce

The national control schemes:

- **Dansk Imprægneringskontrol**
P.O.Box 141, DK-2630 TÅSTRUP, DENMARK
- **Puurakenteiden Laadunvalvontayhdistys ry (PLY)**
Föreningen för kvalitetskontroll av träkonstruksjoner rf.
Sandvikskajen 15 A8, FIN-00180 HELSINKI, FINLAND
The controlling institution is:
Valtion Teknillinen Tutkimuskeskus
Rakennustekniikka Puuterniikka
Puumiehenkuja 2, Otaniemi, FIN-02150 ESPOO, FINLAND
- **Rannsóknastofnun byggingariðnaðarins**
Keldnaholti, IS-112 REYKJAVÍK, ICELAND
- **Norsk Impregneringskontroll**
P.O.Box 113 Blindern, N-0314 OSLO, NORWAY
- **Sveriges Provnings- och Forskningsinstitut/Byggnadsteknik**
P.O.Box 857, S-501 15 BORÅS, SWEDEN

7. List of NWPC's information.

NTR Information nr. 1 1972

Klem, G. S.

Trebeskyttelse (Denne informasjonen er trukket tilbake. Skriftet er erstattet av en revidert utgave i 1993)

NTR Information nr. 2 1972

Nordiska Träskyddsrådet

NTR Information nr. 3 1972

Klem, G. S.

Kvalitetskontroll av trykkimpregnerert trevirke

NTR Information nr. 4 1972

Träskydd, begrepp och definitioner avseende biologisk förstöring av trævirke

NTR Information nr. 5 1973

Produktion av trykkimpregnerat virke i Finland, Norge och Sverige 1972.

NTR Information nr. 6 1974

Henningsson, B.

NTR fältförsök nr. 1 med trykkimpregneringsmedel. Resultat efter 5 års provningar.

NTR Information nr. 7 1977

Träskyddsordlista

NTR Information nr. 8 1979

Produktion av impregnerat virke i Norden 1978.

NWPC Information nr. 9 1979

Borsholt, E.

NWPC field test No 1 with pressure preservatives. Results during 10 years' testing.

NTR Information nr. 10 1979

Jermer, J. och Kuusamo, M.

Nordiska Träskyddsrådet 10 år 1969 - 1979

NTR Information nr. 11 1981

Jermer, J.

Impregnerat trä i Norden

NTR Informasjon nr. 12 1984

Evans, F. G.

Produksjon av impregnerert virke i Norden 1983.

NTR Informasjon nr. 13 1985

Evans, F. G.

Produksjon av impregnerert virke i Norden 1984.

NTR Informasjon nr. 14 1985

Evans, F. G.

Produksjon av impregnerert virke i Norden 1985.

NWPC Information no. 15 1986.

Conditions for testing a wood preservative in Nordic field and marine trials.

NTR Informasjon nr. 16 1987

Evans, F. G.

Produksjon av impregnerert virke i Norden 1986.

NTR Informasjon nr. 17 1988

Evans, F. G.

Produksjon av impregnerert virke i Norden 1987.

NTR Information nr. 18 1988

Edlund, M-L., Evans, F. G., Jermer, J.

Undersökning och utvärdering av impregnerade limträkonstruktioner

NTR Information nr. 19 1989

Edlund, M-L., Paajanen, L.

Vakuumpregnering. Erfarenheter av impregnerade fönster i praktiken och i fältförsök.

NTR Informasjon nr. 20 1989

Evans, F. G.

Produksjon av impregnerert virke i Norden 1988

NWPC Information No. 21 1989*Bergman, Ö., Jermer, J.*

NWPC field test with wood preservatives. Results from the trials started in 1971, 1973, 1975 and 1977.

NWPC Information No. 22 1990*Bergman, Ö., Jermer, J.*

NWPC field test with wood preservatives. Results from the trial started in 1968.

NTR Information nr. 23 1990*Borsholt, E., Henriksen, K. H.*

Vejledning til EN 252 - Vurdering af staves tilstand

NWPC Information No. 23 1990*Borsholt, E., Henriksen, K. H.**(Translated by**Ö. Bergman and G. F. Daniel)*

Guideline for EN 252: Field test method for determining the relative protective effectiveness of wood preservatives in ground contact. - Inspection and evaluation of attack of stakes caused by micro-organisms. (Translated and printed in 1992)

NTR Informasjon nr. 24 1990*Evans, F. G.*

Produksjon av impregnert virke i Norden 1989

NWPC Information no. 25 1990

Testing of CC, CCA, CCB and CCP Wood Preservatives according to EN113/EN84

NWPC Information no. 26 1990*Bergman, Ö., Lundberg, C.*

NWPC Marine Trial with Wood Preservatives. Results from the Trials started in 1972 and 1976.

NTR Informasjon nr. 27 1991*Evans, F. G.*

Produksjon av impregnert virke i Norden 1990

NTR Informasjon nr. 28 1992*Evans, F. G.*

Produksjon av impregnert virke i Norden 1991

NTR Informasjon nr. 29 1993*Evans, F. G.*

Marint feltforsøk - Resultat etter 10 og 11 år.

NWPC Information nr. 30 1993*Bergman, Ö. og Jermer, J.*

NWPC Testfield with wood preservatives. Results from trials 1968 - 1981.

NTR Informasjon nr. 31 1993*Nossen, B. og Evans, F. G.*

Analyse av gjenværende impregneringsmiddel i gamle prøvestaver impregnert med Boliden K33 og Celcure O og en vurdering av tungmetallenes lakning.

NTR Informasjon nr. 32 1993*Evans, F. G.*

Produksjon av impregnert virke i Norden 1992

NWPC Information no. 33 1994*Evans, F. G.*

Production of Preservative-treated Wood in the Nordic Countries in 1993.