

# **NORFOODS COMPUTER GROUP**

## **FOOD COMPOSITION DATA**

### **INTERCHANGE**

#### **BETWEEN**

## **THE NORDIC COUNTRIES**

A report

The members of the NORFOODS computergroup:

Anders Møller	Denmark
Kimmo Louekari	Finland
Trond Ydersbond	Norway
Herman Isaksson	Sweden

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**Introduction**

On request of the Nordic group for Diet and Nutrition Questions NORFOODS started its work in 1982.

NORFOODS is the Nordic group of projects concerning Food Composition Tables and data banks.

The NORFOOD-group consists of a representative from each Nordic country, i.e. Denmark, Finland, Iceland, Norway and Sweden. The members of the group are:

Anders Møller	Denmark
Maarit Ahola	Finland
Olafur Reykdal	Iceland
Arnild Haga Rimestad	Norway
Lena Bergström	Sweden.

Since the start in 1982, the members of the NORFOODS group have met each year to discuss and solve problems in relation to collection of data for food composition data banks and preparation of food composition tables.

In the autumn of 1985, NORFOODS formed a special working group with the main task to appraise methods for simple transfers of food data by using existing systems of telecommunication or machine readable medias.

Examination of the technical problems arisen with this work was made at two meetings in connection with ordinary NORFOODS meetings in as well Copenhagen (December 1985) as Helsinki (May 1986). The actual data transfer was carried out between and after the two meetings. The final evaluation was made in the end of 1986 and the beginning of 1987.

The special electronic data processing group consisted of:

Anders Møller	Denmark
Kimmo Louekari	Finland
Trond Ydersbond	Norway
Hernan Isaksson	Sweden.

This report is the result of the evaluations of the group. It describes the first systematic interchange of data of food composition tables in the world.

Furthermore, it makes a suggestion to a minimum standard of data format by electronical data transfer of food data between the Nordic countries, <sup>\*)</sup> which could be applied for

The author of this report is Anders Møller, National Food Agency, Denmark.

~~data transfer of between most other countries having~~  
~~developed food composition data bases, (and~~  
~~rather simple data transfer facilities)~~

~~It seems to us that, this standard~~

\*) It seems to us that this standard could be applied for data transfer between most other countries, too, having developed food composition data bases.

*I would like to state the task of NORFOODS is the first and hence the most important reason for the involvement of the authors.*

*As far as the authors know,*

## 1. Background of the project

All Nordic countries have more or less official food composition tables.

The development within the field of electronical data processing together with the still increasing flow of new data of analysis and mutual use of data for equal foods in the Nordic countries has made a better coordination and interchange of data possible either by telecommunication network or machine readable medias.

The use of dietetic software on microcomputers has highly increased the demand for food composition data. Expression of this is also made by the comprehensiveness of the food composition tables from the different countries.

Originally the basis of food composition tables and dietary calculations is ~~always~~ a ~~type of~~ food composition data bank stored on a main-frame computer. In the development of electronics these tasks have more and more been taken over by the microcomputers which are more easy to use.

Regarding time and economy the construction and maintenance of such data banks demands a lot of resources. Parts of the work could be saved, if food data are transferred between the Nordic countries in an electronical readable form.

Speaking of these obvious co-operation possibilities the group of electronical data processing in NORFOODS has evaluated the computer facilities in the individual countries to find common communication contacts. This is produced to help in the future work in food composition data interchange.

The development in the field of software for food composition data banks and dietary calculations has also caused a discussion of possible future points of cooperation within this field.

## 2. The hardware in the individual countries

**Denmark** handles the food composition data bank on an IBM-compatible microcomputer (a PC: Personal Computer). The microcomputer has the possibility of communication to the mini-computer, type PDP-11/44, at the The National Food Agency and supplied with tape-station, and to public communication networks by modem.

**Finland** is just now working on setting up a food composition data bank in public management. A main-frame based food composition data bank is available at the university in Viikki, and the Finish Institute of Pension has a more extended main-frame system called NUTRICIA. A microcomputer is used in the daily work. \*)

**Norway** handles the official food composition data bank on an IBM-compatible microcomputer and with that a possibility of communication by modem to the public communication networks.

**Sweden** handles the official Swedish food composition table in a system together with software for calculation of food, KOST, on the mini-computer NORD-100 with tape-station on Livsmedelsverket, Uppsala. It is possible of communicate directly to public communication networks and to microcomputers.

\*) Some micro computer applications have been developed lately, ~~esp~~ also after the 1987 (...). Only in few cases the updating of food composition data base used by micros, has been established.

Iceland has its own food composition data bank on an IBM-compatible microcomputer, and with that possibility of communication by modem to the public communication network.

