

Production of Pressure Treated Wood in the Nordic Countries in 1995.

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1. Summary

The Nordic countries produced in 1995 a total of 1.17 million cubic meter pressure treated pine. This is a decrease of 6 % compared with 1994. Sawn and planed wood were the main products (75 % of the total volume) and decreased by 4 % compared with 1994. The building companies and "Do-it-yourself"-buyers are still the main users of pressure treated wood. Poles represents 13 % of the total volume.

Sweden had the highest production volume with a total of 431,100 m³ (36.8 % of the Nordic volume of treated pine), while Iceland had the lowest with 7,500 m³ (0.7 %). Finland produced 21.2 %, Norway 22.7 % and Denmark 18.5 %. **These figures do not include pressure treated spruce or laminated pine/spruce.** A volume of 160,800 m³ pressure treated spruce was produced, which is 14 % of the total production of pressure treated pine. In Sweden pressure treated spruce represents 27 % of the total production of pressure treated pine, the same as in 1994.

Approx. 81 % of the Nordic production in 1995 was supervised by the different national voluntary control schemes. This is 1 % lower than in 1994. The Nordic standard INSTA 140 and NWPC-document 1.6.1/89 state the requirements for pressure treated pine wood. 8,500 m³ of the treated spruce production (42,500 m³) in Denmark meets the requirement of the NWPC recommendations for pressure treated spruce¹.

1. Sammendrag

Det ble produsert ca. 1,17 mill. kubikkmeter trykkimpregnert furu i Norden i 1995. Dette er en reduksjon på 6 % i forhold til 1994. Skur- og høvellast utgjorde det største produserte volum av de noterte produktene med 75 % av den totale produksjonen, og minket med 4 % i forhold til 1994. Byggebransjen og hobbysnekkere ("Gjør-det-selv") er derfor de største forbrukere i volum. Den nest største gruppen var stolper, som utgjorde 13 %.

*Sverige var det største produsentland med 431.100 m³ (36,8 %), mens Island var det minste med 7.800 m³ (0,7 %). Finland hadde 21,3 %, Norge 22,7 %, mens Danmark hadde 18,5 % av totalvolumet. **Impregnert gran og laminater av gran/furu er ikke tatt med i disse tallene.** Trykkimpregnert gran utgjorde imidlertid 160,800 m³, noe som er 14 % av den totale produksjon av trykkimpregnert furu. Volumet av trykkimpregnert gran i Sverige utgjorde 27 % av den totale produksjon av trykkimpregnert furu, det samme som i 1994.*

Ca. 81 % av den totale nordiske produksjon var underlagt frivillig impregneringskontroll, og dette er 1 % lavere enn i 1994. Kontrollenes krav til trykkimpregnert furu er gitt i den nordiske standard INSTA 140 og NTR-dokument 1.6.1/89. 8.500 m³ av gran trykkimpregnert i Danmark (42.500 m³) møter kravene i NTR's rekommandasjoner for gran¹.

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 vinduer*)

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. However, the production volume has 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 1995 was 1,171,400 m³ pressure treated pine. Out of this volume, sleepers represent 5 %, poles 13 % and planed and sawn timber included fence posts etc. 75 %. Joinery - mainly windows and external doors - represent 7 %. There is a decrease in sawn timber of 4 % compared with 1994.

The total production volume decreased by approx. 6 % compared with the volume in 1994. All countries, except Sweden, decreased their production of pressure treated wood in 1995 compared with 1994. The production in Denmark decreased by 10 %, in Iceland with 18 %, Norway by 6 % and in Finland by 9%. In Sweden the production was almost the same as in 1994.

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:	158,700 m ³ = 13.5 %
water-borne salts:	925,600 m ³ = 79.1 %
light organic solvent preservative (LOSP):	87,100 m ³ = 7.4 %

This is almost the same distribution in percentage as last year, which means a reduction of the volume for all preservatives. Table 1 gives a detailed information of the distribution of the preservatives in the different countries.

