



EBI - 20 Years On: Past, Present & Future
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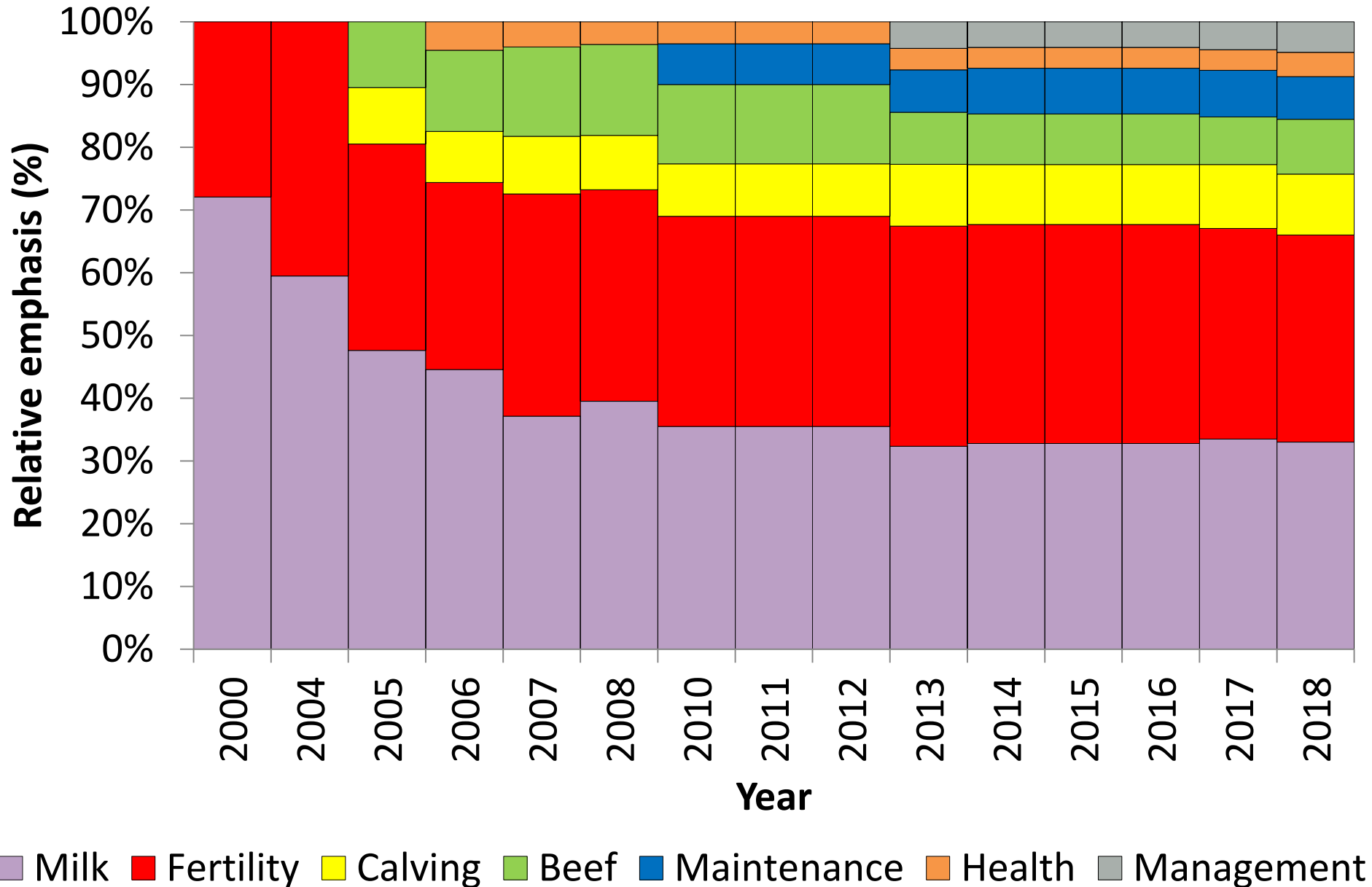
Outline of Presentation

1. Trends in EBI 2000 to 2017
2. Trends in dairy cow milk production, fertility, calving, beef merit, maintenance, management and health performance 2000 to 2017
3. Relationship between increase EBI and greenhouse gas emissions
4. Relationship between increase EBI and farm profitability.
5. EBI where next?

