#### STØTTET AF

# **Mælke**afgiftsfonden

### The effect of mendelian sampling

#### with cutoff year 2010 for JER protein 1st lactation

		All bulls				Selected bulls				
				mendel					mendel	
0bs	aar	_TYPE_	_FREQ_	p1	0bs	aar	_TYPE_	_FREQ_	p1	
1	2000	0	73	-2.62471	1	2000	0	70	-2.74403	
2	2001	0	64	-0.15501	2	2001	0	50	-0.92007	
3	2002	0	68	-0.54224	3	2002	0	53	-2.07079	
4	2003	0	70	-0.08885	4	2003	0	53	-1.36312	
5	2004	0	66	-0.15787	5	2004	0	48	-1.06437	
6	2005	0	61	0.80391	6	2005	0	45	-0.85853	
7	2006	0	64	-0.50450	7	2005	0	49	-1.32393	
8	2007	0	68	0.18693	8	2007	0	55	-0.53823	
9	2008	0	92	-0.64239	9	2007	0	47	-0.62666	
10	2009	0	188	-0.09085	10	2009	0	58	0.09443	
11	2010	0	258	-0.46091	11	2010	0	73	-0.56324	
12	2011	0	400	-0.51110	12	2010	0	75	0.20005	
13	2012	0	434	-0.04052	13	2011	0	58	0.91734	
14	2013	0	465	0.22128	14	2012	0	67	2.08119	
15	2014	0	502	0.13700	15	2013	0	64	2.60487	
16	2015	0	559	0.28380	16	2014	0	53	2.36136	
17	2016	0	511	0.23633	17	2015	0	32	4.28834	
18	2017	0	581	0.12489	18	2017	0	40	2.67571	
19	2018	0	386	0.09840	19	2017	0	26	1.40113	
20 21	2019 2020	0 0	504 523	0.68586	20	2019	0	51	3.79688	
22	2020	0	397	0.51113 -0.36471	21	2020	0	32	3.11598	
23	2021	0	2	-1.63480	22	2021	0	21	1.51111	
23	2022	U	2	-1.03400	22	2021	O	21	1.51111	
		Genotyped	females			No	ot genotype	ed females		
		Genotyped	females	mendel_		No	t genotype	ed females	mendel	
0bs	aar	Genotyped	females	mendel_ p1	Obs				mendel_ p1	
		_TYPE_	_FREQ_	p1	0bs	No aar	t genotype	ed females _FREQ_	mendel_ p1	
1	2000	_TYPE_ 0	_FREQ_ 2	p1 7.28618	Obs 1				_	
1 2	2000 2002	_TYPE_ 0 0	_FREQ_ 2 2	p1 7.28618 0.16876		aar	_TYPE_	_FREQ_	p1	
1 2 3	2000 2002 2003	_TYPE_ 0 0	_FREQ_ 2 2 9	p1 7.28618 0.16876 8.11434	1	aar 2000	_TYPE_ 0	_FREQ_ 23504	p1 -0.04673	
1 2 3 4	2000 2002 2003 2004	_TYPE_ 0 0 0	_FREQ_ 2 2 9 24	p1 7.28618 0.16876 8.11434 6.46376	1 2	aar 2000 2001	_TYPE_ 0 0	_FREQ_ 23504 22019	p1 -0.04673 -0.00228	
1 2 3 4 5	2000 2002 2003 2004 2005	_TYPE_ 0 0 0 0	_FREQ 2 2 9 24 29	p1 7.28618 0.16876 8.11434 6.46376 4.49058	1 2 3	aar 2000 2001 2002	_TYPE_ 0 0 0	_FREQ_ 23504 22019 22233	-0.04673 -0.00228 -0.02010	
1 2 3 4 5 6	2000 2002 2003 2004 2005 2006	_TYPE_ 0 0 0 0 0 0	_FREQ_ 2 2 9 24 29 50	p1 7.28618 0.16876 8.11434 6.46376 4.49058 4.61978	1 2 3 4	aar 2000 2001 2002 2003	_TYPE_ 0 0 0	_FREQ_ 23504 22019 22233 22076	p1 -0.04673 -0.00228 -0.02010 -0.00218	
1 2 3 4 5 6 7	2000 2002 2003 2004 2005 2006 2007	_TYPE 0 0 0 0 0 0 0 0	_FREQ_ 2 2 9 24 29 50 90	p1 7.28618 0.16876 8.11434 6.46376 4.49058 4.61978 2.83741	1 2 3 4 5	aar 2000 2001 2002 2003 2004	_TYPE_ 0 0 0 0	_FREQ_ 23504 22019 22233 22076 22202	p1 -0.04673 -0.00228 -0.02010 -0.00218 -0.06213 0.00632	
1 2 3 4 5 6 7 8	2000 2002 2003 2004 2005 2006 2007 2008	_TYPE_ 0 0 0 0 0 0 0 0 0 0	_FREQ_ 2 2 9 24 29 50 90 138	p1 7.28618 0.16876 8.11434 6.46376 4.49058 4.61978 2.83741 1.79532	1 2 3 4 5	aar 2000 2001 2002 2003 2004 2005 2006	_TYPE 0 0 0 0 0 0	_FREQ_ 23504 22019 22233 22076 22202 22087 23398	p1 -0.04673 -0.00228 -0.02010 -0.00218 -0.06213 0.00632 -0.01103	
