

13 Malzkeime, lose		Werte von: 2002-2004 N= 74							KG1-3	KG4-7
		KG 1	KG 2	KG 3	KG 4	KG 5	KG 6	KG 7	Median	Median
Orientierungswerte		200.000.000	1.000.000	100.000	15.000	20.000	5.000	500.000		
	2/3 W	450.000.000	2.498.395	99.958	16.663	21.663	5.000	1.100.000		
10*log(50.Quantil +0,5)		579.292.672	3.162.278	158.114	30.042	31.623	11.068	1.881.489	#####	617.239
10*log(90.Q)		1.537.601.936	8.553.877	558.062	43.618	69.829	32.907	2.634.900		
Quant.Rang (OW)		51,1	48,1	66,6	59,6	61,7	64,0	46,9		
Rang(50.Quantil +0,5)		72,5	74,4	78,2	85,4	74,6	79,2	82,6		
Quant.Rang (66,6.Q) =2/3W		65,7	66,6	66,6	66,6	66,6	68,7	67,1		
Median	log	8,263	6,000	4,699	3,978	4,000	3,544	5,775	8,267	5,790

Häufigkeit	100,0%	37,8%	13,5%	85,1%	93,2%	87,8%	100,0%	100,0%	100,0%
N= 74									

Futter	KONS	log KBE/g							KG1-3	KG4-7
		KG 1	KG 2	KG 3	KG 4	KG 5	KG 6	KG 7		
		8,591			4,217	4,736	2,699	6,041	8,5911	6,0687
		8,219			4,653	4,332	3,477	5,878	8,2188	5,9162
		9,422	7,000	5,699	4,556	5,051	3,000	6,332	9,4232	6,3616
		8,519			4,243	2,699	4,799	8,5185	4,9085	
		9,137		4,699	4,230	5,607	4,301	6,255	9,1367	6,3505
		9,211			4,301	4,699	5,079	6,531	9,2114	6,5551
		9,836					6,845	6,407	9,8357	6,9800
		7,914	6,000		3,978	3,000	4,740	5,908	7,9191	5,9423
		9,122			3,699	4,301	4,301	6,498	9,1216	6,5045
		7,037	5,477		4,190	4,820	3,176	5,097	7,0492	5,3181
		7,775	6,000		3,845	3,544	3,398	4,863	7,7818	4,9345
		8,167			3,544	4,255	3,699	5,009	8,1673	5,1089
		9,225			4,389	4,000	4,602	6,077	9,2245	6,1036
		9,152			4,477	2,699	4,176	6,002	9,1517	6,0214
		8,845			3,845	3,398	5,491	8,8451	5,5065	
		7,567	5,000			3,000	3,544	5,230	7,5682	5,2418
		8,602			2,699	4,000	3,544	5,439	8,6021	5,4609
		8,919		4,699	3,699	4,942	3,398	6,041	8,9191	6,0774
		8,247			4,301	3,954	3,653	5,648	8,2467	5,6799
		9,770	6,699		3,544	5,602	6,064	6,064	9,7709	6,1941
		8,161	5,000		3,544	3,875	3,602	5,881	8,1614	5,8893
		6,470			3,000	4,332		4,462	6,4698	4,7118
		8,066	5,740	5,176	3,477	2,699		5,778	8,0682	5,7807
		6,908	5,301	3,699	2,301	2,301	3,477	4,415	6,9193	4,4683
		8,188			4,161	3,778	3,176	6,023	8,1875	6,0322
		7,947	6,114		3,301	5,239	3,176	6,055	7,9533	6,1179
		7,025				3,813	3,301	4,407	7,0253	4,5315
		9,100			3,602	4,301	3,000	6,415	9,1000	6,4191
		7,423	6,243	3,699	4,190	4,114	3,000	5,230	7,4511	5,2999
		7,886				3,176	3,176	4,389	7,8865	4,4393
		8,653			4,667	4,562		5,833	8,6532	5,8825
		8,274			5,025	4,000	2,699	5,525	8,2742	5,6547
		8,439	6,699		3,000		3,000	5,484	8,4472	5,4871
		8,252	6,477		3,000	4,000	2,699	5,916	8,2589	5,9225
		7,707	5,000		3,845	3,813	3,778	4,851	7,7076	4,9566
		8,618	7,000		3,398	4,484	3,699	6,053	8,6284	6,0674
		8,892	6,845		4,190	4,544	3,903	6,106	8,8960	6,1256
		8,658				4,342	3,176	5,771	8,6580	5,7878
		8,968	7,230		3,845	4,716	3,699	6,015	8,9763	6,0410
		8,686			4,301	4,602	4,544	6,423	8,6857	6,4385
		7,041				3,176		4,978	7,0414	4,9845
		10,097			3,740	3,301	4,301	6,152	10,0969	6,1606

14 Malzkeime, Pellets		Werte von: 2002-2004 N= 28							KG1-3	KG4-7
		KG 1	KG 2	KG 3	KG 4	KG 5	KG 6	KG 7	Median	Median
Orientierungswerte		6.000.000	100.000	20.000	1.000	2.000	1.000	30.000		
	2/3 W	5.599.195	130.991	15.320	1.000	2.320	700	26.999		
10*log(50.Quantil +0,5)		8.455.767	241.868	21.213	1.732	4.243	1.581	44.272	2.774.889	
10*log(50.Quantil +1)		26.739.484	764.853	67.082	5.477	13.416	5.000	140.000		12.267
Quant.Rang (OW)		71,5	61,5	71,4	66,6	63,1	73,3	69,8		
Rang(50.Quantil +0,5)		77,2	87,9	86,6	80,0	87,8	89,4	79,5		
Quant.Rang (66,6.Q) =2/3W		66,6	66,6	66,6	66,6	66,6	66,6	66,6		
Rang(50.Quantil +1)		96,2	99,6	#NV	94,4	#NV	94,8	82,5		
Median	log	6,427	4,884	3,827	2,739	3,128	2,699	4,146	6,443	4,089

