

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

Fred G. Evans

NWPC INFORMATION NO. 33/94

ISSN 0358-707x

© Nordic Wood Preservation Council (NWPC) 1994

Contents

	Page
1. Summary	5
<i>Sammendrag</i>	
2. Introduction.....	6
3. Total production.....	6
4. Produced volume distributed on preservatives and products.....	6
4.1 Distribution on preservatives	6
4.2 Production of sleepers.....	9
4.3 Production of poles.	10
4.4 Production of sawn and planed timber, joinery etc.....	11
5. Export of pressure-treated timber.....	13
6. The Nordic Quality Control Schemes.	14
7. List of the NWPC information.....	15

1. Summary

The Nordic countries produced in 1993 a total of 1.18 million m³ preservative-treated pine wood. This is an increase of 3% compared with 1992. Sawn and planed wood was the main products (74% of the total volume) and increased compared with the percentage in 1992. The building companies and "Do-it-yourself"-buyers are still the main users of preservative-treated wood. Poles make 15% of the total volume, the same as in 1992.

Sweden had the highest production volume of a total of 416,700 m³ (35.2%), while Iceland had the lowest with 8,800 m³ (0.7%). Finland produced 23.4%, Norway 22.1% and Denmark 18.6%. **These figures do not include pressure-treated spruce.** Pressure-treated spruce, however, was produced in a volume of 159,700 m³ which is 13% of the total pine production. In Sweden pressure-treated spruce was 28% of the total pine production.

Approx. 80% of the Nordic production in 1993 were supervised by the national voluntary control schemes. This is the same percentage as in 1992. The Nordic standard INSTA 140 and NWPC-document 1.6.1/89 give the requirements for pressure-treated pine wood.

1. Sammendrag

Det ble produsert ca. 1,18 mill. m³ trykkimpregnert furu i Norden i 1993. Dette er en økning i forhold til 1992 på 3%. Skur- og høvellast utgjorde det største produserte volum av de noterte produktene med 74% av den totale produksjonen, noe mer enn i 1992. Byggebransjen og hobbysnekkere ("Gjør det selv") er derfor de største forbrukere i volum. Den nest største gruppen var stolper som utgjorde 15%, som i fjor.

*Sverige var det største produsentland med 416.700 m³ (35,2%), mens Island var det minste med 8.800 m³ (0,7%). Finland hadde 23,4%, Norge 22,1%, mens Danmark hadde 18,6% av totalvolumet. **Impregnert gran er ikke tatt med i disse tallene.** Trykkimpregnert gran utgjorde imidlertid 159.700 m³, noe som er 13% av den totale furu produksjon. Andelen trykkimpregnert gran i Sverige utgjorde 28% av den totale furu produksjon.*

Ca. 80% av den totale nordiske produksjon var underlagt frivillig impregneringskontroll, og dette er det samme som i 1992. Kontrollenes krav for trykkimpregnert furu er gitt i den nordiske standard INSTA 140 og NTR-dokument 1.6.1/89.

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 statistics from each country. 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 in the footnote. This statistics does not specify in the production volume for the different classes M, A, AB and B defined in the Nordic standard INSTA 140.

Forsøgstekniker K. H. Henriksen¹, Denmark, dir. E. Kangas², Finland, siv. ing. R. Gislason³, Iceland, ing. B. Nossen⁴, Norway and fil. kand. K. Nilsson⁵, Sweden have made the national collections of the production volumes.

3. Total production.

In the Nordic countries the production was 1,184,300 m³ pressure-treated timber in 1993. Out of this volume, sleepers represent 4%, poles 15% and planed and sawn timber inclusive fence posts etc. 74%. Joinery - preferably windows and outside doors - represent 6%.