### 3. Possibilities of data interchange

In the diagram shown below the direct communication possibility of the individual Nordic countries are indicated in relation to the individual food composition data bank.

Country	Publ. communication	Magnetic tape	Diskette
Denmark	(+)	+	+
Finland	(+)	+	+
Norway	(+)	+	+
Island	(+)	-	+
Sweden	+	+	+

The facilities, completely usable, are marked with "+" while facilities only used from the named country to another country with completely usable facilities, are marked with "(+)".

**3.1 Public communication.** Main-frame systems have possibilities of data-transmission by data network connections, e.g. the EARN-network which for the time being <sup>was</sup> is free to use in purpose of research (payed by IBM until end of 1987). *(of the present study)*

Denmark has used the EARN network intensively in the end of 1986 and in the beginning of 1987 to communicate with the secretariat of INFOODS at the Massachusetts Institute of Technology in Boston, USA (described later).

Anyhow, the problem with this network solution is that it may be expensive for the individual user, if the institute in concern is not a classified EARN user.

If you estimate the actual requirement for a physical network connection between the food composition data banks, the conclusion is that it is not needed within the nearest future. It might be a part of a possible network system between the Nordic Food Administrations.

The need is very small with the concern of food composition data banks, as the amount of data transferred between the individual countries is very small, e.g. that ~~minor advanced~~ <sup>relatively simple</sup> data-transmission facilities is satisfying. *(Typically a f.c.d.b.\* occupies 1-3 MBytes. (?) )*

**3.2 Dial up telephone connections.** Dial up modem connections are also reliable, but they demand a lot of standardisation work, e.g. according to emulation of terminals. Besides a lot of disturbance on such lines may be found. This does not make satisfying data transmission possible.

\* f. c. d. b. = food composition data base 5

The possibility of this form of data transmission has been tested from the different Nordic countries to the data centers, where dial up connections are possible.

A testing of the connection between Copenhagen and Statens Livsmedelsverk in Uppsala to the KOST-system was tried. There were no problems with the connection itself, but it was not possible to get access to the system in the first try, as the Danish terminal (IBM PC/XC with ordinary asynchronous TTY-emulation) could not emulate the terminal the SLV-system demanded.

A testing of the connection between Copenhagen and the university in Helsinki was carried out without problems. There was anyhow a bad telephone-line with disconnection of the line during the session.

Connection from Copenhagen to the university in Oslo took place without problems.

Connection from Uppsala to UNI-C in Copenhagen passed off without problems.

Connection from Helsinki to UNI-C in Copenhagen with file transmission (information on nutrient losses during preparation of foods) passed off without any problems at all.

These very small tests have shown some of the problems concerning direct connection between the individual countries besides a quite simple thing like delivering password or accountno. Especially the last mentioned topic is of economical kind as both Finland, Norway, Sweden and Iceland use modem-connection on centres of universities and not their own system. A permission to connect to the mini-computer system in The National Food Agency in Denmark could solve the problems.

The latest development has made possibilities for a direct connection between PC's, if the implicated PC's are supplied with newer modems of HAYES/XMODEM standard.

*which follow*

**3.3 Exchange of data by diskettes and magnetic tapes.** The last interchange possibility of machine readable data is the direct interchange of data on diskette or magnetic tape.

This interchange of data is practicable like the earlier mentioned, as all countries are having direct access to micro-computer equipment compatible with the equipment in the other Nordic countries.

Furthermore, it is the easiest interchange method in the first turn. The interchange of data by diskettes implies otherwise problems too, e.g. which format of data to be chosen.

By data format is meant, how the data are represented in the material of data, and in which unit.

This is a problem appearing by all form<sup>s</sup> of data interchange. Apparently there was no mechanical problems during interchange of data by diskettes. Therefore the computer group found it most suitable to get experience by interchange of data by diskettes in the first turn. The goals were first to get experience with converting foreign data to your own format, and start the data interchange at an early stage.

Data files containing food composition data bank values were interchanged between all Nordic countries.

?  
did we  
try to use  
commands of  
the connected  
system.

There were only very few limitations to the format used, e.g. diskettes containing the data files should be formatted under MS-DOS (PC-DOS), and the data files should contain two files in ASCII-form (standard text format).

It should be emphasized that no other limitations on the data format with the exception of the above mentioned. <sup>Since our purpose was</sup> This was decided to test if a free data format is subject to any problems for the receiver of the data. The experiences from the data interchange trial were used in the follow up discussions about common data format.

Denmark, Finland, Iceland and Norway sent diskettes to the other Nordic countries, while Sweden in the first turn sent magnetic tape to Norway for conversion to diskette.