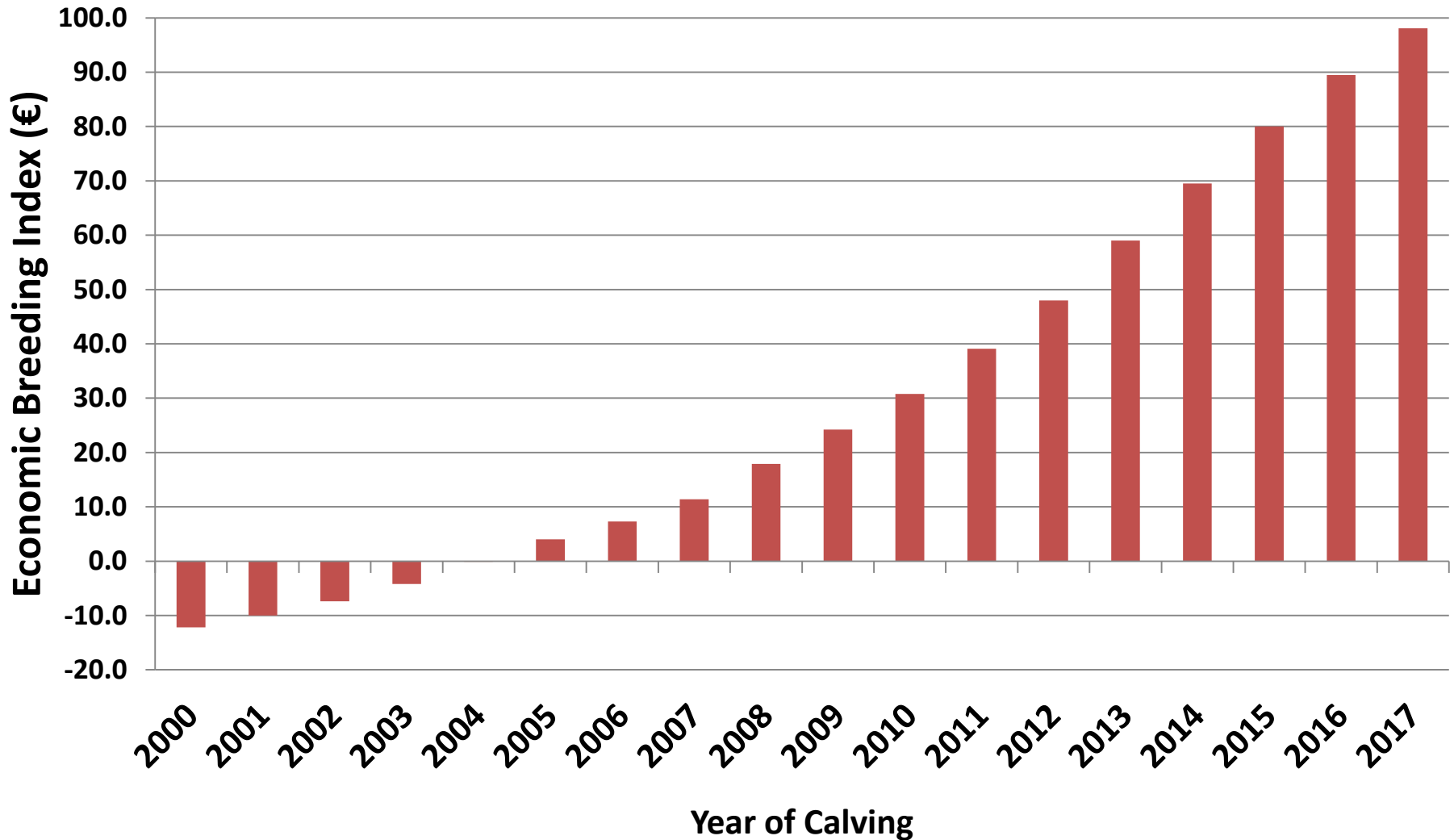
Data Used in the Analysis

1. Data taken from ICBF database 2000 to 2017
2. Only spring calving herds- >90% calved Jan-June
3. Data set included: milk recorded herds (4,711,320 cow-lactations, 1,724,140 cows; 8,727 herds) non-milk recorded herds (4,874,462 cow-lactations; 1,956,072 cows; 14,680 herds)
4. If >80% of cows in herd-year were dairy breed then all records in herd-year retained
5. Relationship between increase EBI and GHG emissions plus farm profitability was calculated using the average of 2001-2003 compared to the average of 2014-2016.