The total production volume increased by approx. 3% compared to the volume in 1992. All countries, except Sweden, increased in 1993 their production of pressure-treated wood compared to 1992. The production in Denmark increased by 10%, in Finland by 2%, in Iceland by 11% and in Norway by 6%. In Sweden 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:	155,000 m ³	=	13%
water-borne salts:	949,400 m ³	=	80%
light organic solvent preservative (LOSP):	79,900 m ³	=	7%

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

¹Dansk Teknologisk Institut, P.O.Box 141, DK-2630 TÅSTRUP, Denmark

²Lahontorjuntayhdistys, ry., Hietalahdenranta 15 A 8, FIN-00180 HELSINGFORS, Finland

³Rannsóknasofnun byggingaridnadarins, Keldnaholti, IS-112 REYKJAVÍK, Iceland

⁴Norsk Treteknisk Institutt, P.O.Box 113 Blindern, N-0314 OSLO, Norway

⁵at the request of Svenska Träskyddsinstitutet, P.O.Box 5673, S-114 86 STOCKHOLM, Sweden

Table 1 *Total production of preservative-treated wood (m³) in the Nordic countries in 1993, types of preservative and country.*

country	creosote	LOSP	water-borne	total	per 1,000 capita.
Denmark	0	28,900 *	191,600 **	220,500	43.0
Finland	67,100	1,700	208,100	276,900	56.0
Iceland	0	3,300	5,500	3,800	35.2
Norway	20,400	23,700	217,300***	261,400	62.1
Sweden	67,500	22,300	326,900****	416,700	49.4
total	155,000	79,900	949,400	1,184,300	

* Excl. 600 m³ spruce
*** Excl. 3,100 m³ spruce

** Excl. 40,900 m³ spruce
**** Excl. 115,100 m³ spruce

The production volume of creosote-treated wood is nearly the same in Finland and Norway as in 1992, while in Sweden it is reduced with 5,000 m³. The volume of products impregnated with LOSP is almost the same as in 1992. Production of timber treated with water-borne preservatives has increased considerably in all countries (Denmark by 12%, Finland by 3%, Iceland by 22% , Norway by 6% and Sweden by 1%).

Figure 1 shows the production volume in the Nordic countries from 1983 to 1993. 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.