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³Lahontorjuntayhdistys, ry., Hietalahdenranta 15 A 8, FIN-00180 HELSINGFORS, Finland

⁴Rannsóknasofnun byggingariðnaðarins, Keldnaholti, IS-112 REYKJAVÍK, Iceland

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

⁶upon 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 1995, types of preservative and country.

country	creosote	LOSP	water-borne	total	per 1,000 capita
Denmark	0	35,800 *	181,300 **	217,100	41.0
Finland	63,000	0	186,800	249,800	49.2
Iceland	0	2,300	5,500	7,800	29.4
Norway	21,300	28,500	215,800 ***	265,600	61.4
Sweden	74,400 #	20,500	336,200 ****	431,100	49.3
total	158,700	87,100	925,600	1,171,400	

Incl. 500 m³ beech (*Fagur sylvatica*)

* Exc. 100 m³ spruce

*** Exc. 400 m³ spruce

** Exc. 33,100 m³ spruce

**** Exc. 117,800 m³ spruce

The production volume of creosote treated wood has decreased in Finland (16 %) and Sweden (2 %) compared with 1994, while Norway increased the production by 2 %. The volume of products impregnated with LOSP has decreased compared with 1994 (6 %). Production of timber treated with water-borne preservatives has decreased in all countries (Denmark by 10 %, Finland by 9 %, Iceland by 18 %, Norway by 6 % and Sweden only by 0.5 %).

Figure 1 shows the production volume in the Nordic countries from 1986 to 1995. The total production, however, is not equal to the volume used in the Nordic countries. The figures for export and import are very uncertain and can not be used to give the figures for volume of used treated wood in the different countries.

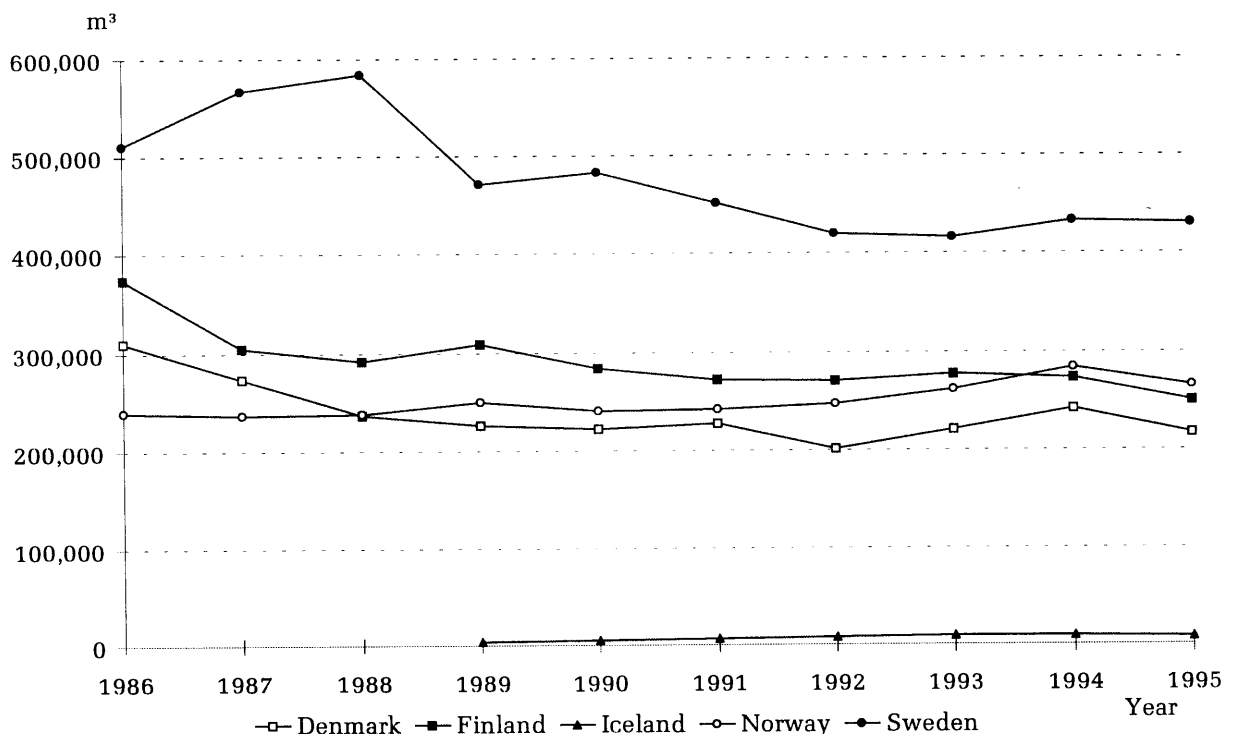


Figure 1 The total production of preservative treated pine wood in the Nordic countries 1986 - 95.