Häufigkeit	100,0%	50,0%	28,6%	35,7%	71,4%	57,1%	89,3%	100,0%	92,9%
N= 28									

Futter	KONS	log KBE/g							KG1-3	KG4-7		
		KG 1	KG 2	KG 3	KG 4	KG 5	KG 6	KG 7				
		8,057			3,699		3,653	4,477	5,968	8,0569	5,9843	
		6,093	5,491		3,176		2,079	2,176	3,398	6,1908	3,4426	
		7,083				2,699	3,301	2,699	4,491	7,0828	4,5315	
		7,053	5,903				4,079	2,699	5,462	7,0828	5,4807	
		6,415	5,301						6,4472			
		6,342				2,000	1,699		2,929	6,3424	3,0004	
		6,947	5,176					3,000	4,538	6,9542	4,5503	
		6,748							3,845	6,7482	3,8453	
		7,132	5,000			3,000	3,255	2,845	4,423	7,1351	4,4771	
		6,255					3,000	4,591	6,2553	4,6021		
		6,690				4,000	3,699	3,477	5,574	6,6902	5,5944	
		5,845				3,176			3,477	5,8451	3,6534	
		6,806				4,699		3,477	2,699	4,431	6,8096	4,4843
		6,398					3,398	3,000	3,699	6,3979	3,9295	
		5,415	4,000			3,477			5,4314	3,4776		
		7,100				2,477	2,699		3,633	7,1004	3,7077	
		6,000			3,176		2,602	2,544	4,380	6,0007	4,3936	
		7,431	4,477				2,301		4,389	7,4318	4,3927	
		6,681	5,255				2,000	2,699	5,352	6,6972	5,3533	
		6,158	4,954				2,602	2,477	2,301	6,1847	2,9547	
		6,439					3,279	2,301	3,079	6,4393	3,5186	
		6,766	4,813	3,954	2,778		3,568		3,531	6,7711	3,8865	
		6,408					2,602		3,398	6,4082	3,4627	
		4,699							2,000	4,6990	2,0128	
		6,713	4,000	4,301	2,602	3,477	2,477	4,146	6,7160	4,2480		
		5,908	4,176						5,9165			
		6,398	4,000	4,301	2,000	3,000	2,000	5,279	6,4031	5,2815		
		5,041	4,000	3,699			2,301	2,602	5,0969	2,7796		



Anlage 2 Blatt 2 zu "Leitfaden - Ableitung von mikrobiologischen Orientierungswerten bei Futtermitteln", Arbeitskreis Futtermittelmikrobiologie der FG VI des VDLUFA

15 Heu Werte von: 2001-2006 N= 353										
	KG 1	KG 2	KG 3	KG 4	KG 5	KG 6	KG 7	KG1-3	KG4-7	
Cfu/g	<b>Orientierungswerte</b>	<b>30.000.000</b>	<b>2.000.000</b>	<b>150.000</b>	<b>200.000</b>	<b>100.000</b>	<b>5.000</b>	<b>150.000</b>	<b>Median</b>	<b>Median</b>
Cfu/g	2/3 W	28.309.633	3.829.162	146.551	261.299	840.000	20.992	430.000		
Cfu/g	<b>10*log(50.Quantil +0,5)</b>	<b>35.178.118</b>	<b>2.545.584</b>	<b>123.329</b>	<b>278.280</b>	<b>469.574</b>	<b>17.709</b>	<b>452.195</b>	<b>13.752.216</b>	<b>780.202</b>
Cfu/g	10*log(90.Q)	159.204.615	47.117.018	14.299.522	1.100.000	12.567.974	596.691	3.693.956		
	<b>Quant.Rang (OW)</b>	<b>67,2</b>	<b>58,7</b>	<b>67,2</b>	<b>63,1</b>	<b>42,8</b>	<b>46,4</b>	<b>50,9</b>		
	<b>Rang(50.Quantil +0,5)</b>	<b>69,1</b>	<b>60,0</b>	<b>64,0</b>	<b>67,4</b>	<b>62,0</b>	<b>65,4</b>	<b>67,5</b>		
	Quant.Rang (66,6.Q) =2/3W	66,6	66,6	66,6	66,6	66,8	66,6	66,6		

16 Stroh Werte von: 2001-2006 N= 236										
	KG 1	KG 2	KG 3	KG 4	KG 5	KG 6	KG 7	KG1-3	KG4-7	
Cfu/g	<b>Orientierungswerte</b>	<b>100.000.000</b>	<b>2.000.000</b>	<b>150.000</b>	<b>200.000</b>	<b>100.000</b>	<b>5.000</b>	<b>400.000</b>	<b>Median</b>	<b>Median</b>
Cfu/g	2/3 W	220.000.000	9.595.912	1.391.835	860.000	466.411	6.000	2.031.352		
Cfu/g	<b>10*log(50.Quantil +0,5)</b>	<b>397.429.239</b>	<b>15.811.388</b>	<b>1.500.000</b>	<b>1.454.648</b>	<b>442.719</b>	<b>14.230</b>	<b>3.415.260</b>	<b>130.000.002</b>	<b>2.139.908</b>
Cfu/g	10*log(90.Q)	1.100.000.000	46.385.159	4.889.664	3.432.616	2.458.655	120.000	7.434.920		
	<b>Quant.Rang (OW)</b>	<b>44,0</b>	<b>41,4</b>	<b>38,7</b>	<b>34,4</b>	<b>44,2</b>	<b>53,3</b>	<b>35,7</b>		
	<b>Rang(50.Quantil +0,5)</b>	<b>76,6</b>	<b>79,6</b>	<b>70,9</b>	<b>79,6</b>	<b>64,6</b>	<b>69,6</b>	<b>79,8</b>		
	Quant.Rang (66,6.Q) =2/3W	66,8	66,6	66,6	66,9	66,6	66,6	66,6		