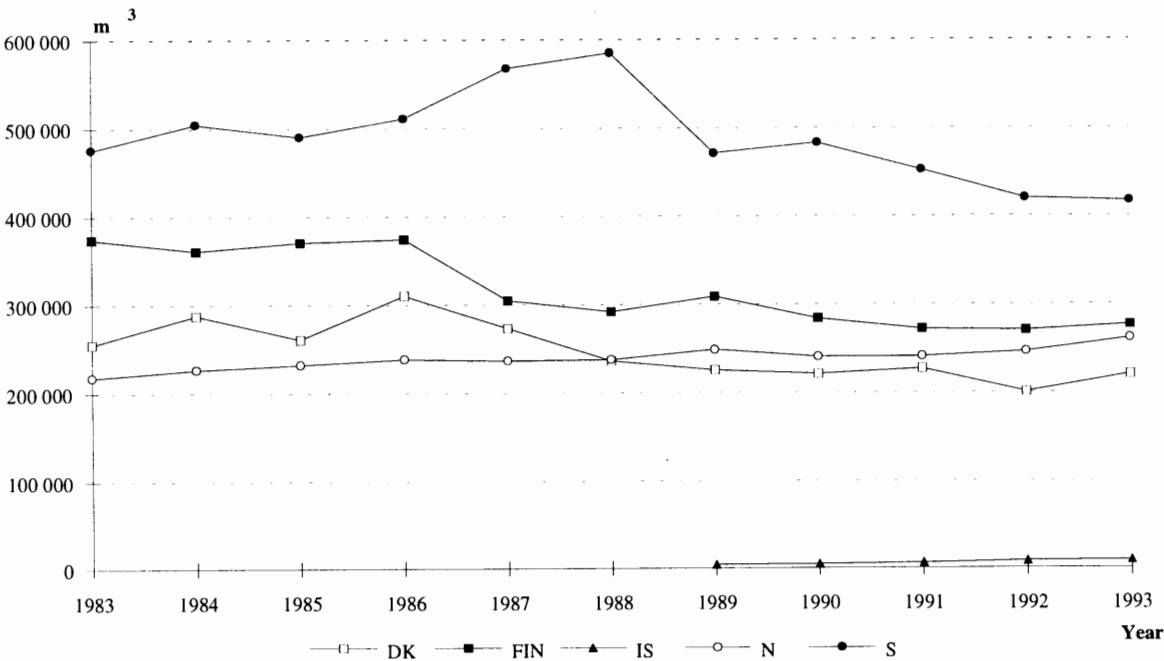


Figure 1 *The total production in the Nordic countries 1983 - 93.*

The figures 2 and 3 show the total volume in each country and volume per 1,000 capita in 1993 respectively.

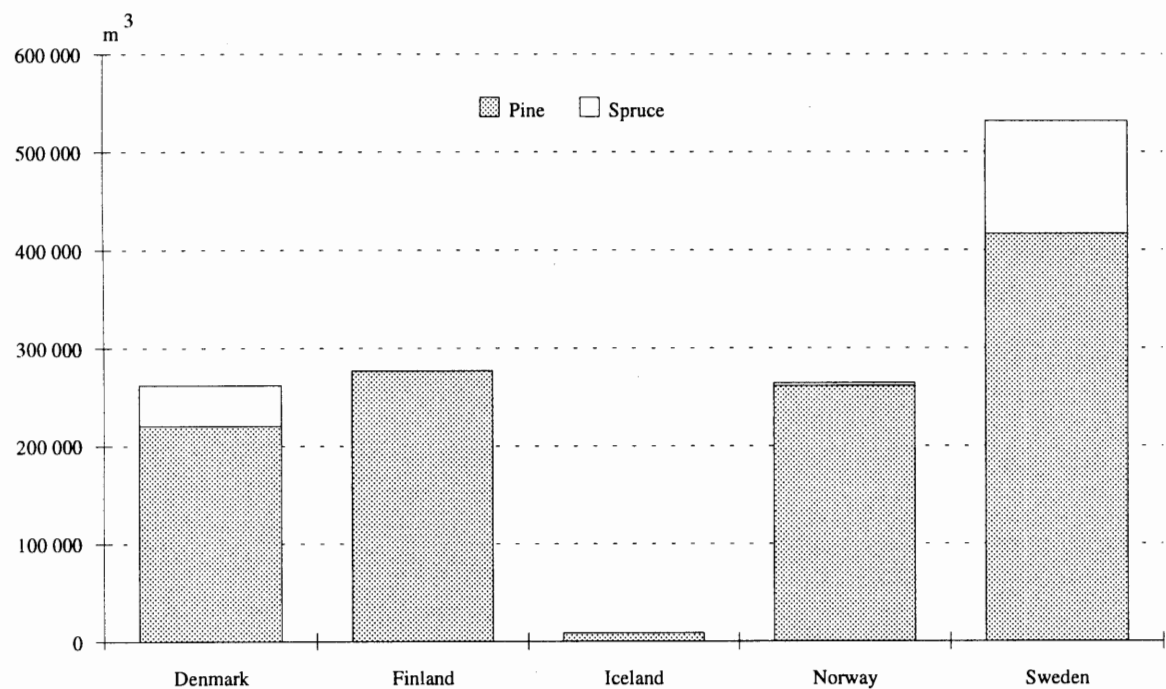


Figure 2 Total production incl. spruce in 1993 in the Nordic countries.