The figures 2 and 3 show the total volume in each country and volume per 1,000 capita in 1995 respectively.

The population in the Nordic countries was in 1993:

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

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

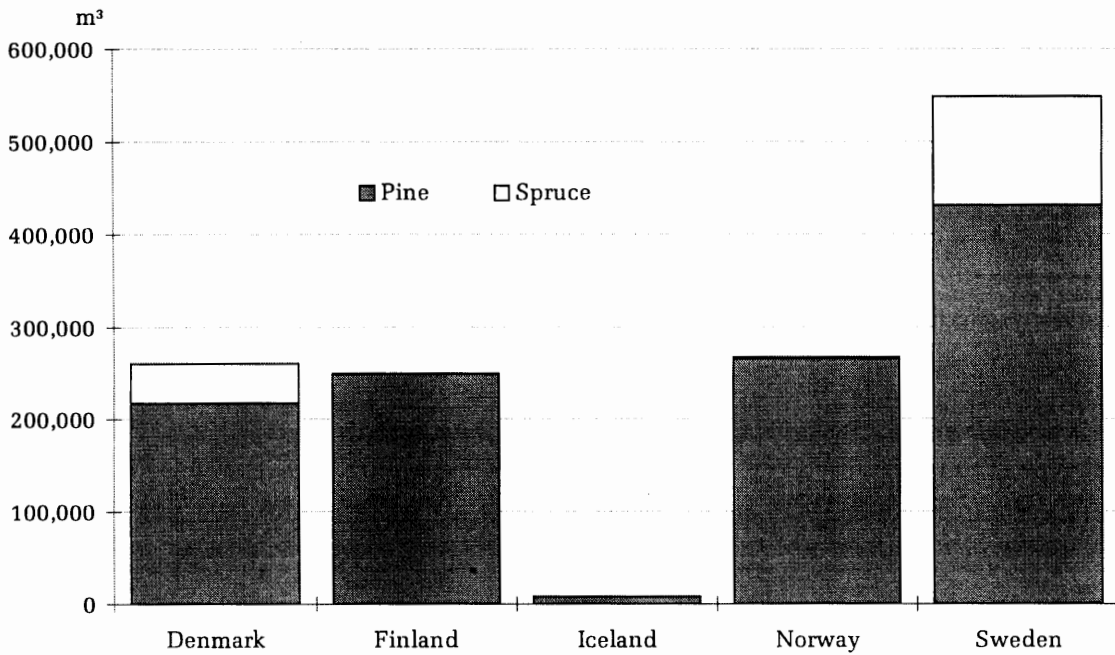


Figure 2 Total production incl. spruce in 1995 in the Nordic countries.