The last part happened, because ~~Livsmedelsverket~~ <sup>\*/ in Sweden</sup> at the start of the project did not have the possibility to deliver diskettes. Anyhow, it was not possible to convert the Swedish tapes in Norway. Another tape was sent to Denmark, where the conversion succeeded after some problems.

Furthermore, in the summer 1987 Denmark received a diskette from Livsmedelsverket with data from the 1986 version of the Swedish food composition table. The original magnetic tape contained data from the version from 1978.

In the following the data files from the individual countries are described with the problems, which arised during the deciphering of the data files.

To make the evaluation as realistic as possible, all the data are transferred to the same system, the Danish food composition data bank, which now contains the possibility of reference to the data from the other Nordic countries.

\*/  
National Food Administration in Sweden

**4. Comparison of the interchanged data-files**

*In following*  
 Below follows a complete description of the interchanged files *is presented* with the general comments, which the comparison may cause.

The general description of file material is shown in the following summary. *As for* (According to) Sweden two columns appears, one for the magnetic tape version and one for the diskette version.

	DK	SF	IS	N	S
<b>Datamedia</b>					
diskette	*	*	*	*	*
tape					*
<b>Documentation</b>					
paper		* 2			*
in data-file		*			
in spec. file	*		*		*
<b>Data file</b>					
one	*	*	*	*	
more					* *
<b>Text format</b>					
7-bit ASCII					* *
8-bit ASCII	*	*	*	*	
<b>Data representation</b>					
decimal	*		*	*	*
other		* ?			*
<b>Special flags</b>					
numeric	*		*		
alfa-numeric				*	*
<b>Consistency</b>					
whole data-file	*	*	*		*
individual deviance				*	*
<b>Irrelevant information</b>					
in data file		* 191	*		

The description of the individual points is explained in the following. An additional description of the data files are made in supplement A.

**Datamedia** states machine readable media for transferring of data. Evaluation of the two medias, diskette and magnetic tape, are made. Diskettes are recommended, as only Denmark and Sweden have direct entrance to tapestations, and input from magnetic tape is more difficult to handle than input

from diskettes. Input of data from magnetic tape often requires the involvement of technical personnel, while the receiver can make input from diskettes himself. *Also, PCs can not read magnetic tapes.*

**Documentation of the data material** is a necessity for data to be deciphered from the data file. There are considerable difficulties with the deciphering, if the documentation is stored in the same file as the data. Elimination of the documentation from the data file has to be done, before input of data can take place. The documentation must be placed alone in a separate file or, if this is not possible, on paper. the documentation must **not** be placed in the data file. This was the case in the Finish file, and partly the Icelandic. *h*

With increasing amount of data files, the difficulties with data input rise.

Includes in the term data files is only files containing data on substances and not files with data of recipes or food names. Only Sweden uses several data-files, two data files in the version of magnetic tape (nutrients, fatty acids) and nine data files in the diskette version (one for each food group). To facilitate data input **only one** data file should be used.

**The text format** states, how the data are stored on the diskette. Before the data interchange it was agreed that the data format should be ASCII standard text format ASCII. This is respected by all the involved countries. Anyhow some problems appeared. In the Swedish diskette-version a 7-bit ASCII-code with parity check was used. This was not expected and due to this some problems appeared during input, because the files had to be converted to 7-bit ASCII-format without parity-check before input.

As expected there were problems with the special national characters (æ, ø, å, ä, ö), as there was no room for these symbols in the original 7-bit ASCII-table. Recommendation of use of the expanded 8-bit ASCII-table are given as far as possible (the IBM PC character set).

**The value format** is the way the values are stored in the data files. In the Swedish magnetic tape version and in the Finish data file the values are not represented by decimal values, but represented by integers instead. The amount of decimals in these values can be found in the documentation files. This causes problems in the data input, as a conversion of values also has to take place at the data input. Therefore it is recommended that decimal notation being used.

**Special flag** is a way to mark special values in the data file. Most often it will signal missing values, traces or an expected value of zero is assumed. In the Danish data file -1 is used to mark "missing value". In as well the Swedish magnetic tape-version and the diskette-version the "missing value" is stated with an empty space, whereas traces in the diskette version is stated with the word "spår". In the Norwegian data file the missing value is stated with "..". All "-" (almost zero) in the printed Norwegian table are stated with 0 (zero) in the data file. The Finish data file does not state any special flags; but it is assumed that some of the zeroes in the data file are special flags. The reason for this is the problems that arise when data are converted for nutrient calculation purposes. These problems were the first to be treated by the project-group after the first interchanges of data. It was decided to use the same negative values to flag these special cases.

It was decided to use the value "-1" to state "trace" and the value "-9" to show "missing value".