Median	log	7,046	5,906	4,591	4,944	5,172	3,748	5,155	7,138	5,892
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Median	log	8,099	6,699	5,676	5,663	5,146	3,653	6,033	8,114	6,330
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Häufigkeit	85,0%	63,5%	16,7%	69,4%	81,6%	32,6%	74,2%	88,4%	98,9%
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Häufigkeit	89,8%	42,4%	13,6%	92,8%	52,1%	13,1%	92,8%	90,3%	100,0%
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N= 353										
Futter	KONS	log KBE/g							KG1-3	KG4-7
		KG 1	KG 2	KG 3	KG 4	KG 5	KG 6	KG 7		
		4,778	4,653	4,301	4,740	4,778		3,699	5,0969	5,0792
		6,695	6,114	5,477	5,130	5,765		3,699	6,8162	5,9085
		5,322	4,602	4,477	2,176	3,079		2,000	5,4472	3,1617
		8,059	7,130		7,046	6,041		6,740	8,1072	7,2486
		7,290			5,597	3,301		5,978	7,2900	6,1294
		8,774	6,301		6,724	3,000		3,477	8,7752	7,2505
		7,412	5,301		4,577	6,068		4,653	7,4158	6,0975
		8,562	7,176	6,813		7,478		6,398	8,5871	7,5130
		7,491	5,556		5,041			3,000	7,4964	6,0257
		5,653	5,000			6,220		4,653	5,7404	6,2317
		7,146	6,477	5,301	3,699	3,954		3,000	7,2355	4,1761
		4,845	4,699	4,000		4,672		3,301	5,1139	4,6902
		4,851	4,591	3,000	3,477	4,176		3,301	5,0453	4,3802
		5,484	5,875		4,651	4,415		3,875	6,0233	4,8935
		6,000	5,903	6,041		6,243		5,398	6,4624	6,3008
		7,447			4,848	3,230		4,845	7,4472	5,1529
		7,119				3,176		3,978	7,1189	4,0415
		6,079	7,279			7,000		4,778	7,3054	7,0095
		7,176				4,653		5,279	7,1761	5,3711
		7,398	6,699	5,000	5,132	4,881	3,000	3,000	7,4786	5,3294
		6,740	6,602	7,130	5,653	6,477		5,398	7,3617	6,5682
		6,556	6,591	4,699	5,402	4,544	4,176	4,628	6,8779	5,5378
		6,249	5,826			3,550			6,3883	3,5506
		4,176	4,978			3,000			5,0414	3,0013
		7,097	7,839	5,079		6,622	5,477	4,176	7,9118	6,6537
		5,519	4,243		3,000	6,985		4,000	5,5410	6,9859
		6,829			3,477	4,544		6,061	6,8293	4,5798
		7,736			6,129	3,978			7,7364	6,3987
		7,232	4,301			4,290	3,000		7,2322	4,3118
		5,525				4,000	3,176		5,5250	4,0608
		8,186			5,822			5,756	8,1861	6,0915
		7,512	4,653		4,499	6,227		5,732	7,5125	6,3534
		7,255	7,342		5,079			5,643	7,6021	5,7482
		5,255	4,301			4,301			5,3010	
		8,462						6,672	8,4624	6,6721
		7,301	8,857	5,732		6,505	6,079		8,8695	6,6435
			7,833	3,778		6,908	4,477		7,8325	6,9101
		6,699	4,322			6,322	4,477		6,7008	6,3284
		8,230		2,778	5,114	6,079		6,204	8,2305	6,4669
		8,322	5,778		4,623	5,146		5,968	8,3235	6,0461
		8,322	6,114			5,633	3,740	5,633	8,3249	5,9373
		7,279	5,653		4,903		3,477	5,531	7,2889	5,6263

N= 236										
Futter	KONS	log KBE/g							KG1-3	KG4-7
		KG 1	KG 2	KG 3	KG 4	KG 5	KG 6	KG 7		
		7,6232	5,9031						7,2923	7,6314
									5,9243	6,3345
									6,0846	6,7825
		9,5218	8,2430						5,0645	6,4069
									6,0903	6,0969
									4,3979	6,3990
									6,3617	6,3617
									5,2833	7,2851
									6,9542	6,0334
		8,6306	7,7226	7,3802					6,5715	8,7024
		9,1052	7,4150						5,2833	7,0792
		6,5740	5,8129	5,0000					6,1364	9,1139
		8,3222	5,7782						3,6990	6,6532
		7,9542							4,4065	4,5682
		4,9445							2,6990	8,3235
		4,4314							4,6232	6,0461
		8,2304							5,1461	7,9542
		8,1761							4,9445	6,2553
		4,7160							4,4314	7,7482
		4,7076	5,6628						6,7482	8,2304
		7,8388	5,7160	3,7782					5,9191	8,1761
		6,6232	6,1335						3,8808	3,9639
		6,9096	5,6990						2,4771	2,4814
									5,3766	6,7451
									3,7782	5,4116
									6,3263	6,9355
									6,0645	5,8451
									7,0414	7,7745
									4,3010	6,4564
									4,3010	6,4564
									3,9031	7,4472
									6,0607	5,2504
									4,3010	8,2856
									4,3010	6,9638
									4,8195	6,1004
									6,9031	6,9086
									6,9685	6,9731
									5,5441	6,9886
									5,7675	7,1072
									6,1847	8,2810
									6,1847	5,9219
									6,4556	8,3522
									6,4556	6,4495
									7,9661	6,185
									6,4065	7,9661
									6,3732	6,7892
									6,1383	6,4616
									3,0000	6,6902
									6,6435	9,3096
									5,6021	8,7131
									5,1761	6,2175
									4,9031	7,7210
									5,2695	6,3118
									4,9031	7,6191
									5,4150	6,1139
									6,4786	5,4314
									6,0000	4,6628
									7,2455	6,9243
									6,2553	5,4857
									7,2455	6,6294
									5,9638	7,5682
									4,9031	6,1644
									5,0934	6,1644
									3,6021	5,2553
									4,2041	4,3011
									4,2553	4,3011



Anlage 2 Blatt 2 zu "Leitfaden - Ableitung von mikrobiologischen Orientierungswerten bei Futtermitteln", Arbeitskreis Futtermittelmikrobiologie der FG VI des VDLUFA

17 Mais-Silage		Werte von: 1999-2008 N= 449							KG1-3	KG4-7
		KG 1	KG 2	KG 3	KG 4	KG 5	KG 6	KG 7	KG1-3	KG4-7
Cfu/g	Orientierungswerte	400.000	200.000	30.000	5.000	5.000	5.000	1.000.000	Median	Median
Cfu/g	2/3 W	304.657	192.520	22.297	2.938	5.000	6.496	1.866.703		
Cfu/g	10*log(50.Quantil +0,5)	379.157	268.794	15.811	3.162	3.162	3.162	1.565.327		465.000
Cfu/g	10*log(50.Quantil +1)	1.199.000	850.000	50.000	10.000	10.000	10.000	4.950.000		210.001
	Quant.Rang (OW)	69,0	67,3	69,5	72,1	66,2	63,6	59,7		
	Rang(50.Quantil +0,5)	68,3	71,5	63,7	67,5	64,3	60,2	64,9		
	Quant.Rang (66,6.Q) =2/3W	66,6	66,6	66,6	66,6	68,2	66,6	66,6		
	Rang(50.Quantil +1)	81,0	87,9	75,6	77,0	74,1	69,6	74,0		
Median	log	5,079	4,929	3,699	3,000	3,000	3,000	5,695	5,322	5,667