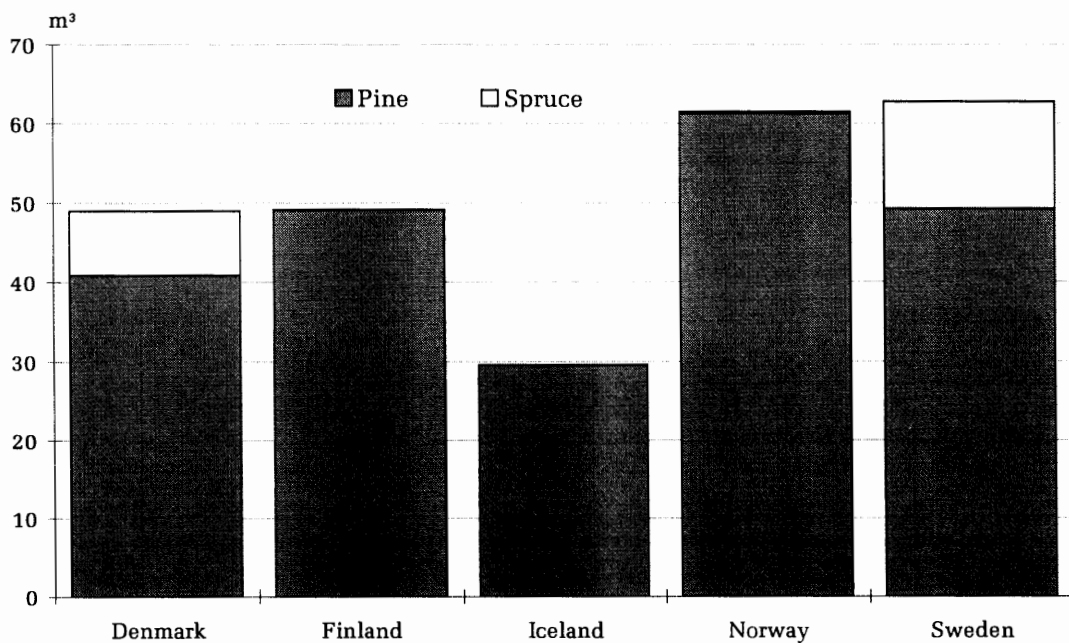


Figure 3 Total production in 1995 incl. spruce per 1,000 capita in the Nordic countries.

4.2 Production of sleepers

The production of sleepers has decreased by 8 % in the producing countries Finland and Sweden. Finland has the largest production. The production decreased by approx. 4,000 m³ (11 %) compared to 1994. In Sweden the volume decreased by 4 %. See also table 2.

Table 2 Production of pressure treated pine sleepers (m³) in the Nordic countries in 1995, types of preservative and country.

country	creosote	water-borne	total	per 1,000 capita
Denmark	0	0	0	0.0
Finland	31,300	0	31,300	6.2
Iceland	0	0	0	0.0
Norway	0	0	0	0.0
Sweden	27,000 #	3,200	30,200	3.5
total	58,300	3,200	61,500	

Incl. 500 m³ beech (*Fagus sylvatica*)

Figure 4 shows the production of sleepers in the different countries from 1986 to 1995.