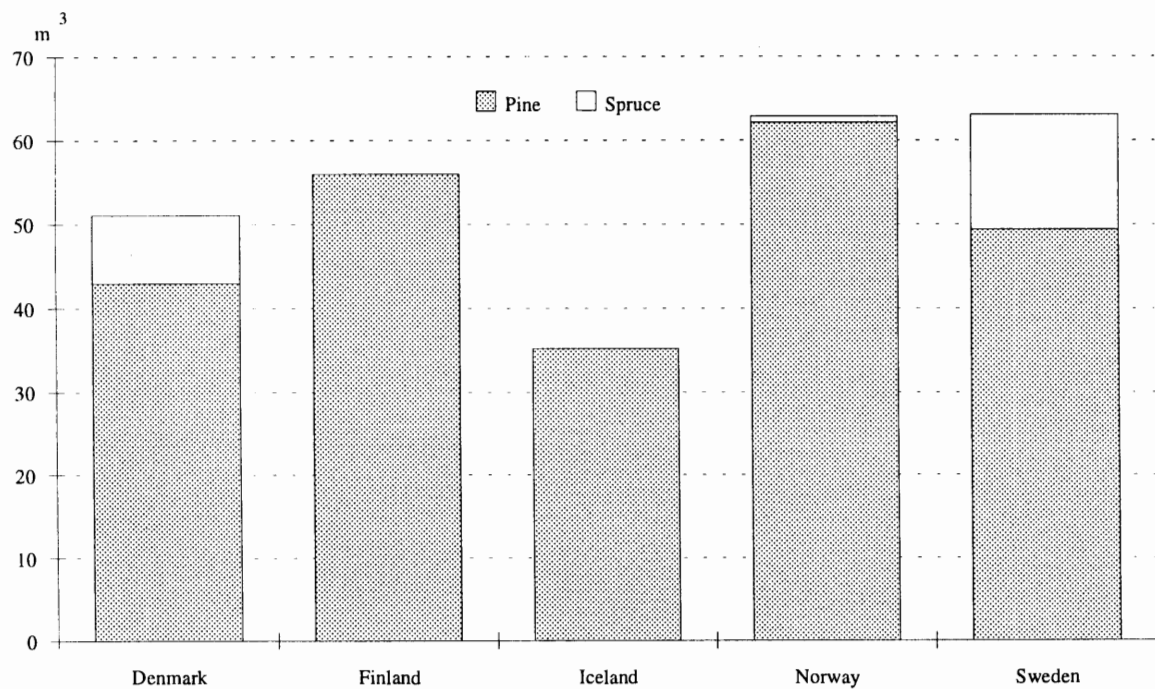


Figure 3 Total production in 1993 incl. spruce per 1,000 capita in the Nordic countries.

4.2 Production of sleepers

The production of sleepers has decreased by 18% in the producing countries. Finland has the greatest decrease of approx. 7,000 m³ (22%). See also table 2.

Table 2 *Production of sleepers (m³) in the Nordic countries in 1993, types of preservative and country.*

country	creosote	water-borne	total	per 1,000 capita
Denmark	0	0	0	0
Finland	23,900	0	23,900	4.8
Iceland	0	0	0	0
Norway	400	0	400	0.1
Sweden	26,000	2,000	28,000	3.3
total	50,300	2,000	52,300	

Figure 4 shows the production of sleepers in the different countries from 1983 to 1993.

