



Standard for Forest Data and Communication

**Appendix: Definitions of variables
- General and country specific**

Updated 08/04/2002

Group of variables: General

Var#	Name	Type	Definition
1	FILETYPE	3	ISO 4 7-bits English
			ISO 11 7-bits Swedish
			ISO 21 7-bits German
			ISO 69 7-bits French
			ISO 8859-1 8-bits Latin alphabet no 1
			ISO 8859-2 8-bits Latin alphabet no 2
			ISO 8859-5 8-bits Latin/cyrillic alphabet

Group of variables: General

Var#	Name	Type	Definition																				
161	PRICECAT	1	The price categories are used for calculating the price of the individual log as well as for how to register the results of the production. This dual purpose is somewhat complicated in some cases, for example category 3 and 11. Where not stated differently the diameter is measured in mm and length in cm. Where not stated differently price is due to small-end diameter (mm). The "name of the category" (see below) is to be used for presentation. Description of codes: Code 1. Name of category: M3to Price/m3. Volume by small end diameter (SED). Variable 164 defines the exact position where SED is measured. Code 2. Name of category: M3s Price/m3, total solid volume. The total volume of the log using the maximum available number of diameter measurement. However, at least one diameter measurement per dm along the length of the log is used. The average diameter for the present measuring interval is to be used. This unit should be as close to the true volume as possible. Code 3. Name of category: Log Price/log. The volume is measured in m3s (solid volume according to category 2) when registering the production result. Code 4. Name of category: M3sNO Price/m3. Norwegian price category. Volume is calculated based on a cylinder with a theoretical diameter on the middle of the log (M). Length: Length (L) is the total actual length in decimetres. If L is in centimetres it is truncated into decimetres (class bottom). Diameter: By definition a diameter class is 1 cm (independent of the actual price matrix). Registered diameter (T) is measured 10 cm from top. If T is in millimetres it is truncated into centimetres (class bottom). To get the diameter on the middle of the log (M) you use the formula: $M = T + (L/2 * 0.1) + 0.5$ Example: L = 518 cm, T = 22.3 cm $M = 22 + (518/2 * 0.1) + 0.5 = 25.05$ cm Volume: Volume is calculated in dm3. $PI = 3.14$ $V = ((M/10)*(M/10)) * PI/4 * L = ((25.05/10)*(25.05/10))*PI/4*51 = 251$ dm3 Note: For diameters above 30 cm the diameter class were defined to 2 cm in earlier versions of the definition. This was changed in 1998. Code 5. Name of category: M3tobutt Price/m3. Swedish top and butt end measuring. Measuring the diameters of a log over or under bark at a point 10 cm in from the centre of the top end of the log and 10 cm in from the centre of its thicker end. For a butt log, however, 50 cm in from the centre of the butt end. The volume of a log shall be calculated on the mean value of the length and diameter class. If log diameter is recorded in mm or log length in cm, the volume, however, may be calculated on the rounded down value for diameter or length respectively. By top-butt-measuring the volume is calculated according to the following formula: $V = PI/4 * L/100 * [a*(Dr/1000)**2+(1-a)*(Dt/1000)**2]$ V being the volume of the log in m³, L being the length of the log in centimetres and Dr and Dt butt- and top-diameters in millimetres. The values presented in the following table should be used for constant "a" in the formula: <table> <tr> <th>Top diameter (cm)</th><th>Length class, cm</th><th></th><th></th></tr> <tr> <td>-349</td><td>350-449</td><td>450+</td><td></td></tr> <tr> <td>-149</td><td>0.485</td><td>0.485</td><td>0.485</td></tr> <tr> <td>150-249</td><td>0.465</td><td>0.460</td><td>0.455</td></tr> <tr> <td>250 -</td><td>0.440</td><td>0.430</td><td>0.420</td></tr> </table>	Top diameter (cm)	Length class, cm			-349	350-449	450+		-149	0.485	0.485	0.485	150-249	0.465	0.460	0.455	250 -	0.440	0.430	0.420
Top diameter (cm)	Length class, cm																						
-349	350-449	450+																					
-149	0.485	0.485	0.485																				
150-249	0.465	0.460	0.455																				
250 -	0.440	0.430	0.420																				