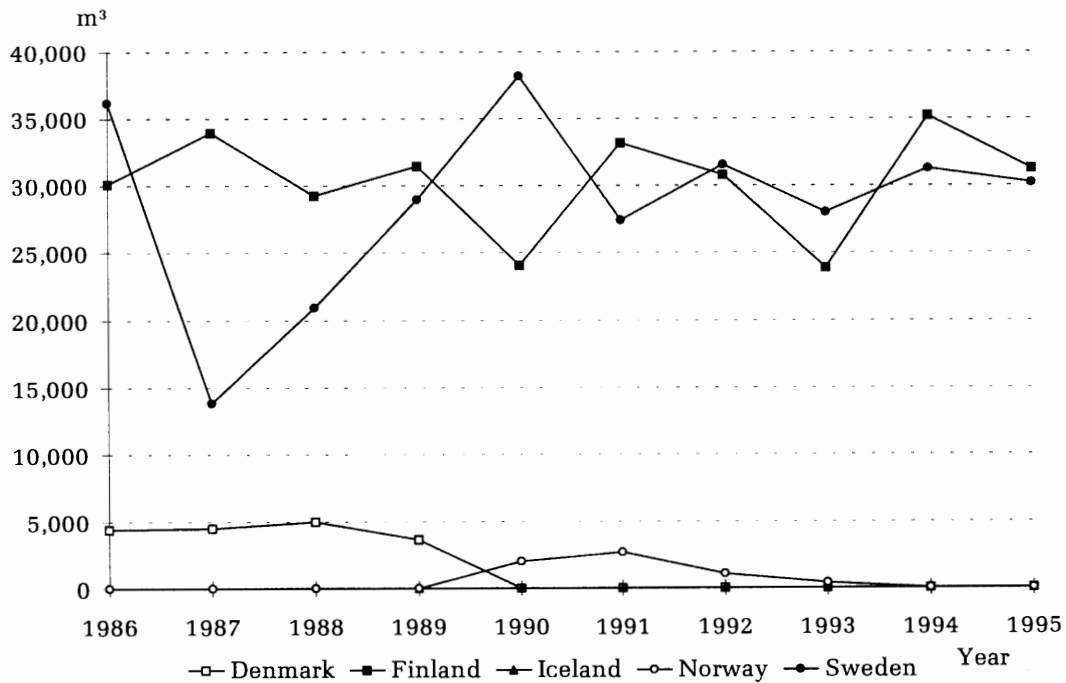


Figure 4 Production of pressure treated pine sleepers the last 10 years.

4.3 Production of poles.

Production of poles has decreased in volume by 15 % compared with 1994. Both creosote treated (6 %) and water-borne poles (27 %) have decreased compared with 1994. Denmark treats only spruce poles by sap-displacement. Finland has decreased the production by almost 15,200 m³ compared to 1994, Sweden has decreased the volume by 2,900 m³ and Norway by 7,500 m³ compared to 1994. See also table 3.

Table 3 Production of pressure treated pine poles (m³) in the Nordic countries in 1995, types of preservative and country.

country	creosote	water-borne	total	per 1,000 capita
Denmark	0	0 *	0	0.0
Finland	30,700	40,100	70,800	13.9
Iceland	0	0	0	0.0
Norway	17,600	12,600	30,200	7.0
Sweden	47,000	700	47,700	5.5
total	95,300	53,400	148,700	

*Spruce poles 900 m³.

Figure 5 shows the production of poles from 1986 to 1995 in the different countries.