Since the last interchanges of data it showed up there can be further use of flags, e.g. to state "probably zero value, but not analysed" (the Norwegian "-") and "under limit of detection".

**Consistency** states if in the total data file the same fields are used for the same substances, or if a certain field can contain information about different substances.

found in the same field. As there were no documentation to the Norwegian file this in-consistency was found only after data input and the following crossreference to the Norwegian table. It was documented in the Swedish data file.

In-consistency is very inexpedient during data input, therefore it must aimed at that each field in a data file has only **one** meaning to all foods in the file.

**Irrelevant data file informations** appeared in the <sup>w/</sup> Finish and the Icelandic data file, as the first lines in the data-file have no absolute meaning of information concerning the rest of the file. It stands as a heading.

Such information should be avoided in the data file. They belong to the documentation file.

Above outlining is made of the most important comments to the problems arisen during input and converting of data.

Mentioning that there were no problems too big to solve using a bit of reflection. And if the data-files are more alike, the interchange will be easier.

## 5. Proposals to a minimum standard for food data interchange

Obviously it is proved in the test described previously in relation to food data interchange between the different national centres concerning food composition tables in the Nordic countries that some kind of standardisation in relation to the future data interchange is needed.

In the following the minimum claims the project group find necessary are described. The aim is to get an easy and uncomplicated food composition data interchange between the Nordic countries.

The following minimum demands have to be fulfilled by transformation of data of food on machine readable media:

Table →

<b>Datamedia:</b>	The datamedia have to be diskettes formatted under MS-DOS (PC-DOS), 5 1/4" or 3 1/2". In emergency a magnetic tape can be used (1.600 BPI, no label).
<b>Documentation:</b>	The documentation have to follow the data media either as file on the datamedia or as separate paper print out.
<b>Data file:</b>	All data should be stored in one data file, eventually including standard file archiving software (this must appear in the documentation).
<b>Text format:</b>	The data format must be 8-bit ASCII standard text format, subsidiary with standard 7-bit text format without parity.
<b>Value format:</b>	The data values must be in decimal format like in the matching food composition table to get the values easy recognisable.
<b>Special flags:</b>	<p>Special numeric codes are used to signal special values:</p> <ul style="list-style-type: none"> <li>-1: trace</li> <li>-2: value below detection limit *)</li> <li>-3: value probably 0 (zero)</li> <li>-9: missing information</li> </ul> <p>*) Values below detection limit can be fixed to 1/3 of the level of the detection limit.</p>
<b>Consistency:</b>	Every field in a food record must be unambiguous, i.e. the same field cannot have different meaning in different food records.

If these minimum demands are kept by food data interchange, it will be possible to incorporate other countries' data in your own food composition data bank without any other difficulties.

According to the described Nordic food data interchange the Danish food composition data bank now is extended with reference keys to the other Nordic food composition data banks as well as the British, the Dutch and U.S. food composition data banks.

*food codes and names*

## **6. International co-operation**

Besides the Nordic management, NORFOODS, work is carried out concerning food data interchange within the international framework. INFOODS (International Network of Food Data Systems) is operating in UN framework and is developing a considerably more implicated and comprehensive system used to describe food ingredients in relation to food data interchange.

The countries, members of NORFOODS, are also the first countries taking part of the test of this very profound data system specification. *di kivi Suomalaiset ja espanjalaiset*

The description of the specification made by INFOODS: Identification of Food Components for Infoods Data Interchange, can be found in a publication not yet published from the Secretariat of INFOODS, Massachusetts's Institute of Technology, Room 20A-226, 77 Massachusetts's Avenue, Cambridge, MA 02139, U.S.A.

## Conclusion

According to this first test on electronical interchange of food data in the world, the examination of the possibilities for the individual Nordic countries for data was examined to find points of contact for technical electronical data processing for immediate using of interchange of data between the Nordic countries.

The project has shown that with a minimum of restrictions, it is possible to carry out data interchange, which makes it possible for the receiver to recognise <sup>and manage</sup> the data.

Data interchange in a machine readable form can imply certain problems concerning copyright, especially as it is only the Swedish and the Danish food composition table which is entirely official and completely payed with public expenses in the two countries.

Therefore, it is decided that the limitations of the individual countries to the other countries using the interchanged data have to be respected. No economical interests concerning this format of data testing can be involved because of this.