Group of variables: General

Var#	Name	Type	Definition
			Code 6. Name of category: M3toDE Price/m3. German price category. Solid volume, measured at midpoint, price due to small-end diameter, HKS diameter. Diameter rounded to the closest centimeter.
			Code 7. Name of category: M3miDE Price/m3. German price category. Solid volume, measured at midpoint, price due to midpoint diameter, HKS diameter. Diameter rounded to the closest centimeter.
			Code 8. Name of category: M3smimi Price/m3. Solid volume, diameter (mm) measured at midpoint for calculating the volume, price due to midpoint diameter (mm).
			Code 9. Name of category: Board feet Price/board feet. American price category. Not defined in the standard due to the very large number of different calculation methods that exists. It is tfined by each individual user!
			Code 10. Name of category: M3sm Price/m3. Solid volume, diameter (mm) measured at midpoint for calculating the volume, price due to small-end diameter (mm).
			Code 11. Name of category: LogNO Price/log. Norwegian price category The volume is measured in m3sNO (according to category 4) when registering the production result.

Group of variables: General

Var#	Name	Type	Definition
256	LOGCODE	1	Log codes describe what a kind of data is stored: 1 Price matrix/assortment number. The number refers to the order of the assortments according to variable 121. Number = 1... n, n = Var111x Var116. The first assortment is the assortment that comes directly after the type number in Var121. 2 Species 201 - Diameter top, mm ob. 202 - Diameter top, mm ub. 203 - Diameter mid, mm ob. 204 - Diameter mid, mm ub. 205 - Diameter root, mm ob. 206 - Diameter root, mm ub. 301 - Length, cm 400 - Volume according to Var161. 1400 - Volume decimal parts 401 - Volume m3sob. 1401 - Volume m3sob decimal parts. 402 - Volume m3sub. 1402 - Volume m3sub decimal parts. 403 - Volume m3topob. 1403 - Volume m3topob decimal parts. 404 - Volume m3topub. 1404 - Volume m3topub decimal parts. 405 - Volume m3smi ob. 1401 - Volume m3smi ob decimal parts. 406 - Volume m3smi ub. 1401 - Volume m3smi ub decimal parts. 500 - Stem number. 501 - Log number in stem 1st log =1, 2nd = 2 ...and so on ... 600 - Number of logs. This code can be used to sum up the assortments, for example pulpwood. This code should normally not be used in Var256, each log is stored individually. Summed assortment must be stored in their own "Var255, Var256, Var257 series" 701 - Number of knot bumps per log. 702 - Reason for down grading. This code should be interpreted with the help of Var256T2. Possible codes for 702 in variable 257 are 0 = No problems, 1-50 = Reason for down grading according to Var256T2. Add 50 if the observation leads to rejection of the log.

Group of variables: General

Var#	Name	Type	Definition
316	RUNTIME	3	See also variable 317 and 319 in appendix. - Code 1. Total time The total time of machine usage during a work day from the moment it is started until it is shut down. Total time is also called utilised tim, including effective time and delay time. Meal breaks and other unutilised time is not included. - Code 2. G0 Time excluding all delays. - Code 3. G(t), t is due to 1...Var315 Time excluding all delays shorter than t. - Code 4. Engine Time when engine is in use - Code 5. Crane Time when crane is in use - Code 6. Harvesting unit Time when harvesting unit is in use A working group is studying possible upgrade of this variable as well as 317 and 319. Contact secretary if you have questions.
317	IRTIME	3	All delay times belongs to this variable. See also variable 316 and 319 in appendix. A working group is studying possible upgrade of this variable as well as 316 and 319. Contact secretary if you have questions.
319	EXTRATIME	3	See also variable 316 and 317 in appendix. A working group is studying possible upgrade of this variable as well as 316 and 317. Contact secretary if you have questions.