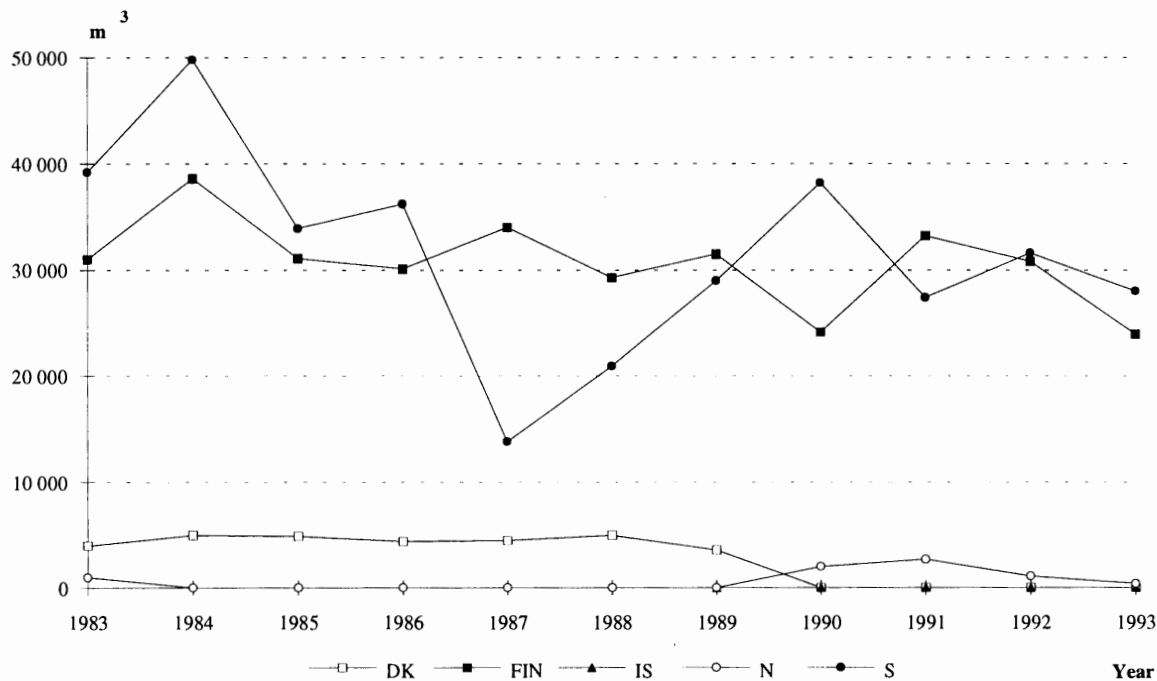


Figure 4 *Production of wooden sleepers.*

4.3 Production of poles.

Production of poles has increased in volume by 1% compared with 1992. Creosote treated poles have increased while water-borne poles have decreased. Denmark treats only spruce poles by sap-displacement. Finland has produced almost the same volume as in 1992. Sweden has a decreased production by 4%, while Norway has increased its production by approx. 5,000 m³ (20%) compared to 1992. See also table 3.

Table 3 *Production of preservative-treated poles (m³) in the Nordic countries in 1993, types of preservative and country.*

country	creosote	water-borne	total	per 1,000 capita
Denmark	0	0 *	0	0
Finland	41,900	57,700	99,600	20.1
Iceland	0	0	0	0
Norway	15,600	13,700	29,300	7.0
Sweden	41,100	8,200	49,300	5.8
total	98,600	79,600	178,200	

*Spruce poles 2,100 m³.

Figure 5 shows the production of poles from 1983 to 1993 in the different countries.