18 Gras-Silage		Werte von: 2004-2008 N= 386							KG1-3	KG4-7
		KG 1	KG 2	KG 3	KG 4	KG 5	KG 6	KG 7	KG1-3	KG4-7
Cfu/g	Orientierungswerte	200.000	200.000	10.000	5.000	5.000	5.000	200.000	Median	Median
Cfu/g	2/3 W	129.908	186.538	16.481	1.566	3.549	5.452	81.737		
Cfu/g	10*log(50.Quantil +0,5)	158.114	227.684	15.811	1.581	3.162	2.828	38.580	150.002	10.395
Cfu/g	10*log(90.Q)	3.900.000	1.609.248	266.917	93.608	120.000	311.479	3.228.837		
	Quant.Rang (OW)	71,8	67,4	52,8	71,8	70,6	63,8	73,8		
	10*log(50.Quantil +0,5)	68,7	69,3	66,4	66,9	65,0	62,2	61,7		
	Quant.Rang (66,6.Q) =2/3W	66,6	66,6	66,6	66,6	66,6	66,6	66,6		
Median	log	4,699	4,857	3,699	2,699	3,000	2,952	4,086	5,176	4,017

Häufigkeit	69,3%	88,9%	25,8%	13,8%	33,9%	7,6%	88,9%	95,5%	92,7%
N= 449									

Häufigkeit	70,2%	89,4%	23,3%	16,8%	39,1%	12,4%	72,3%	93,5%	82,4%
N= 386									

Futter	KONS	log KBE/g							KG1-3	KG4-7
		KG 1	KG 2	KG 3	KG 4	KG 5	KG 6	KG 7		
		4,000	5,176		1,699	3,146		7,190	5,204	7,190
			5,204			2,176		5,204	5,204	3,205
			4,602					4,602	4,602	6,243
			5,114					4,968	5,114	3,639
		5,301	2,176					5,813	5,301	3,998
			5,204		2,301			3,477	5,204	3,716
			4,778		2,699			8,707	4,778	7,744
		4,477						4,447	4,477	6,964
			4,477					3,602	4,477	4,944
			4,602			2,176		4,756	4,602	5,964
			4,000					7,528	4,000	3,602
		6,875				3,000		6,052	6,875	5,083
			4,699	6,544		3,243	2,176	3,477	6,550	7,210
			4,477			2,653		4,176	4,477	4,892
			4,301			1,699		3,477	4,301	5,966
		5,041	4,845	4,000	2,000	2,845		4,176	5,279	5,971
			5,041					6,000	5,041	
			5,322			2,000		5,097	5,322	3,544
			4,301					4,845	4,301	
		5,602	4,778			1,699		5,845	5,663	4,538
		4,000	4,903			1,699		3,301	4,954	4,172
			5,041			2,398		3,602	5,041	4,541
		5,000	4,845			2,903		3,602	5,230	4,502
		5,279	4,954	4,903		4,431		6,491	5,556	4,919
		5,690		4,000		3,301	3,000	3,903	5,699	6,089
		4,000	5,041			2,176	2,000	6,217	5,079	3,333
		4,602	5,000			2,301		3,477	5,146	5,371
		8,398				5,829		3,301	8,398	6,754
			5,021			5,021		7,161	5,021	
		4,146	4,643			2,699		3,903	4,763	3,001
		4,799	4,146			4,886		8,415	7,778	
		4,653	4,477		2,699			8,146	7,602	
		5,365	5,572			6,679		4,699	5,423	4,000
		5,326	5,548	3,301		4,000		3,000	2,699	
			6,214		3,836			6,544	6,301	6,000
		3,301	3,000			2,699		5,041	5,380	4,699
		4,544	5,470			3,301		5,021	5,550	4,699
		5,616	4,362			5,633		4,959	5,458	
		3,699	4,176			4,230		4,681	4,681	
		4,778	5,722			4,214		5,778	5,778	3,357
		5,635	5,675		3,477	3,937		5,279	5,000	3,000
		4,544	4,699			3,929		5,255	5,000	4,301

Futter	KONS	log KBE/g							KG1-3	KG4-7
		KG 1	KG 2	KG 3	KG 4	KG 5	KG 6	KG 7		
		4,602	4,301					3,000	4,602	4,301
			4,544					4,544	4,544	4,740
			4,845					4,845	4,845	5,555
			4,968			4,000		4,968	4,968	4,000
		5,301	2,176			3,998		5,813	5,301	4,699
			5,204		2,301			3,477	5,204	3,716
			4,778		2,699			8,707	4,778	7,744
		4,477						4,447	4,477	6,964
			4,477					3,602	4,477	4,944
			4,602			2,176		4,756	4,602	5,964
			4,000					7,528	4,000	3,602
		6,875				3,000		6,052	6,875	5,083
			4,699	6,544		3,243	2,176	3,477	6,550	7,210
			4,477			2,653		4,176	4,477	4,892
			4,301			1,699		3,477	4,301	5,966
		5,041	4,845	4,000	2,000	2,845		4,176	5,279	5,971
			5,041					6,000	5,041	
			5,322			2,000		5,097	5,322	3,544
			4,301					4,845	4,301	
		5,602	4,778			1,699		5,845	5,663	4,538
		4,000	4,903			1,699		3,301	4,954	4,172
			5,041			2,398		3,602	5,041	4,541
		5,000	4,845			2,903		3,602	5,230	4,502
		5,279	4,954	4,903		4,431		6,491	5,556	4,919
		5,690		4,000		3,301	3,000	3,903	5,699	6,089
		4,000	5,041			2,176	2,000	6,217	5,079	3,333
		4,602	5,000			2,301		3,477	5,146	5,371
		8,398				5,829		3,301	8,398	6,754
			5,021			5,021		7,161	5,021	
		4,146	4,643			2,699		3,903	4,763	3,001
		4,799	4,146			4,886		8,415	7,778	
		4,653	4,477		2,699			8,146	7,602	
		5,365	5,572			6,679		4,699	5,423	4,000
		5,326	5,548	3,301		4,000		3,000	2,699	
			6,214		3,836			6,544	6,301	6,000
		3,301	3,000			2,699		5,041	5,380	4,699
		4,544	5,470			3,301		5,021	5,550	4,699
		5,616	4,362			5,633		4,959	5,458	
		3,699	4,176			4,230		4,681	4,681	
		4,778	5,722			4,214		5,778	5,778	3,357
		5,635	5,675		3,477	3,937		5,279	5,000	3,000
		4,544	4,699			3,929		5,255	5,000	4,301