Group of variables: Germany

Var#	Name	Type	Definition
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601 0A 2 Data descriptions in german hks-file.

Table 1. Description table for text strings starting with 0A.
(Formate: n = numerische Werte, t = alphanumerische Werte)

Position	Format	Länge	Feldbezeichnung	Beschreibung
1	ttt	3	EA	Eigentumsart (z.B. Privat-, Kommunal-, Treuhandwald)
4	tttttttttt	13	WBES	Waldbesitzer
17	nnnn	4	FDIR	Forstdirektion, Amt für Forstwirtschaft etc.
21	nnn	3	FA	Forstamt, Oberförsterei etc.
24	nn	2	RV	Forstrevier
26	tt	2	WT	Waldteil (zusätzliche Gliederungsmöglichkeit)
28	nnnn	4	LG	Lagerort des Holzes
32	ttttt	6	DIST	Distrikt
38	nnnn	4	ABT	Abteilung
42	t	1	UA	Unterabteilung
43	nn	2	TFL	Teilfläche
45	n	1	UTFL	Unterteilfläche
46	nn	2	HHJ	Haushaltsjahr (Kalenderjahr, Forstwirtschaftsjahr)
48	nn	2	EKS	Ertrags- und Kostenstelle
50	nnn	3	HAB	Holzaufnahmebuch
53	nnnnnn	6	AUFTR_NR	Auftragsnummer (von Revier vergeben)
59	tt	2	HA	Hiebsart
61	nnnn	4	ATS	Teilarbeitsschlüssel
65	n	1	AU	Aufarbeitungsart (z.B. Regie, Unternehmer)
66	nn	2	HE_TAG	Holzeinschlag-Beginn-Tag
68	nn	2	HEBEG_MO	Holzeinschlag-Beginn-Monat
70	nn	2	HEBEG_JA	Holzeinschlag-Beginn-Jahr
72	nn	2	AUSG_TA	Tag der Datenausgabe
74	nn	2	AUSG_MO	Monat der Datenausgabe
76	nn	2	AUSGA_JA	Jahr der Datenausgabe
78	t	1	STAT	Status (Teil-/Schlußdatenausgabe)
79	tttttt(20)	20	NAM	Name des Fahrers / der Fahrer
99	nnnn	4	MA_NR	Kennzahl des eingesetzten Kranvollernters

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Group of variables: Germany

Var#	Name	Type	Definition
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602 0B 2 Data descriptions in german hks-file.

Table 2. Description table for text strings starting with 0B.

(Formate: n = numerische Werte, t = alphanumerische Werte)

Position	Format	Länge	Feldbezeichnung	Beschreibung
1	nn	2	LOS	Losnummer
3	ttt	3	BA	Baumart
6	ttt	3	SO	Sorte
9	ttt	3	GÜ	Güte
12	t	1	MV	Meßverfahren des Durchmesser (m.R./o.R.)
13	ttt	3	KUB	Kubierungsart (HKS, Sektionen, Zopf)
16	nnnn	4	ST	Stückzahl
20	nnnn.nn	7	VOL	Volumen
27	tttt	4	VE	Volumeneinheit
31	tt	2	FA	Farbe (Los/Holznummer)
33	tttt(30)	30	BEM	Bemerkungen

603 0C 2 Data descriptions in german hks-file.

Table 3. Description table for text strings starting with 0C.

(Formate: n = numerische Werte, t = alphanumerische Werte)

Position	Format	Länge	Feldbezeichnung	Beschreibung
1	nn	2	INX	Indexverweis für Sortimentsdaten
3	nnn	3	LÄ	Länge in Dezimeter
6	nnn	3	DM	"Mitten"-Durchmesser in Zentimeter
9	nnn	3	DZ	Zopfdurchmesser in Zentimeter

The variables 601, 602 och 603 are of the longstring data type. The variables are stored as follows in the hks-file:

601 2 LF <-0A->602 2 LF <-0B-> LF <-0B-> LF <-0B-> LF.....etc.