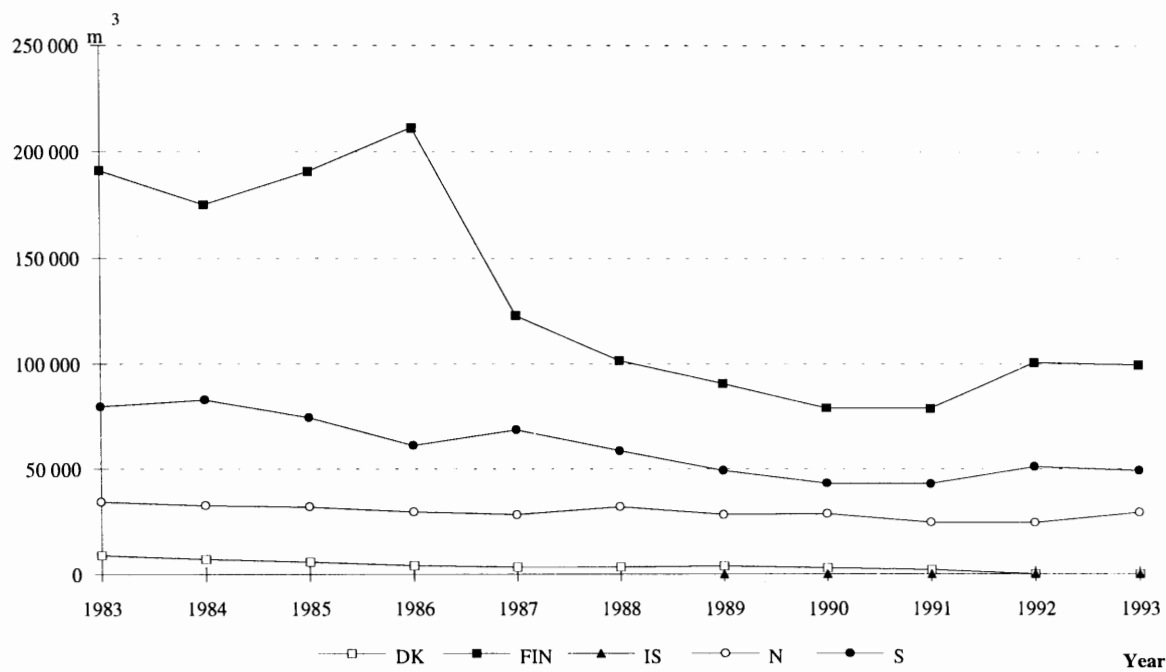


Figure 5 *Production of poles.*

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 1992. All countries increased their production volume, Denmark by 12%, Finland by 10%, Iceland by 16%, Norway by 21% and Sweden by 10%. See also tables 4 and 6.

Table 4 *Production of preservative-treated sawn timber (m³) in the Nordic countries in 1993, types of preservative and country.*

country	creosote	LOSP	water-borne	total	per 1,000 capita
Denmark	0	0	191,600 *	191,600 #	37.3
Finland	1,300	1,700	150,400	151,700 #	30.7
Iceland	0	1,900	5,500	7,400 #	29.6
Norway	2,700	0	175,500**	178,200	42.3
Sweden	400	3,000	295,300***	298,700	35.4
total	4,400	6,600	818,300	829,300	

* Excl. 38,700 m³ spruce.