Furthermore, the project has shown that the very few people employed in the individual Nordic country working with the field of food composition data banks have had a very large advantage of this co-operation. This has also made implications of better co-operation on the field of data according to the models of data in the food composition data banks, interchange of computing algorithms, interchange and standardisation of videoscreens, special routines for import/export of data to/from nutrient calculation software.

possibilities <sup>of the receiving country or data system</sup> to use the transferred data could also be discussed:

- borrowing of values when indicated
- comparisons and checks in respect of the own national data
- identification of sources of food composition data: in other maintaining institutions or in published literature

Data file descriptions

Country of origin: Denmark

Data media: Diskette

Data file layout:

ABRIKOS, tørret

1221  
 4.8  
 0.5  
 0.2  
 0  
 0.3  
 0  
 65.9  
 41.9  
 24.0  
 0  
 5.3  
 23.5  
 617  
 0  
 3700  
 0  
 4.0  
 4.0  
 -1  
 -1  
 0  
 0.060  
 3.0  
 .  
 .  
 .

Remarks:

Only one information on each line. Numerical special flags (-1 means missing value, according to the proposal in this report the value should be -9).

Data file descriptions

Supplement A-2

Country of origin: Finland

Data media: Diskette

Data file layout:

RAVINTOAINETIEDOSTO												
NIMET	VALK	RASV	HHYDR	KCAL	KJ	A-VIT	RET	TIAM	RIB	NIAS	C-VIT	KOL
NIMET	C4-11	C12	C14	C16	C18	MIRH	YTRH	M-ET	C18-2	C18-3	MP-ET	YP-ET
NIMET	T#RKK	SAKK	LAKT	MHH	ALK	K	CA	MG	P	S	FE	CU
NIMET	MN	ZN	F	SE	MO	BR	RB	AL	SI	B	HG	AS
NIMET	CD	CO	CR	NI	PB	NA	I	SR	NIASE	D-VIT	N	VESI
DESIM.	1	1	1	0	0	0	0	2	2	2	1	1
DESIM.	2	2	2	2	2	2	2	2	2	2	2	2
DESIM.	1	1	1	1	1	4	1	2	1	4	3	3
DESIM.	3	3	3	2	3	3	3	3	1	3	1	3
DESIM.	1	1	1	3	3	1	3	2	1	2	2	1
001933	0	0	999	387	1620	0	0	0	0	0	0	0
001933	0	0	0	0	0	0	0	0	0	0	0	0
001933	0	999	0	0	0	0020	4	10	1	0100	060	010
001933	010	010	050	50	010	100	100	300	5	030	2	003
001933	5	10	10	3	10	1	5	1	0	0	10	1
002933	0	0	95	380	1589	0	0	0	0	0	0	0
002933	0	0	0	0	0	0	0	0	0	0	0	0
002933	0	0	0	95	0	0003	1	0	1	0100	070	010
002933	010	010	060	50	010	100	100	300	5	030	2	003
002933	5	10	10	003	010	1	5	1	00	0	0	1
003933	03	0	767	298	1250	0	0	0	01	10	0	0
003933	0	0	0	0	0	0	0	0	0	0	0	0
003933	0	421	0	346	0	2200	740	3400	20	0300	2500	240
003933	110	130	080	100	010	200	290	1600	50	030	2	006
:												
:												
:												

Remarks:

The first line in the data file is irrelevant. The file documentation is in line 2 to 11, where line 2 to 6 gives the information about the substances and line 7 to 11 contains information about the decimals in the values stated as integers in the data file.

This information should be included in a special documentation file.

? Cleaning of the data file before input must be avoided.

Data file descriptions

Supplement A-3

Country of origin: Iceland  
 Data media: Diskette  
 Data file layout:

FOOD ITEM	P	F	C	S	F	A	W	B1
Blood sausage, cooked	7.9	22.6	17.5	0.0	-9	1.6	47.9	0.049
Foal goulash	22.8	4.4	0.0	0.0	0.0	1.1	72.3	0.17
Smoked lamb meat	18.0	15.1	0.0	0.0	0.0	4.6	61.3	0.090
Shark	29.8	47.7	0.0	0.0	0.0	2.1	20.7	-9
Cod roe	25.0	1.0	-9	-9	0.0	-9	69.8	0.37
Chicken	19.4	11.9	0.0	0.0	0.0	0.9	69.2	0.10
Lamb leg	20.2	5.5	0.0	0.0	0.0	1.1	73.8	0.18
Halibut, fillet	19.2	0.9	0.0	0.0	0.0	1.1	79.4	0.07
Lake trout	20.5	2.7	0.0	0.0	0.0	1.2	76.6	0.16
Ham	18.7	6.9	0.0	0.0	0.0	3.2	71.7	0.41
Salami	15.6	39.4	-9	-9	-9	5.7	36.1	-9
Pollock, fillet	19.3	0.3	0.0	0.0	0.0	1.2	79.5	0.09
Haddock, fillet	18.9	0.2	0.0	0.0	0.0	1.1	80.4	0.03
Wiener sausage	11.2	20.6	5.9	-9	-9	2.8	58.0	0.12
Cod liver	5.1	66.6	0.0	0.0	0.0	0.5	26.8	0.08
:								
:								
:								

Remarks:

The first two lines in the data file should be placed in a special documentation file, as they are irrelevant to the data file.  
 Uses the special flag '-9' to signal missing values, as proposed by the working group.