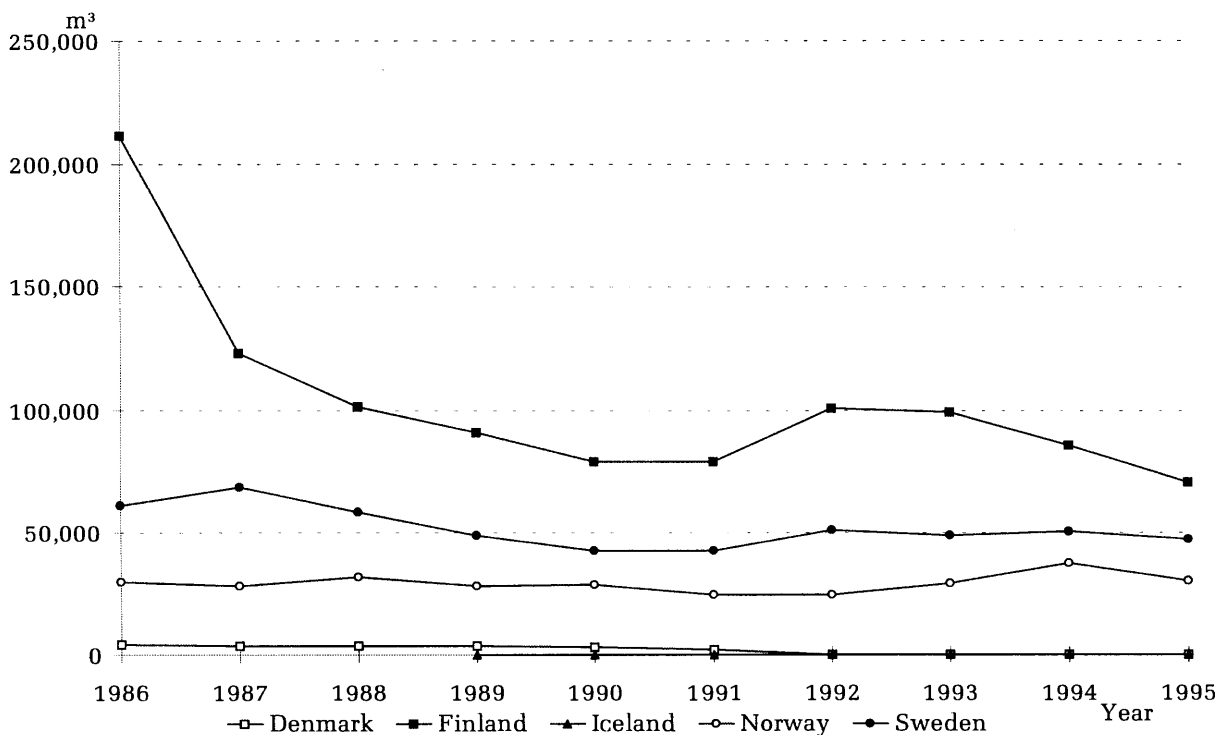


Figure 5 Production of pressure treated pine poles the last 10 years.

4.4 Production of sawn and planed timber, joineries etc.

The production of sawn and planed timber incl. other timber (such as fence posts) decreased (4 %) compared with 1994. The production volumes in all countries except Sweden decreased, Denmark by 11 %, Finland by 3 %, Iceland by 27 %, Norway by 4 %. Sweden had the same production as in 1994. See also tables 4 and 6.

Table 4 Production of pressure treated sawn pine timber (m³) in the Nordic countries in 1995, types of preservative and country.

country	creosote	LOSP	water-borne	total	per 1,000 capita
Denmark	0	0	181,300 *	181,300 #	34.2
Finland	1,000	0	146,700	147,700 #	29.1
Iceland	0	600	5,500	6,100 #	23.0
Norway	2,700	0	174,200 **	176,900	40.9
Sweden	400	2,800	308,900 ***	312,100	35.7
total	4,100	3,400	816,600	824,100	

* Exc. 33,000 m³ spruce.

** Exc. 900 m³ spruce.

*** Exc. 117,800 m³ spruce.

Incl. fence posts etc.

Figure 6 shows the volume of sawn, planed and other timber (tables 4 and 6) in the Nordic countries from 1986 to 1995.