** Excl. 3,100 m³ spruce.

*** Excl. 115,100 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 1983 to 1993.

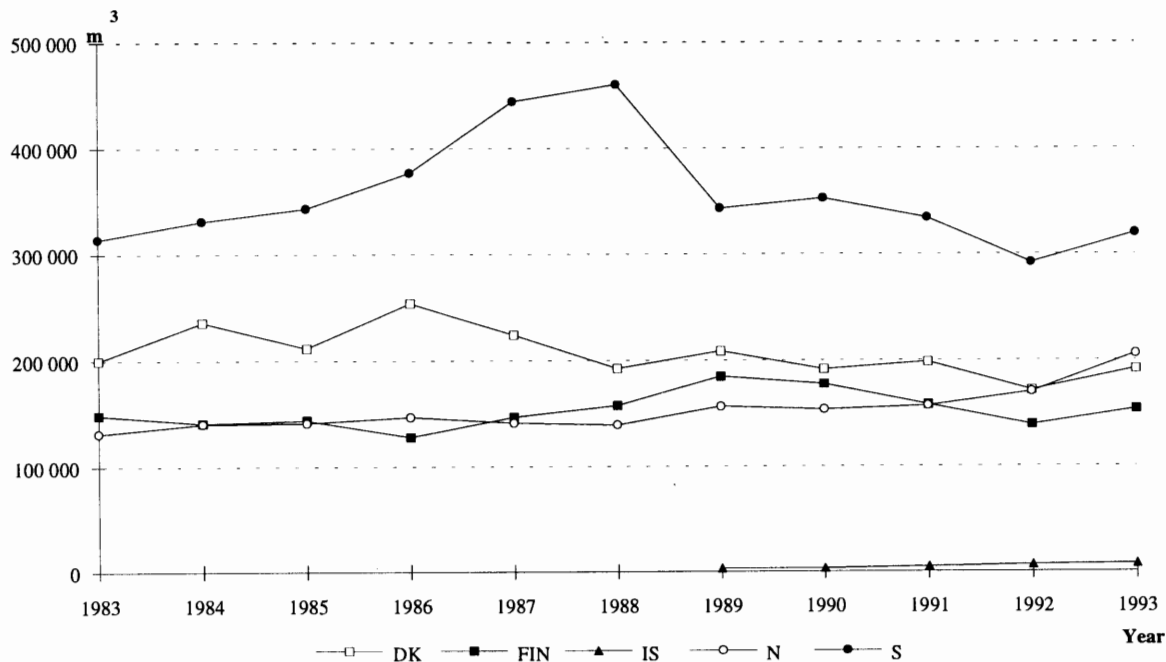


Figure 6 *Production of sawn and planed timber incl. other timber (fence posts etc.).*

The production for joinery is still decreasing i the Nordic countries; 3% compared to 1992. All countries except Finland and Norway had a decreasing production volume, Denmark -2%, Finland +6%, Iceland -7%, Norway +3% and Sweden -11%. See also table 5.

Table 5 *Production of treated joinery (m³) in the Nordic countries in 1993, types of preservative and country.*

country	LOSP	water-borne	total	per 1,000 capita
Denmark	28,900 *	0	28,900	5.6
Finland	1,700	0**	1,700	0.3
Iceland	1,400	0	1,400	5.6
Norway	23,700	0	23,700	5.6
Sweden	19,300	300	19,600	2.3
total	75,000	300	75,300	

* Excl 600 m³ spruce
** In Finland 9,000 m³ class A-timber was used by joinery factories in 1993.

Figure 7 shows the production of joinery in the Nordic countries 1983 to 1993.