Data file descriptions

Supplement A-4

Country of origin: Norway

Data media: Diskette

Data file layout:

01.001MELK, KEFIR, KULTUR	100	87	281	67	3.3	3.8	4.8	0	0	120	0.1	45	0.04	0.15	0.1	1
01.002LETTMELK	100	90	198	47	3.4	1.5	4.9	0	0	120	..	18	0.04	0.15	..	..
01.003SKUMMET MELK, SKUMMET KULTUR	100	91	147	35	3.4	0.1	5.0	0	0	120	0.1	0	0.04	0.15	0.1	1
01.004KJERNEMELK	100	92	168	40	3.4	0.7	5.0	0	0	120	0.1	0	0.04	0.15	0.1	1
01.005KONDENSERT MELK, USUKRET	100	74	588140	7.0	8.0	10.0	0	0	240	0.2	120	0.05	0.35	0.2	1	
01.005KONDENSERT MELK, USUKRET	100	74	588140	7.0	8.0	10.0	0	0	240	0.2	120	0.05	0.35	0.2	1	
01.007RÅMELK, 1. MELKING	100	74	59614215.0	8.0	2.5	0	0	200	0.1	300	0.16	0.60	0.4	3		
01.008SJOKOLADEMELK	100	82	231	55	3.4	0.5	9.3	0	0	120	0.1	3	0.04	0.15	0.1	1
01.009TØRRMELK AV HELMELK	100	3211750426.0	28.0	37.0	0	0	900	0.7	330	0.30	1.10	0.7	4			
01.010TØRRMELK AV SKUMMET MELK	100	4150435835.0	0.7	53.0	0	0	1300	1.1	12	0.43	1.60	1.1	6			
01.011YOGHURT, NATURELL	100	84	315	75	4.2	3.8	6.0	0	0	150	0.1	42	0.04	0.16	0.1	1
01.012YOGHURT, M/FRUKT	100	76	420100	3.6	3.3	14.0	0	0	120	0.1	36	0.04	0.15	0.1	1	
01.013GEITMELK	100	88	244	58	3.0	3.2	4.3	0	0	130	0.1	60	0.06	0.02	0.1	1
01.014KVINNEMELK	100	87	281	67	1.2	3.8	7.0	0	0	33	0.15	51	0.02	0.05	0.2	5
01.015KREMFLOTE, SETERRØMME, 35% FETT	100	581407335	2.0	35.0	3.0	0	0	95	0.1	300	0.03	0.10	0.1	0		
01.016FLØTE, RØMME, 20% FETT	100	74	869207	2.8	20.0	4.0	0	0	100	0.1	180	0.03	0.10	0.1	0	
01.017HUSHOLDNINGSFLØTE, 14% FETT	100	78	651155	3.0	14.0	4.3	0	0	100	0.1	129	0.03	0.10	0.1	0	
01.018FLØTEIS	100	64	785187	4.3	10.0	20.0	0	0	130	0.1	117	0.05	0.18	0.1	0	
01.019FLØTEDESSERTER, FRYSTE	100	66	794189	4.5	11.0	18.0	0	0	150	0.1	120	0.04	0.25	0.1	0	
01.020MELKEPUDDINGER	100	75	462110	3.2	3.5	16.5	0	0	110	0.2	39	0.04	0.14	0.1	0	
01.021MELKERING	100	87	281	67	3.3	3.8	4.8	0	0	120	0.1	45	0.04	0.15	0.1	0
01.022RØMMEGRØT, FRYST	100	581193284	5.0	24.0	12.0	0	0	120	0.2	180	0.03	0.10	0.2	0		
01.023VANILJESAUS	100	72	647154	2.7	8.7	16.2	0	0	100	0.1	84	0.03	0.12	0.1	0	
01.024BRIE	100	45155036918.6	32.7	0	0	0	370	1.3	300	0.04	0.30	1.6	0			
01.025CAMEMBERT	100	52126430119.0	25.0	0	0	0	230	1.3	210	0.05	0.41	1.2	0			
01.026CHATEAU BLEU	100	561344320	8.0	32.0	0	0	200	0.1	240	0.07	0.46	0.6	0			
01.027CHEDDAR	100	37165539426.6	32.0	0	0	0	740	1.0	230	0.03	0.52	0.1	0			
01.028COTTAGE CHEESE	100	79	403	9612.7	4.3	1.5	0	0	90	0.8	54	0.05	0.20	0.1	0	
01.029CREME CHATEAU	100	511491355	9.3	35.0	0.8	0	0	200	0.1	240	0.05	0.24	0.2	0		
01.030EDAMER	100	42148735427.0	27.3	0	0	0	900	0.9	210	0.03	0.37	0.1	0			
⋮																

Remarks: Uses '..' to signal traces.