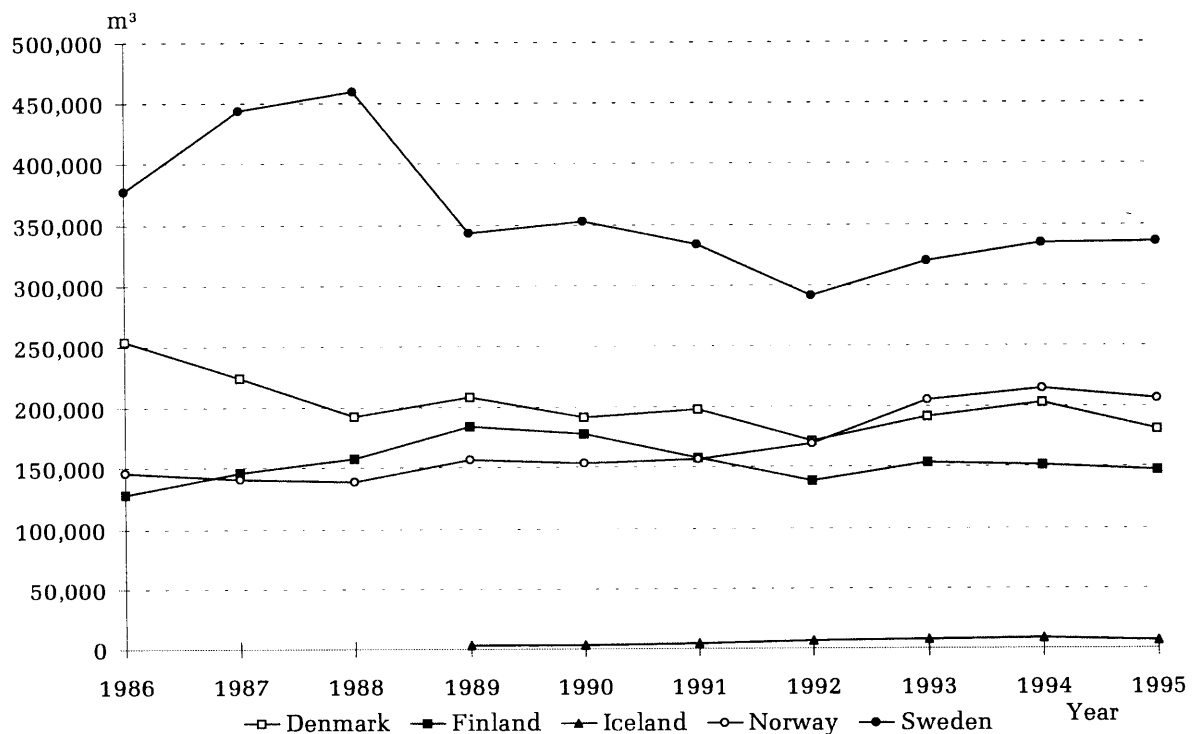


Figure 6 Production of sawn and planed pressure treated pine timber incl. other timber products (fence posts etc.) the last 10 years.

The production of joinery has decreased by 5 % in the Nordic countries during 1995 compared with 1994. Iceland has increased the production with 600 m³ (55 %) and Sweden with 800 m³ (5 %). Finland had no production of joinery of class B in 1995 but 8,000 m³ of class A treated timber was used for joinery in 1995. The volume both in Denmark and Norway has decreased app. 2,000 m³. See also table 5.

Table 5 Production of treated joinery (pine) (m³) in the Nordic countries in 1995, types of preservative and country.

country	LOSP	water-borne	total	per 1,000 capita
Denmark	35,800 *	0	35,800	6.8
Finland	0	0 **	0	0.0
Iceland	1,700	0	1,700	6.4
Norway	28,500	0	28,500	6.6
Sweden	17,700	0	17,700	2.0
total	83,700	0	83,700	

* Exc. 100 m³ spruce

** In Finland 8,000 m³ class A-timber was used by joinery factories in 1995.

Figure 7 shows the production of joinery in the Nordic countries 1986 to 1995.