**19 Mischfutter Pferde** Werte von: 2003-2010 N= 353

**Pellets**

	KG 1	KG 2	KG 3	KG 4	KG 5	KG 6	KG 7	KG1-3	KG4-7
Cfu/g Orientierungswerte	500.000	500.000	10.000	2.000	6.000	1.000	5.000	Median	Median
Cfu/g 10*log(50.Quantil +1)	520.000	374.967	20.000	2.000	6.100	1.300	4.800	95,001	942
Cfu/g 10*log(50.Quantil +0,5)	164.438	118.575	6.325	632	1.929	411	1.518		
Cfu/g 10*log(90.Q)	1.081.997	478.806	15.000	3.103	6.660	550	7.500		
Quant.Rang (OW)	83,7	90,2	80,9	86,7	89,1	94,3	87,6		
Quant.Rang (50.Q+1)	83,7	87,8	93,8	86,7	89,1	95,7	87,3		
Quant.Rang (50.Q+0,5)	68,9	74,0	79,7	75,8	72,7	82,0	75,0		

Median	log	4,716	4,574	3,301	2,301	2,785	2,114	2,681	4,978	2,974
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Häufigkeit	81,3%	90,1%	14,2%	28,0%	74,5%	25,2%	37,1%	98,3%	81,9%
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N= 353

Proben %	log KBE/g							KG1-3	KG4-7
	KG 1	KG 2	KG 3	KG 4	KG 5	KG 6	KG 7		
0,3	5,908			3,176	3,663	2,477	2,778	5,908	3,845
0,6	4,041	4,000					2,000	4,322	2,013
0,8	6,380	5,699		3,322			2,740	3,079	6,462
1,1	5,785	4,857			3,114	2,000	3,544	5,834	3,690
1,4	6,041	4,845			2,255		2,785	6,068	2,899
1,7	5,653	4,623		2,591	2,653		3,279	5,692	3,438
2,0	4,342	3,806			2,431			4,453	2,436
2,3	4,380	5,041		2,431				5,127	2,436
2,5	4,756	4,000			2,301			4,826	2,307
2,8	3,756	4,279		2,114				4,393	2,124
3,1	3,556	4,279						4,354	
3,4	4,415	5,398			4,230			5,441	4,231
3,7		5,462						5,462	
4,0		5,778		3,322			2,255	3,322	5,778
4,2		4,544						4,544	3,642
4,5	5,114	4,602						5,230	
4,8	5,505			3,301	3,301		2,778	5,505	3,663
5,1	4,724	3,845		2,519	2,724	1,845		4,778	2,969
5,4	4,813	4,000			2,653	2,114		4,875	2,765
5,7	5,176	4,114			2,114		3,000	5,212	3,054
5,9		5,544						5,544	
6,2	5,230	4,914	3,322				2,255	2,716	5,405
6,5		5,041						5,041	
6,8	5,799	6,431	3,079			2,176	4,301	6,523	4,304
7,1	5,398	5,362		2,431	3,079			3,556	5,681
7,4	5,255	4,799		2,176	2,716			3,785	5,386
7,6	4,898						2,114	4,898	2,124
7,9	4,929	3,716						4,955	
8,2	4,114							4,114	
8,5	4,845	5,079			2,763		3,079	5,279	3,251
8,8	4,519	4,740						4,944	
9,1	4,322	6,114					2,000	6,121	2,013
9,3	5,000	5,748			2,322	3,041	2,000	5,820	3,150
9,6	4,785	4,785		2,255	3,613		2,176	5,086	3,647
9,9	3,898	5,114						5,140	
10,2	3,556	5,041		2,845			2,380	5,055	2,974
10,5	4,477	4,380			2,255			4,732	3,061
10,8	4,681	5,114						5,250	
11,0	4,204	4,505						4,681	
11,3	3,176	3,987			2,653			4,049	2,656
11,6	5,301				2,000			5,301	2,013
11,9	4,763	5,398						5,489	

**20 Mischfutter Kaninchen** Werte von: 2003-2010 N= 156

**Pellets**

	KG 1	KG 2	KG 3	KG 4	KG 5	KG 6	KG 7	KG1-3	KG4-7
Cfu/g Orientierungswerte	200.000	200.000	10.000	1.000	3.000	1.000	2.000	Median	Median
Cfu/g 10*log(50.Quantil +1)	200.000	200.000	25.000	1.000	2.800	600	1.140	40.499	251
Cfu/g 10*log(50.Quantil +0,5)	63.246	63.246	7.906	316	885	190	361		
Cfu/g 10*log(90.Q)	700.000	152.161	19.129	7.343	3.343	1.754	25.733		
Quant.Rang (OW)	82,1	89,1	88,8	80,3	89,8	98,7	85,2		
Quant.Rang (50.Q+1)	82,1	89,1	95,2	80,3	89,1	93,9	83,3		
Quant.Rang (50.Q+0,5)	68,7	76,6	87,0	70,8	79,8	76,3	70,8		

Median	log	4,301	4,301	3,398	2,000	2,447	1,778	2,057	4,607	2,400
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Häufigkeit	65,4%	96,2%	12,2%	22,4%	57,1%	9,0%	28,2%	98,7%	69,9%
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N= 156