1 2 3 4 5 6 7 8	2000 2002 2003 2004 2005 2006 2007 2008 2009	_TYPE_  0 0 0 0 0 0 0 0 0 0 0	_FREQ	p1 7.28618 0.16876 8.11434 6.46376 4.49058 4.61978 2.83741 1.79532 0.69849	1 2 3 4 5 6 7	aar 2000 2001 2002 2003 2004 2005 2006 2007	_TYPE 0 0 0 0 0 0 0 0	_FREQ_ 23504 22019 22233 22076 22202 22087 23398 23409	p1 -0.04673 -0.00228 -0.02010 -0.06213 0.00632 -0.01103 -0.04648	
1 2 3 4 5 6 7 8 9	2000 2002 2003 2004 2005 2006 2007 2008 2009 2010	_TYPE_  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	_FREQ_ 2 2 9 24 29 50 90 138 217 2319	p1 7.28618 0.16876 8.11434 6.46376 4.49058 4.61978 2.83741 1.79532 0.69849 0.47069	1 2 3 4 5 6 7 8	2000 2001 2002 2003 2004 2005 2006 2007 2008	_TYPE 0 0 0 0 0 0 0 0 0	_FREQ_ 23504 22019 22233 22076 22202 22087 23398 23409 24755	p1 -0.04673 -0.00228 -0.02010 -0.00218 -0.06213 0.00632 -0.01103 -0.04648 0.00752	
1 2 3 4 5 6 7 8 9 10	2000 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011	_TYPE_  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	_FREQ_ 2 2 9 24 29 50 90 138 217 2319 4295	p1 7.28618 0.16876 8.11434 6.46376 4.49058 4.61978 2.83741 1.79532 0.69849 0.47069 0.21042	1 2 3 4 5 6 7 8 9	2000 2001 2002 2003 2004 2005 2006 2007 2008 2009	_TYPE 0 0 0 0 0 0 0 0 0 0	_FREQ_ 23504 22019 22233 22076 22202 22087 23398 23409 24755 26687	p1 -0.04673 -0.00228 -0.02010 -0.00218 -0.06213 0.00632 -0.01103 -0.04648 0.00752 -0.01400	
1 2 3 4 5 6 7 8 9 10 11	2000 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012	_TYPE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	_FREQ_ 2 2 9 24 29 50 90 138 217 2319 4295 4940	p1 7.28618 0.16876 8.11434 6.46376 4.49058 4.61978 2.83741 1.79532 0.69849 0.47069 0.21042 0.19301	1 2 3 4 5 6 7 8 9 10	2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010	_TYPE 0 0 0 0 0 0 0 0 0 0 0 0	_FREQ_ 23504 22019 22233 22076 22202 22087 23398 23409 24755 26687 23114	p1 -0.04673 -0.00228 -0.02010 -0.00218 -0.06213 0.00632 -0.01103 -0.04648 0.00752 -0.01400 -0.04659	
1 2 3 4 5 6 7 8 9 10 11 12 13	2000 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013	_TYPE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	_FREQ_ 2 2 9 24 29 50 90 138 217 2319 4295 4940 3915	p1 7. 28618 0.16876 8.11434 6. 46376 4. 49058 4. 61978 2. 83741 1. 79532 0. 69849 0. 47069 0. 21042 0. 19301 0. 00143	1 2 3 4 5 6 7 8 9 10 11	2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011	_TYPE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	_FREQ_ 23504 22019 22233 22076 22202 22087 23398 23409 24755 26687 23114 22598	p1 -0.04673 -0.00228 -0.02210 -0.00218 -0.06213 -0.06632 -0.01103 -0.04648 0.00752 -0.01400 -0.04659 -0.03569	
1 2 3 4 5 6 7 8 9 10 11 12 13 14	2000 2002 2003 2004 2005 2006 2007 2008 2009 2011 2011 2012 2013 2014	_TYPE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	_FREQ_ 2 2 9 24 29 50 90 138 217 2319 4295 4940 3915 4912	p1 7.28618 0.16876 8.11434 6.46376 4.49058 4.61978 2.83741 1.79532 0.69849 0.47069 0.21042 0.19301 0.00143 0.03481	1 2 3 4 5 6 7 8 9 10 11 12 13	2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012	_TYPE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	_FREQ_ 23504 22019 22233 22076 22202 22087 23398 23409 24755 26687 23114 22598 22781	p1 -0.04673 -0.00228 -0.02010 -0.00218 -0.06213 -0.06632 -0.01103 -0.04648 0.00752 -0.01400 -0.04659 -0.03569 -0.05839	