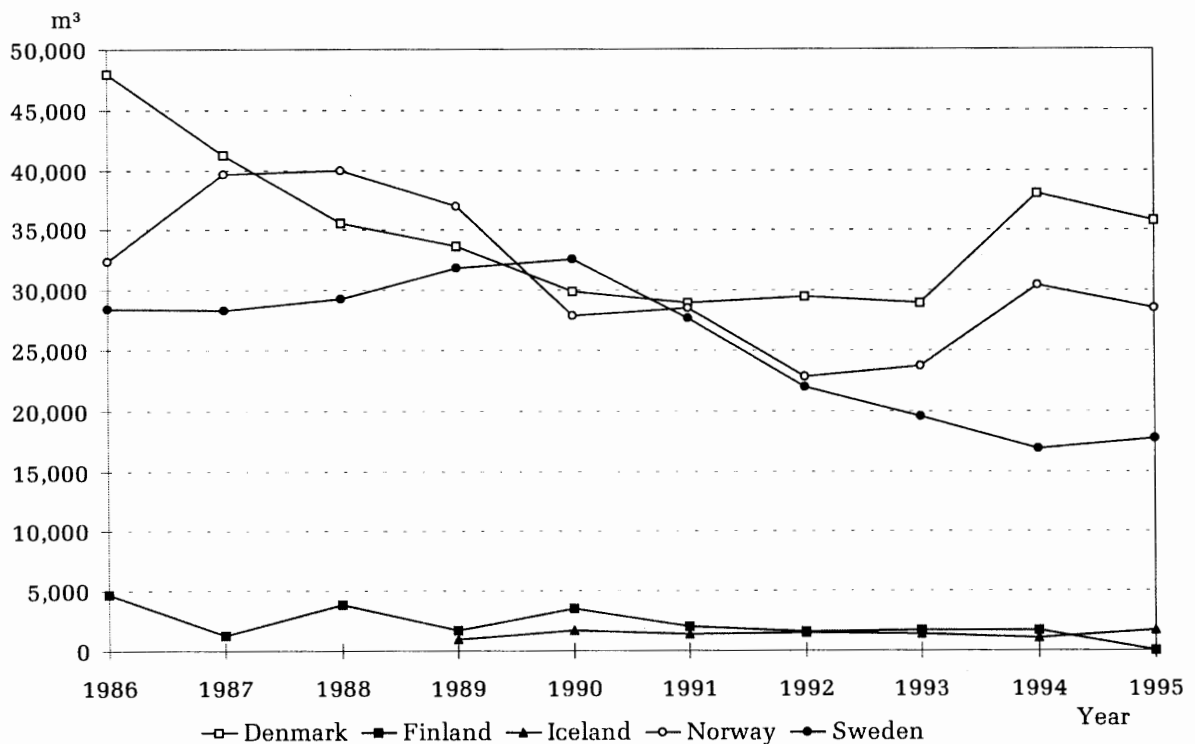


Figure 7 Production of pressure treated joinery (pine, class B) the last 10 years.

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

This volume is almost the same as in 1994.

Table 6 Production of other pressure treated wooden pine products such as fence posts etc. (m³) in the Nordic countries in 1995, types of preservative and country.

country	creosote	water-borne	total	per 1,000 capita
Denmark*	-	-	-	-
Finland*	-	-	-	-
Iceland*	-	-	-	-
Norway	900	29,000	29,900	6.9
Sweden	0	23,400	23,400	2.7
total	900	52,400	53,300	

* not specified and included in sawn timber in table 4.

5. Export of pressure treated wood

Sweden is the country with the largest export - 250,000 m³. The export volume from Sweden has increased by approx. 8,000 m³ (3 %). The export from Finland has decreased by approx. 17,000 m³ (26 %) compared with 1994, but Finland is still the second largest export country. The export from Denmark and Norway have also decreased, 55 % and 19 % respectively. 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 1995, types of preservative and country.

country	creosote	LOSP	water-borne	total
Denmark	0	> 2,100	> 22,200	> 24,300
Finland	29,400	0	17,400	46,800
Iceland	0	0	0	0
Norway	1,600	4,000	13,000 *	18,600
Sweden	17,400	3,600	229,000 **	250,000
total	48,400	> 9,700	> 281,600	> 339,700

* Incl. 400 m³ spruce.

** Incl. 116,800 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, 81 % of the total produced volume is controlled. This is a decrease of 1 % compared with 1994 and it seems as the controlled volume is stabilised. Most of the treated spruce in Denmark is used domestically, and 8,500 m³ of the pressure treated spruce meet the requirement of the NWPC-recommendations for spruce. Norway and Sweden export most/all of their treated spruce and therefore often have to meet the requirement of other countries.

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

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

Table 8 Controlled and not controlled pressure treated wood (% of total volume) in the Nordic countries in 1995.

country	controlled	not controlled	total
Denmark	85 *	15 **	100
Finland	88	12	100
Iceland	87	13	100
Norway	83	17 **	100
Sweden	74	26 **	100
total	81	19	100

* Incl. 8.500 m³ spruce that meet the NWPC-recommendation for spruce

** Incl. spruce

The reason for the low controlled percentage in Norway is that only one of the joinery factories is a member of the control schemes. This factory only produces 1 % of the total volume of joinery in Norway.

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 trykkimpregnert trevirke.

NTR Information nr. 4 1972

Träskydd, begrepp och definitioner avseende biologisk förstöring av trävirke.

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.

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 impregnert virke i Norden 1983.

NTR Informasjon nr. 13 1985

Evans, F. G.

Produksjon av impregnert virke i Norden 1984.

NTR Informasjon nr. 14 1985

Evans, F. G.

Produksjon av impregnert virke i Norden 1985.

NWPC Information no. 15 1986.

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

NTR Informasjon nr. 16 1987

Evans, F. G.

Produksjon av impregnert virke i Norden 1986.

NTR Informasjon nr. 17 1988

Evans, F. G.

Produksjon av impregnert virke i Norden 1987.

NTR Information nr. 18 1988

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

Undersökning och utvärdering av impregnerade limträkonstruksjoner.

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 impregnert 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.

NWPC Information no. 34 1995

Evans, F. G.
Production of Preservative-treated Wood in the Nordic Countries in 1994.