Proben %	log KBE/g							KG1-3	KG4-7
	KG 1	KG 2	KG 3	KG 4	KG 5	KG 6	KG 7		
0,64	4,519	4,000							4,633
1,28		4,255							4,255
1,92		5,342							5,342
2,56		3,519							3,519
3,21		4,732							4,732
3,85	3,778	3,398							3,929
4,49									
5,13	3,176	3,699							3,813
5,77	3,740	3,813							4,079
6,41	4,544	4,290			3,146				4,736
7,05		3,699							3,699
7,69	3,903	3,398			2,000		1,699		4,021
8,33	4,079	3,398							4,161
8,97	4,398	3,544			2,301				4,455
9,62	3,000	4,176			2,000				4,204
10,26	3,544	4,423			2,544		1,699		4,477
10,90	3,778	4,176	3,000	1,699					4,342
11,54		2,969			2,531				3,949
12,18		3,544							3,544
12,82		4,580							4,580
13,46	5,415	4,477			5,332		3,699		5,462
14,10		4,000							4,000
14,74		5,623			2,000				5,623
15,38	4,845	4,699			2,740				5,079
16,03	4,301	4,301							4,602
16,67		3,961					1,699		3,962
17,31	2,544	3,898	1,699		3,470				3,919
17,95	5,929	5,332		1,699	2,477				6,027
18,59	6,190	4,301	3,699	3,653	4,623		3,398		6,197
19,23	5,217	5,061			2,653				5,447
19,87	4,380	5,086		1,699	1,699		2,176		5,164
20,51	3,602	4,732							4,763
21,15	4,114	4,342		1,699					4,544
21,79	6,146	5,942	3,699	3,477	4,045		3,903		6,358
22,44	3,477	5,635		1,699			2,301		5,638
23,08	2,398	3,942							3,954
23,72	3,000	4,878			2,000				4,884
24,36	4,106	4,138		2,176	2,602		1,699		4,423
25,00	3,602	4,690			2,000				4,724
25,64	3,176	4,554	2,176		2,653				4,574
26,28	2,544	3,886		1,699		1,699			3,906
26,92	4,556	4,389	3,000		2,929				4,789



Anlage 2 Blatt 2 zu "Leitfaden - Ableitung von mikrobiologischen Orientierungswerten bei Futtermitteln", Arbeitskreis Futtermittelmikrobiologie der FG VI des VDLUFA

21 **Hafer** Werte von: 2002-2010 N= 329

	KG 1	KG 2	KG 3	KG 4	KG 5	KG 6	KG 7	KG1-3	KG4-7
Cfu/g Orientierungswerte	50.000.000	1.000.000	50.000	200.000	50.000	2.000	200.000	Median	Median
Cfu/g 10*log(50.Quantil +1)	265.000.000	10.000.000	1.000.000	1.200.000	177.482	20.000	1.148.913		
Cfu/g 10*log(50.Quantil +0,5)	83.800.358	3.162.278	316.228	379.473	56.125	6.325	363.318	27.410.001	303.739
Cfu/g 10*log(90.Q)	190.000.000	8.275.674	933.033	1.365.997	319.844	27.286	1.000.000		
Quant.Rang (OW)	63,3	46,4	33,3	58,2	66,5	47,8	60,8		
Quant.Rang (50.Q+1)	93,2	92,8	90,4	86,4	84,6	85,5	91,4		
Quant.Rang (50.Q+0,5)	75,2	76,1	73,0	68,2	70,2	79,1	75,4		

Median	log	7,423	6,000	5,000	5,079	4,249	3,301	5,060	7,438	5,483
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Häufigkeit	99,7%	46,8%	6,7%	94,2%	74,8%	21,3%	91,2%	100,0%	99,7%
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N= 329

Proben %	log KBE/g							KG1-3	KG4-7
	KG 1	KG 2	KG 3	KG 4	KG 5	KG 6	KG 7		
0,3	7,881			4,763	5,362		5,041	7,881	5,600
0,6	7,924			5,342	5,415		5,415	7,924	5,681
0,9	7,398			4,892			5,204	7,398	5,377
1,2	7,041			3,255	3,431	2,477	3,000	7,041	3,763
1,5	8,301			6,176	5,778	2,477	5,826	8,301	6,443
1,8	9,230			6,799	5,623		7,146	9,230	7,316
2,1	8,898			6,000	6,431		6,431	8,898	6,568
2,4	7,591			3,944	3,653		4,716	7,591	4,815
2,7	7,716	6,477		5,987			5,826	7,740	6,215
3,0	8,431			6,114			6,301	8,431	6,519
3,3	7,845			4,826			5,415	7,845	5,515
3,6	6,079				3,623		6,079	3,624	
4,0	8,230			4,146			4,716	8,230	4,820
4,3	7,892	6,724		5,398	4,519		5,505	7,921	5,780
4,6	8,398			7,556			6,176	8,398	7,574
4,9	8,833			5,681			4,806	8,833	5,736
5,2	8,531			6,415			5,176	8,531	6,439
5,5	8,491			6,491		4,477	6,079	8,491	6,636
5,8	7,978			5,602	4,681		5,204	7,978	5,784
6,1	8,041			6,591			6,322	8,041	6,778
6,4	7,833			5,114			5,114	7,833	5,415
6,7	7,690	9,301		5,826			6,079	9,312	6,272
7,0	7,204			4,079	4,477		4,255	7,204	4,778
7,3	8,322	6,699			5,756	3,556		8,332	5,759
7,6	9,114			6,415	5,114		6,079	9,114	6,594
7,9	8,176			5,785	4,778	3,255		8,176	5,965
8,2	8,230			6,176			6,279	8,230	6,531
8,5	8,176			5,079	4,431		4,519	8,176	5,255
8,8	7,531			5,230	4,623		4,322	7,531	5,367
9,1	7,875			4,380			5,114	7,875	5,188
9,4	8,041			5,398	4,748		4,973	8,041	5,602
9,7	7,839			6,079			5,279	7,839	6,143
10,0	8,114			5,580			5,362	8,114	5,785
10,3	8,602			5,643			5,987	8,602	6,149
10,6	8,415			6,380			6,255	8,415	6,623
10,9	8,230	6,301		6,591			6,431	8,236	6,820
11,2	7,892			5,380		4,301	5,255	7,892	5,643
11,6	7,763	6,623		3,681			5,176	7,794	5,190
11,9	8,505			6,556	5,415		6,146	8,505	6,721
12,2	7,690			4,477	4,613		4,114	7,690	4,924
12,5	7,929			6,176			6,041	7,929	6,415
12,8	7,462			5,820			4,623	7,462	5,846