Data file descriptions

Country of origin: Sweden  
 Data media: Magnetic tape  
 Data file layout:

- 1.001 AVOKADO
- 1.002 BAMBUSKOTT
- 1.003 BLEKSELLERI=BLADSELLERI
- 1.004 BLCMK\$&L
- 1.006 BCNDB\$&NOR
- 1.009 BROCCOLI DJUPFRYST
- 1.010 BRYSSELK\$&L=ROSENK\$&L
- 1.011 BRYSSELK\$&L=ROSENK\$&L DJUPFRYST
- 1.012 GRODDAR MUNGB\$&NOR
- 1.014 B\$&NOR BRUNA TORKADE
- 1.015 B\$&NOR BRUNA KOKTA HERMETTISERAD
- 1.017 B\$&NOR GR\$&NA
- 1.018 B\$&NOR GR\$&NA DJUPFRYSTA
- 1.019 B\$&NOR GR\$&NA M LAG HERM
- 1.020 B\$&NOR GR\$&NA HERM UTAN LAG
- 1.023 B\$&NOR VITA TORKADE
- 1.025 B\$&NOR VITA I TOMAT\$&S\$ HERM
- 1.027 CHAMPINJONER
- 1.028 CHAMPINJONER M LAG HERM
- 1.030 CHILIS\$&S\$ TOMAT
- 1.031 SALLAD ENDIVE-
- 1.033 F#&NK\$&L
- 1.036 GR\$&NK\$&L DJUPFRYST
- 1.037 GR\$&NSAKSBLANDNING DJUPFRYST
- 1.039 GR\$&NSAKSSOPPA HERM #TF#RDIG
- .
- .

Remarks: File with food names. Sweden is the only country, who carries the food names in a special files.  
 Problems with special Swedish characters in a Danish printer.

**Data file descriptions**

Supplement A-6

**Country of origin:** Sweden  
**Data media:** Magnetic tape  
**Data file layout:**

M1041 1.004 0653  
M1041 4.214 0261  
M1041 4.486 0065  
M1041 5.903 0031  
M1041 6.306 0018  
M1041 7.160 0014  
M1041 8.702 0008  
M1041 9.290 0020  
M104111.004 0653  
M104114.214 0261  
M104114.486 0065  
M104115.903 0031  
M104116.306 0018  
M104117.400 0014  
M104118.702 0008  
M104119.290 0020  
M1042 1.004 0963  
M1042 8.702 0008  
M1042 9.290 0029  
M1043 1.004 0559  
M1043 1.084 0004  
M1043 4.214 0391  
M1043 6.306 0030  
M1043 7.160 0026  
M1043 8.702 0008  
:  
:  
:

**Remarks:** File with recipes.

Data file descriptions

Country of origin: Sweden  
 Data media: Magnetic tape  
 Data file layout:

1.001 000030001670007400000120000210001640000630000000000174000029000000 0003000 fortsattes  
 1.002 000000002400094000000340001700000400003200000000000060000010000000000020000200 fortsattes  
 1.003 00001100018000950000009000007000001000036000000000017000030000000000020000200 fortsattes  
 1.004 000008000270009100000090000270000020000520000000000360000060000000000000000030 fortsattes  
 1.006 000066003550001190000310002500000170001170000000000210000035000000000030000300 fortsattes  
 1.009 000000003550088700000800003400000300005400000000013500002250000000000130001300 fortsattes  
 1.010 000020000450008520000120000490000040000830000000000330000055000000000100001000 fortsattes  
 1.011 000000003600088400000800003300000200007300000000003420000570000000000100001000 fortsattes  
 1.012 0000000035000888000006000038000002000066000000000012000002000000000020000200 fortsattes  
 1.014 000000003390001120000380002230000150006120000000000180000030000000000230002300 fortsattes  
 1.015 000000001090007330000130000440000090002020000000000060000010000000000080000760 fortsattes  
 1.017 00001200032000906000007000019000002000071000000000360000060000000000030000300 fortsattes  
 1.018 00000000270009160000050000170000010000610000000000318000053000000000030000300 fortsattes  
 .  
 .  
 .

Remarks: File with nutrient values. The format is very hard to recognize.