603 2 LF <-0C-> LF <-0C-> LF <-0C-> LF <-0C-> LF....etc.

Group of variables: Sweden

Var#	Name	Type	Definition
110	STEMSPEC	1	In Sweden: 1 = tall (Scots pine) 2 = gran (Norway spruce) 3 = löv (broadleaves) 4 = övrigt löv (other broadleaves)
110	STEMSPEC	2	1 = tall (Scots pine) 2 = gran (Norway spruce) 3 = löv (broadleaves) 4 = övrigt löv (other broadleaves)
120	TREESPEC	3	Se variable 110 in appendix.
121	ASSTDESCR	2	Viol-code
143	GRADDESIG	1	The following grade descriptions are permitted for VMR 87: special (specia), osorterat (unsorted), kvinta (fifths), utskott (waste), halvkvinta (semififths), osorterat/utskott (unsorted/waste), kvinta/utskott (fifths/waste), massaved (pulpwood), The following grade descriptions are permitted for VMR95: Quality1 is called AQ1, Quality2 is called BQ2, and so on up to Quality5 which is called EQ5. Massaved1 (Pulpwood1), Massaved2 (Pulpwood2), Lump (butt-off), it is also acceptable to write 1Massaved (1Pulpwood)- 5Massaved (1Pulpwood). The descriptions are according to VMR, The Swedish Timber Mensuration Society.
276	GRADE	2	See variable 143 in appendix
279	FORMQUOT	1	Form quotient = $D60/D20$, where D20 is the diameter at 20 % of the total tree height and D60 is the diameter at 60 % of the total tree height.
300	FORCEDBRK	1	1 = operator selected log due to root rot 2 = " " " " " damage 3 = " " " " " sharp crook (tvärkrök) 4 = " " " " " long crook (långkrök) 5 = " " " " " quality limit (kvalitetsgräns) 6 = " " " " " pulp quality (massakvalitet) 7 = " " " " " top failure (toppbrott) 8 = " " " " " compression wood (tjurved) 9 = " " " " " other causes (övrigt/orsak ej angiven)
311	EFFECTTIME	1	G0-time
311	EFFECTTIME	2	G0-time
311	EFFECTTIME	3	G0-time/operator: 1..var211
311	EFFECTTIME	4	G0-time/operator: 1..var211

Group of variables: Sweden

Var#	Name	Type	Definition
312	G15-time	1	(A-time), G15-time
312	G15-time	2	(A-time), G15-time
312	G15-time	3	(A-time), G15-time/operator: 1..var211
312	G15-time	4	(A-time), G15-time/operator: 1..var211
313	BYTIME	1	(B-time), G15-time
313	BYTIME	2	(B-time), G15-time
313	BYTIME	3	(B-time), G15-time/operator: 1..var211
313	BYTIME	4	(B-time), G15-time/operator: 1..var211
652	TREESPC	1	1 = tall (Scots pine) 2 = gran (Norway spruce) 3 = löv (broadleaves) 4 = övrigt löv (other broadleaves) 5 = övrigt barr (other conifers)
655	HEIGHTCODE	1	Codes for heights measured when doing a forest survey (timber cruising) ---- Qualities ----- 1 = Quality 1 2 = Quality 2 3 = Quality 3 4 = Quality 4 5 = Quality 5 ----Normal heights ---- 50 = Total tree height 51 = Height to the live crown base (grönkrongräns) ---- Special heights ---- 60 = Pole (stolpar), start 61 = pole (stolpar), slut --- Defects --- 101 = root rot (rotröta - höjden gäller där rötan slutar) 102 = damage (skada) 103 = sharp crook (tvärkrök) 104 = long crook (långkrök) 105 = quality limit (kvalitetsgräns) 106 = pulp wood quality (massakvalitet) 107 = top failure (toppbrott) 108 = compression wood (tjurved) 109 = other causes (övrigt/orsak ej angiven) 110 = user defined / in reserve (egendefinierad/reserv) 111 = top rot (toppröta - höjden gäller där rötan startar)