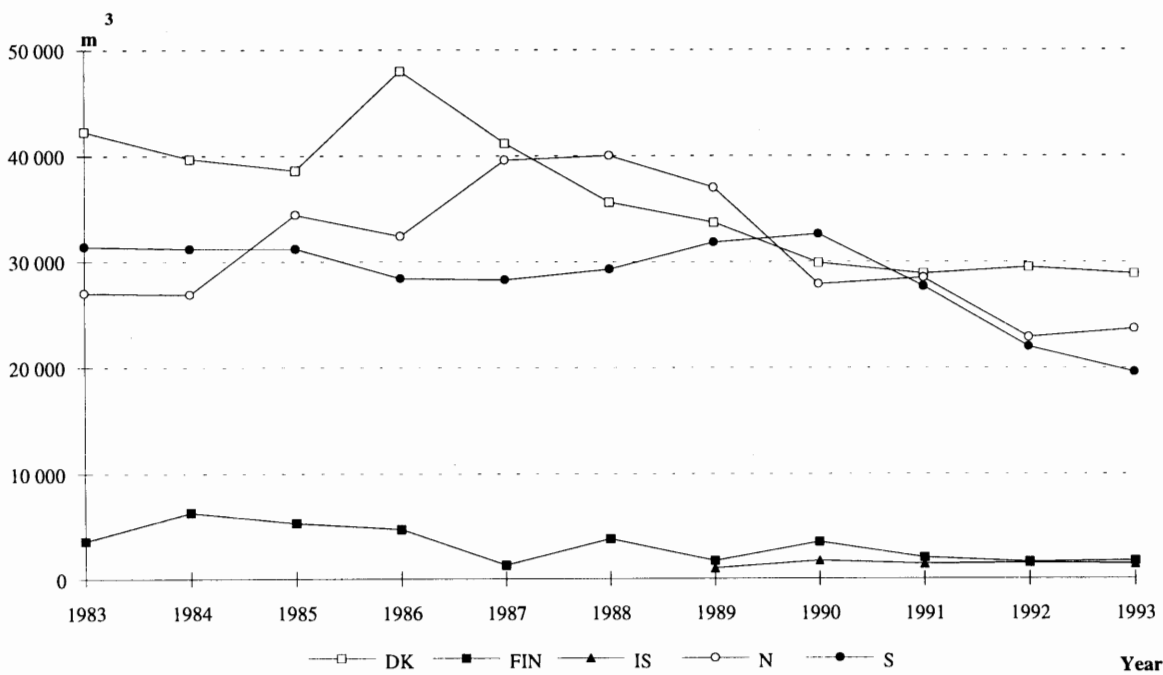


Figure 7 *Production of joinery.*

The notion "other timber" includes other timber products than those mention above. It is only Norway and Sweden that 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 preservative-treated wooden products such as fence posts etc. (m³) in the Nordic countries in 1993, types of preservative and country.

country	creosote	water-borne	total	per 1,000 capita
Denmark*	-	-	-	-
Finland*	-	-	-	-
Iceland*	-	-	-	-
Norway	1,700	28,100	29,800	7.1
Sweden	0	21,100	21,100	2.5
total	1,700	49,200	50,900	

*not specified

5. Export of treated timber

Sweden is the country with the largest export - approx. 218,900 m³. The export volume from Sweden has increased by approx. 70,000 m³ (47%), while the export from Finland has decreased by 3,000 m³ (6%) compared with 1992. Denmark is in 1993 the second largest exporting country, but the volume is uncertain. 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 preservative-treated wood (m³) from the Nordic countries in 1993, types of preservative and country.

country	creosote	LOSP	water-borne	total
Denmark	0	?	?	> 53,900
Finland	38,900	0	9,700	48,600
Iceland	0	0	0	0
Norway	4,100	5,000	12,800 *	21,900
Sweden	18,100	1,700	199,100 **	218,900
total	61,100	> 6,700	> 221,600	> 343,300

* Incl. 3,100 m³ spruce.

** Incl. 113,500 m³ spruce.

6. The Nordic control scheme.

All the Nordic countries have a quality scheme for pressure-treated wood. The control schemes are alike 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, 80% of the total produced volume is controlled. This is the same percentage as in 1992 and it seems as the negative trend we had last year has stopped. Denmark, Iceland and Norway have increased the controlled volume, while in Finland and Sweden the volumes have decreased compared with 1992. For Sweden this can be explained by the increase in treated spruce. It is only spruce and certain qualities for export produced by the members of the control scheme, that are excepted from the control.

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 be ordered from the secretariat for the different countries' control schemes.

Table 8 Volume of controlled and not controlled preservative-treated wood (%) in the Nordic countries in 1993.

country	controlled	not controlled	total
Denmark	85%	15% *	100%
Finland	84%	16%	100%
Iceland	96%	4%	100%
Norway	84%	16% *	100%
Sweden	72%	28% *	100%
total	80%	20%	100%

* Incl. spruce

The national control schemes:

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

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 1992)

NTR Information nr. 2 1972

Nordiska Träskyddsrådet

NTR Information nr. 3 1972

Klem G. S.

Kvalitetskontroll av tryckimpregnerat trevirke

NTR Information nr. 4 1972

Träskydd, begrepp och definitioner avseende biologisk förstoring av trævirket

NTR Information nr. 5 1973

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

NTR Information nr. 6 1974

Henningsson, B.

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

NTR Information nr. 7 1977

Träskyddsordlista

NTR Information nr. 8 1979

Produktion av impregnerat virke i Norden 1978.

NTR 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 impregneret virke i Norden 1983.

NTR Informasjon nr. 13 1985

Evans, F. G.

Produksjon av impregneret virke i Norden 1984.

NTR Informasjon nr. 14 1985

Evans, F. G.

Produksjon av impregneret virke i Norden 1985.

NTR 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 impregneret virke i Norden 1986.

NTR Informasjon nr. 17 1988

Evans, F. G.

Produksjon av impregneret 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.

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

NTR Informasjon nr. 20 1989

Evans, F. G.

Produksjon av impregneret 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

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 1991*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.

NTR 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 impregnerings-
middel 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