Data file descriptions

Supplement A-8

Country of origin: Sweden  
 Data media: Diskette  
 Data file layout:

1.002	BAMBUSKOTT, herm,	a	100	99	24	94	0.3	1.7	0.4	0.1	spår	fortsattes
1.003	BLEKSELLERI =	a	100	77	18	95	0.9	0.7	0.1	spår	spår	fortsattes
1.008	BROCCOLI	a	61	150	36	90	0.9	3	0.4	spår	spår	fortsattes
1.009	BROCCOLI, fryst	A	100	151	36	91	0.8	3.4	0.3	spår	spår	fortsattes
1.006	BONDBØNOR	a	94	315	76	81	1.1	5.6	0.6	0.1	spår	fortsattes
1.007	BONDBØNOR, torkade	A	100	1490	355	11.9	3.1	25	1.7	0.2	0.2	fortsattes
1.014	BRUNA BØNOR,	A	100	1480	350	11.2	3.8	22	1.5	0.4	spår	fortsattes
1.015	BRUNA BØNOR, kokta	A	100	450	108	73	1.3	4.4	0.9	0.2	spår	fortsattes
1.017	GRØNA BØNOR	a	94	152	36	90	0.7	1.82	0.1	spår	spår	fortsattes
1.018	GRØNA BØNOR, frysta	a	100	163	39	90	0.5	1.7	0.2	spår	spår	fortsattes
1.020	GRØNA BØNOR, herm,	a	100	95	23	93	1.0	1.2	0.1	spår	spår	fortsattes
1.074	MUNGBØNOR, torkade	A	100	1490	355	10.7	3.5	24	1.3			fortsattes
1.021	RØDA BØNOR, torkade	a	100	1490	356	10	3.7	22	1.5	0.2	0.1	fortsattes
1.022	RØDA BØNOR,	A	100	520	123	69	1.3	7.8	0.5	spår	spår	fortsattes
1.145	VAXBØNOR	a	94	157	38	90	0.7	1.8	0.1	spår	spår	fortsattes
1.149	VIGNABØNOR, inkl	A	100	1490	355	10.5	3.5	23	1.5	0.4	0.1	fortsattes
1.150	VIGNABØNOR, svart-	A	100	330	79	80	0.8	5.1	0.3	0.1	spår	fortsattes
1.023	VITA BØNOR, torkade	A	100	1480	355	11	3.9	22	1.6	0.2	0.1	fortsattes
1.024	VITA BØNOR, torkade	A	100	515	123	69	1.4	7.8	0.6	0.2	spår	fortsattes
1.025	VITA BØNOR, herm	B	100	450	108	73	1.8	5.1	1.2	0.2	0.2	fortsattes
1.027	CHAMPINJONER	a	96	130	31	92	0.9	2.1	0.4	spår	spår	fortsattes
1.227	CHAMPINJONER,	F	100	100	24	94	0.8	2	0.4	spår	spår	fortsattes
1.338	CHAMPINJONER, herm	a	100	126	30	91	1.7	1.9	0.3	spår	spår	fortsattes
1.127	CHAMPINJONSOPPA,	a	100	217	52	90	1.2	1	3.7	1	0.7	fortsattes
S1410	CHAMPINJONSOPPA,	a	100	161	38	92	1.1	0.9	1.9	0.3	0.9	fortsattes

Remarks:

Uses alfa numeric characters ('spår') in the numerical data section to signal traces.

## NORFOODS ADRESSLISTA 1988

### Land Representant

### Arbetet

Danmark  
Anders Møller

Levnedsmiddelstyrelsen  
Mørkhøj Bygade 19  
DK-2860 SØBØRG  
DANMARK

Telefon + 45 (0) 1 69 66 00  
Telex 16 298 foodin dk  
Telefax + 45 (0) 1 69 61 26

Finland  
Maarit Ahola

Food Reasearch Program  
Ministry of Agriculture  
and Forestry  
Viikki 22 A  
SF-00710 HELSINKI  
FINLAND

Telefon + 358 (9) 0 372 088  
Telex 122 352 hymk sf

Island  
Olafur Reykdal

Agricultural Research Inst  
Keldnaholt  
IS-112 REYKJAVIK  
ISLAND

Telefon + 354 (9) 1 82 230  
Telex 2307 ISINFO-IS

Norge  
Arnhild Haga-Rimestad

Avd for kostholdsforskning  
Postboks 1117, Blindern  
N-0317 OSLO 3  
NORGE

Telefon + 47 (0) 2 45 42 10

Sverige  
Lena Bergström

Statens livsmedelsverk  
Kostsektionen  
Box 622  
S-751 26 UPPSALA  
SVERIGE

Telefon + 46 (0) 18 17 57 30  
Telex 76121 slvups s  
Telefax + 46 (0) 18 10 58 48