22 **Gerste** Werte von: 2002-2010 N= 406

	KG 1	KG 2	KG 3	KG 4	KG 5	KG 6	KG 7	KG1-3	KG4-7
Cfu/g Orientierungswerte	20.000.000	1.000.000	50.000	40.000	30.000	2.000	100.000	Median	Median
Cfu/g 10*log(50.Quantil +1)	71.500.000	9.000.000	173.205	117.983	47.000	5.000	464.973		
Cfu/g 10*log(50.Quantil +0,5)	22.610.285	2.846.050	54.772	37.310	14.863	1.581	147.037	7.750.002	74.994
Cfu/g 10*log(90.Q)	53.798.502	4.500.000	294.580	70.000	120.000	3.747	342.491		
Quant.Rang (OW)	73,1	52,1	60,7	79,2	80,1	78,0	65,0		
Quant.Rang (50.Q+1)	93,9	96,8	76,8	95,8	84,0	91,4	94,3		
Quant.Rang (50.Q+0,5)	76,0	80,3	68,5	77,4	71,0	76,9	75,4		

Median	log	6,854	5,954	4,239	4,072	3,672	2,699	4,667	6,889	4,875
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Häufigkeit	99,3%	51,2%	12,8%	89,2%	76,1%	26,1%	92,6%	99,8%	99,0%
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N= 406

Proben %	log KBE/g							KG1-3	KG4-7
	KG 1	KG 2	KG 3	KG 4	KG 5	KG 6	KG 7		
0,25	6,613	5,954		3,041	3,146		4,322	6,699	4,371
0,49	6,204	6,176		2,699	2,778		4,699	6,491	4,708
0,74	7,176	6,380			3,763			7,241	3,764
0,99	5,934	5,447			4,505			6,057	4,505
1,23	5,756			3,602	4,778			5,756	4,806
1,48	5,903	6,690		4,301			4,322	6,756	4,613
1,72	6,255	6,826			5,477		4,954	6,929	5,591
1,97	5,886	5,041		3,602	4,146		4,568	5,944	4,740
2,22	7,176	6,255		4,146	3,699		4,000	7,225	4,462
2,46	6,833	6,362		3,000	4,881		4,041	6,959	4,944
2,71	7,204	6,491		4,415			5,623	7,281	5,649
2,96	6,663	5,954		3,415	2,699		5,431	6,740	5,436
3,20	6,114	5,653			2,699		4,663	6,243	4,667
3,45	6,176	5,114		3,519			5,301	6,212	5,308
3,69	6,845	6,079			5,857		5,000	6,914	5,914
3,94	7,114			3,176	3,806		4,255	7,114	4,413
4,19	7,602			4,973	5,146		5,699	7,602	5,866
4,43	7,591			3,863			5,000	7,591	5,031
4,68	7,146	6,568			5,568			7,248	5,568
4,93	7,833			4,000			5,279	7,833	5,301
5,17	6,041							6,041	
5,42	6,826				3,672		3,987	6,826	4,158
5,67	7,792	7,279					5,672	7,908	5,672
5,91	7,491	6,672		5,301	6,176	3,556		7,553	6,231
6,16	8,146			5,919	5,863		5,000	8,146	6,220
6,40	6,806	4,114		3,431	3,806		4,531	6,807	4,634
6,65	6,398	5,681					4,079	6,474	4,079
6,90		3,778						3,778	
7,14	6,322	5,362		5,778	5,176	3,000		6,367	5,876
7,39	7,708	6,968		4,114			4,863	7,780	4,935
7,64	7,732			4,079			5,079	7,732	5,121
7,88	6,041			4,176	4,653			6,041	4,778
8,13	6,114			3,623	2,477			6,114	3,653
8,37	8,477			5,000	4,973		5,756	8,477	5,883
8,62	7,114	4,959		3,477			4,531	7,117	4,568
8,87	6,204				2,954		2,778	6,204	3,177
9,11	7,362			4,845			5,000	7,362	5,230
9,36	6,875	5,845		4,740	5,354		4,114	6,914	5,468
9,61	7,519			3,114	5,041		5,041	7,519	5,345
9,85	7,724	6,322			3,914		4,079	7,741	4,305
10,10	7,079	5,716		3,322	3,740		3,322	7,098	3,987
10,34	7,591			3,322			4,079	7,591	4,149



**23 Weizen (n=392) +Triticale (n=76) +Roggen (n=38)** Werte von: 2002-2010 **N= 506**

	KG 1	KG 2	KG 3	KG 4	KG 5	KG 6	KG 7	KG1-3	KG4-7
Cfu/g Orientierungswerte	5.000.000	500.000	50.000	30.000	20.000	2.000	30.000	Median	Median
Cfu/g 10*log(50.Quantil +1)	15.600.000	750.000	200.000	85.499	20.000	5.000	90.000		
Cfu/g 10*log(50.Quantil +0,5)	4.933.153	237.171	63.246	27.037	6.325	1.581	28.460	1.622.499	26.701
Cfu/g 10*log(90.Q)	12.409.783	1.000.000	175.476	54.210	79.852	2.500	75.000		
Quant.Rang (OW)	77,0	81,5	70,2	80,1	81,4	85,7	73,6		
Quant.Rang (50.Q+1)	93,2	86,6	90,3	95,5	81,4	96,8	91,8		
Quant.Rang (50.Q+0,5)	76,8	69,7	75,3	79,6	71,4	84,0	72,7		