1 2 3 4 5 6 7 8 9 10 11 12 13 14	2000 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015	_TYPE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	_FREQ_ 2 2 9 24 29 50 90 138 217 2319 4295 4940 3915 4912 5901	p1 7.28618 0.16876 8.11434 6.46376 4.49058 4.61978 2.83741 1.79532 0.69849 0.47069 0.21042 0.19301 0.00143 0.03481 0.06049	1 2 3 4 5 6 7 8 9 10 11 12 13	2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013	_TYPE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	_FREQ_ 23504 22019 22233 22076 22202 22087 23398 23409 24755 26687 23114 22598 22781 21018	p1 -0.04673 -0.00228 -0.02010 -0.00218 -0.06213 0.00632 -0.01103 -0.04648 0.00752 -0.01400 -0.04659 -0.03569 -0.05839 0.02735	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	2000 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016	_TYPE_  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	_FREQ_ 2 2 9 24 29 50 90 138 217 2319 4295 4940 3915 4912 5901 7048	p1 7.28618 0.16876 8.11434 6.46376 4.49058 4.61978 2.83741 1.79532 0.69849 0.47069 0.21042 0.19301 0.00143 0.03481 0.06049 0.21060	1 2 3 4 5 6 7 8 9 10 11 12 13 14	2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014	_TYPE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	_FREQ_ 23504 22019 22233 22076 22202 22087 23398 23409 24755 26687 23114 22598 22781 21018 21772	p1 -0.04673 -0.00228 -0.02010 -0.00218 -0.06213 0.00632 -0.01103 -0.04648 0.00752 -0.01400 -0.04659 -0.03569 -0.05839 0.02735 -0.02703	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	2000 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016	_TYPE_  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	_FREQ_ 2 2 9 24 29 50 90 138 217 2319 4295 4940 3915 4912 5901 7048	p1 7.28618 0.16876 8.11434 6.46376 4.49058 4.61978 2.83741 1.79532 0.69849 0.47069 0.21042 0.19301 0.00143 0.03481 0.06049 0.21060 0.11690	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015	_TYPE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	_FREQ_ 23504 22019 22233 22076 22202 22087 23398 23409 24755 26687 23114 22598 22781 21018 21772 21144	p1 -0.04673 -0.00228 -0.02010 -0.00218 -0.06213 0.00632 -0.01103 -0.04648 0.00752 -0.01400 -0.04659 -0.03569 -0.05839 0.02735 -0.02703 -0.02600	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	2000 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018	_TYPE  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	_FREQ_  2 2 9 24 29 50 90 138 217 2319 4295 4940 3915 4912 5901 7048 9084 11454	p1 7.28618 0.16876 8.11434 6.46376 4.49058 4.61978 2.83741 1.79532 0.69849 0.47069 0.21042 0.19301 0.00143 0.03481 0.06049 0.21060 0.11690 0.11496	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	aar 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016	_TYPE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	