Median	log	6,193	4,875	4,301	3,932	3,301	2,699	3,954	6,210	4,427
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Häufigkeit		98,2%	50,6%	14,8%	89,7%	70,4%	25,1%	90,3%	98,8%	98,6%
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N=	506	log KBE/g							KG1-3	KG4-7
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Proben %	KG 1	KG 2	KG 3	KG 4	KG 5	KG 6	KG 7	KG1-3	KG4-7
0,20	7,653			4,785			5,204	7,653	5,344
0,40	7,279	6,362			6,322	3,114	3,653	7,328	6,323
0,59	6,681	6,079		4,041	3,079		4,362	6,778	4,547
0,79	7,415			4,079	4,653		4,881	7,415	5,124
0,99	7,398	6,431			4,681		7,442	4,681	
1,19	7,477	6,987		3,114	3,176		4,785	7,599	4,805
1,38	7,462	6,519		4,079			4,881	7,509	4,944
1,58	7,204			3,806	3,653		4,681	7,204	4,770
1,78	7,114			3,519	4,973		4,079	7,114	5,039
1,98	6,362	4,519			3,114		6,368	3,115	
2,17	5,653	5,079		3,255			3,114	5,756	3,492
2,37	8,146			5,919	5,301		6,602	8,146	6,702
2,57	7,362	6,114		5,176	5,114	3,301	4,653	7,386	5,515
2,77	7,255	6,886		4,653			4,681	7,410	4,968
2,96	5,924	5,944		3,556	3,845		4,000	6,236	4,314
3,16	6,114	5,881		3,740	3,322		4,146	6,314	4,334
3,36	6,623	6,279		5,041			4,380	6,785	5,127
3,56	7,041			4,806			4,079	7,041	4,881
3,75	6,322			3,763			3,431	6,322	3,930
3,95	6,826			3,944			4,681	6,826	4,754
4,15	6,146			3,322			6,146	6,146	3,323
4,35	6,230			3,114			6,230	3,115	
4,55	6,176				3,230		6,176	3,613	
4,74	5,732	4,380		3,362	4,000		3,785	5,751	4,265
4,94	6,431	5,230			3,380		4,000	6,458	4,093
5,14	6,681			4,806	4,322		4,477	6,681	5,061
5,34	5,820						3,230	5,820	3,231
5,53	7,204			3,556			7,204	3,557	
5,73	6,724	6,756		5,176			5,041	7,041	5,415
5,93	6,041	4,519		3,556			3,653	6,054	3,909
6,13	6,322			3,716			3,716	6,322	4,017
6,32	6,591			3,255			3,591	6,591	3,756
6,52	6,279	4,623			5,255		6,288	5,255	
6,72	6,869						6,869		
6,92	6,447			4,342	3,716		3,845	6,447	4,534
7,11	7,857			5,000			4,591	7,857	5,143
7,31	6,000			3,716			3,380	6,000	3,881
7,51	5,477			3,623	3,653		4,079	5,477	4,316
7,71	6,491			3,944			3,623	6,491	4,114
7,91	4,881			3,079			3,362	4,881	3,544
8,10	6,380						3,255	6,380	3,256
8,30	6,699			3,000			3,000	6,699	3,301

**24 Mais (n= 210)** Werte von: 2002-2010 **N= 210**

	KG 1	KG 2	KG 3	KG 4	KG 5	KG 6	KG 7	KG1-3	KG4-7
Cfu/g Orientierungswerte	2.000.000	500.000	50.000	20.000	30.000	5.000	60.000	Median	Median
Cfu/g 10*log(50.Quantil +1)	1.000.000	300.000	50.000	25.400	35.000	12.500	57.446	133.456	16.126
Cfu/g 10*log(50.Quantil +0,5)	316.228	94.868	15.811	8.032	11.068	3.953	18.166		
Cfu/g 10*log(90.Q)	2.859.578	754.856	40.903	39.000	56.304	15.000	129.323		
Quant.Rang (OW)	87,2	84,8	92,3	84,7	84,2	75,4	84,0		
Quant.Rang (50.Q+1)	78,5	79,8	92,3	87,4	85,3	88,0	83,3		
Quant.Rang (50.Q+0,5)	66,8	62,5	74,8	73,9	71,0	71,9	64,2		

Median	log	5,000	4,477	3,699	3,405	3,544	3,097	3,759	5,125	4,208
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Häufigkeit		92,9%	66,7%	19,0%	67,1%	77,6%	58,6%	75,2%	98,1%	98,1%
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N=	210	log KBE/g							KG1-3	KG4-7
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Proben %	KG 1	KG 2	KG 3	KG 4	KG 5	KG 6	KG 7	KG1-3	KG4-7
0,48	6,079				4,623	4,623	6,398	6,079	6,412
0,95	5,944	5,591			3,519		4,146	6,104	4,238
1,43	6,653	5,806		4,176			5,041	6,711	5,097
1,90	6,845	5,591		3,681			4,623	6,869	4,670
2,38	7,322				4,079	4,000	4,740	7,322	4,886
2,86	4,380			4,079			3,079	4,380	4,121
3,33	6,602	5,785			3,301		4,176	6,664	4,231
3,81	6,398						5,079	6,398	5,079
4,29	5,398	5,146		3,591	3,000		5,591	3,690	
4,76	4,959						3,000	4,959	3,001
5,24	5,973			4,716	3,477	3,079	3,431	5,973	4,770
5,71	4,255			5,71	3,000		4,176	4,255	4,204
6,19	6,204	5,519		5,041	4,763	4,255	4,716	6,286	5,377
6,67	6,114	5,869					3,919	6,310	3,919
7,14	6,398	6,041				5,000	6,041	6,556	6,079
7,62	6,690	5,255		4,000			4,531	6,706	4,643
8,10	6,342	6,724				4,322	6,580	6,875	6,582
8,57	4,881	4,477		3,000			3,176	5,025	3,398
9,05	5,505			4,398	3,806		3,959	5,505	4,607
9,52	6,041				6,415	3,477	5,477	6,041	6,463
10,00	4,380				3,176		4,380	3,177	
10,48	5,342				2,653		2,380	5,342	2,840
10,95	5,041	4,431		3,681			3,255	5,137	3,820
11,43	4,623						4,623		
11,90	6,833			3,556			5,633	6,833	5,637
12,38	5,792	5,176		3,623	4,519	5,000	4,785	5,886	5,297
12,86	3,477			3,000			2,778	3,477	3,205
13,33	4,929			3,477	3,778	3,778	4,477	4,929	4,653
13,81	6,146	5,322				3,322	4,699	6,207	4,717
14,29	5,929	4,763		3,079	3,255	2,477	3,431	5,958	3,778
14,76	4,322	3,954					3,653	4,477	3,681
15,24	5,114			3,000			5,114	3,001	
15,71	4,748				3,000		4,748	3,001	
16,19	6,447	5,477		4,322	4,898	3,079	6,491	5,005	
16,67	5,556			3,000			3,079	5,556	3,343
17,14	6,204				2,477	3,623	6,204	3,653	
17,62	5,146			3,740	3,519	2,477	5,146	3,959	
18,10	8,322			4,380	3,591	4,301	4,845	8,322	5,072
18,57	6,857			3,380	3,431		3,826	6,857	4,072
19,05	4,778				2,477		4,778	2,481	
19,52	5,342			2,778	3,114		3,301	5,342	3,591
20,00	5,000			4,255	4,519	2,778	5,000	5,000	4,713