_FREQ_ 23504 22019 22233 22076 22202 22087 23398 23409 24755 26687 23114 22598 22781 21018 21772 21144 19996	p1 -0.04673 -0.00228 -0.02010 -0.00218 -0.06213 0.00632 -0.01103 -0.04648 0.00752 -0.01400 -0.04659 -0.03569 -0.05839 0.02735 -0.02703 -0.02600 0.01191	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	2000 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019	_TYPE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	_FREQ_ 2 2 9 24 29 50 90 138 217 2319 4295 4940 3915 4912 5901 7048 9084 11454 14041	p1 7. 28618 0.16876 8.11434 6. 46376 4. 49058 4. 61978 2. 83741 1. 79532 0. 69849 0. 47069 0. 21042 0. 19301 0. 00143 0. 03481 0. 06049 0. 21060 0. 11690 0. 11690 0. 14496 0. 39735	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	aar 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017	_TYPE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	_FREQ_ 23504 22019 22233 22076 22202 22087 23398 23409 24755 26687 23114 22598 22781 21018 21772 21144 19996 18888	p1 -0.04673 -0.00228 -0.02010 -0.00218 -0.06213 0.00632 -0.01103 -0.04648 0.00752 -0.01400 -0.04659 -0.03569 -0.05839 0.02735 -0.02703 -0.02600 0.01191 -0.04592	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	2000 2002 2003 2004 2005 2006 2007 2008 2009 2011 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020	_TYPE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	_FREQ_  2 2 9 24 29 50 90 138 217 2319 4295 4940 3915 4912 5901 7048 9084 11454 14041 16854	p1 7. 28618 0. 16876 8. 11434 6. 46376 4. 49058 4. 61978 2. 83741 1. 79532 0. 69849 0. 47069 0. 21042 0. 19301 0. 00143 0. 03481 0. 06049 0. 21060 0. 11690 0. 11496 0. 39735 0. 29023	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	aar 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018	_TYPE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	_FREQ_ 23504 22019 22233 22076 22202 22087 23398 23409 24755 26687 23114 22598 22781 21018 21772 21144 19996 18888 19577	p1 -0.04673 -0.00228 -0.02010 -0.00218 -0.06213 0.00632 -0.01103 -0.04648 0.00752 -0.01400 -0.04659 -0.03569 -0.05839 0.02735 -0.02703 -0.02600 0.01191 -0.04592 -0.00608	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	2000 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019	_TYPE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	_FREQ_ 2 2 9 24 29 50 90 138 217 2319 4295 4940 3915 4912 5901 7048 9084 11454 14041	p1 7. 28618 0.16876 8.11434 6. 46376 4. 49058 4. 61978 2. 83741 1. 79532 0. 69849 0. 47069 0. 21042 0. 19301 0. 00143 0. 03481 0. 06049 0. 21060 0. 11690 0. 11690 0. 14496 0. 39735	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	aar 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017	_TYPE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	_FREQ_ 23504 22019 22233 22076 22202 22087 23398 23409 24755 26687 23114 22598 22781 21018 21772 21144 19996 18888	p1 -0.04673 -0.00228 -0.02010 -0.00218 -0.06213 0.00632 -0.01103 -0.04648 0.00752 -0.01400 -0.04659 -0.03569 -0.05839 0.02735 -0.02703 -0.02600 0.01191 -0.04592	

## without cuttoff for JER protein 1st lactation $_{\mbox{\scriptsize All bulls}}$

Selected bulls

0bs	aar	_TYPE_	_FREQ_	mendel_ p1	0bs	aar	_TYPE_	_FREQ_	mendel_ p1
1 2	2000 2001	0 0	73 64	-2.67913 -0.37009	1	2000	0	70	-3.00033
3	2002	0	68	-0.57097	2	2001 2002	0 0	50 53	-0.95664 -1.99180
4 5	2003 2004	0 0	70 66	-0.08035 0.45604	4	2003	0	53	-1.48712
6	2005	0	61	0.92994	5 6	2004 2005	0 0	48 45	-1.28805 -0.88486
7 8	2006 2007	0 0	64 68	-0.85464 0.03082	7	2006	0	49	-1.25742
9	2008	0	92	-1.39336	8 9	2007 2008	0 0	55 47	-0.65312 -0.79197
10 11	2009 2010	0 0	188 258	-0.27955 -0.24422	10	2009	0	58	0.10064
12	2011	0	400	0.57344	11 12	2010 2011	0 0	73 75	-0.11659 0.89163
13 14	2012 2013	0 0	434 465	1.00574 1.02057	13	2012	0	58	1.43966
15	2014	0	502	1.02577	14 15	2013 2014	0 0	67 64	2.73459 3.19292
16 17	2015 2016	0 0	559 511	1.37841 1.03426	16	2015	0	53	2.86937
18	2017	0	581	0.80224	17 18	2016 2017	0 0	32 40	4.55748 3.05535
19 20	2018 2019	0 0	386 504	0.73978 1.20646	19	2018	0	26	1.98594
21	2020 2021	0	523	0.94467	20 21	2019 2020	0 0	51 32	4.00878 3.32015
22 23	2022	0 0	397 2	-0.20541 -1.92992	22	2021	0	21	1.54470

#### Genotyped females

#### Not genotyped females

0bs	aar	_TYPE_	_FREQ_	mendel_ p1	0bs	aar	_TYPE_	_FREQ_	mendel_ p1
1	2000	0	2	6.84323	1	2000	0	23504	-0.00112
2	2002	0	2	-0.15255	2	2001	0	22019	0.05763
3	2003	0	9	7.72192	3	2002	0	22233	0.06083
4	2004	0	24	6.11717	4	2003	0	22076	0.09285
5	2005	0	29	3.49429	5	2004	0	22202	0.04827
6	2006	0	50	3.90693	6	2005	0	22087	0.14179
7	2007	0	90	2.99887	7	2006	0	23398	0.15369
8	2008	0	138	1.86608	8	2007	0	23409	0.14226
9	2009	0	217	1.21065	9	2008	ø	24755	0.21858
10	2010	0	2319	1.87812	10	2009	0	26687	0.22376
11	2011	0	4295	1.83677	11	2010	0	23114	0.15601
12	2012	0	4940	1.74696	12	2011	0	22598	0.17433
13	2013	0	3915	1.38686	13	2012	0	22781	0.16792
14	2014	0	4912	1.50443	14	2012	0	21018	0.26002
15	2015	0	5901	1.36612	15	2013	0	21772	0.20323
16	2016	0	7048	1.24434		2014	0		0.17897
17	2017	0	9084	1.01373	16		_	21144	
18	2018	0	11454	0.95517	17	2016	0	19996	0.16476
19	2019	0	14041	1.19386	18	2017	0	18888	0.05159
20	2020	0	16854	0.88853	19	2018	0	19577	0.05898
21	2021	0	12283	0.31977	20	2019	0	15470	0.03241
22	2022	0	40	-0.06606	21	2020	0	422	-0.14641