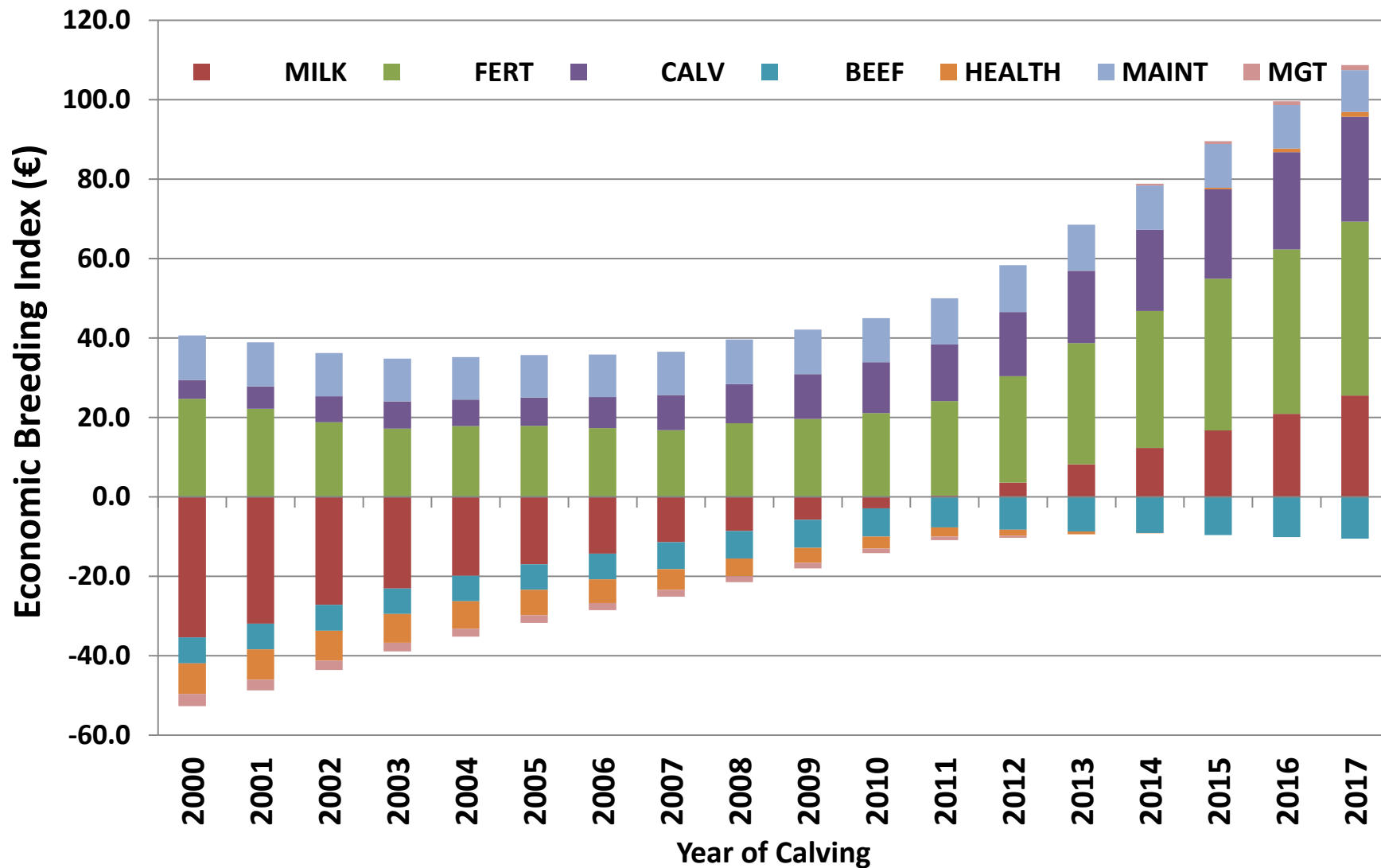
Evolution of the EBI



EBI of Cow-Year Calved



EBI of Cows-Year Calved



Tends in EBI-2000 to 2017

Year	EBI
2000	-12.2
2001	-10.0
2002	-7.4
2003	-4.2
2004	-0.1
2005	4.0
2006	7.3
2007	11.4
2008	17.9
2008	24.2
2010	30.8
2011	39.1
2012	48.0
2013	59.0
2014	69.5
2015	80.0
2016	89.5
2017	98.1
⁷ Slope	7.8

Genetic and Phenotypic Trends in Milk Production-2000-2017

Year	MILKKG	FATKG	PROKG
2000	-134.4	-5.5	-6.2
2001	-122.8	-5.0	-5.6
2002	-104.6	-4.3	-4.7
2003	-89.9	-3.7	-4.0
2004	-78.7	-3.3	-3.4
2005	-68.3	-2.9	-2.9
2006	-59.5	-2.5	-2.4
2007	-50.5	-2.1	-2.0
2008	-45.8	-1.6	-1.6
2009	-40.0	-1.1	-1.2
2010	-35.5	-0.7	-0.8
2011	-29.8	-0.1	-0.4
2012	-21.7	0.6	0.1
2013	-10.1	1.4	0.8
2014	0.0	2.1	1.4
2015	6.1	2.9	1.9
2016	12.6	3.7	2.5
2017	22.1	4.5	3.1
⁸ Slope	7.4	0.6	0.5

Genetic and Phenotypic Trends in Fertility Traits-2000-2017

Year	CI	SURV	
2000	-1.86	0.10	
2001	-1.66	0.10	
2002	-1.41	0.09	
2003	-1.27	0.10	
2004	-1.23	0.19	
2005	-1.18	0.24	
2006	-1.12	0.26	
2007	-1.05	0.29	
2008	-1.12	0.36	
2009	-1.16	0.41	
2010	-1.23	0.46	
2011	-1.36	0.54	
2012	-1.5	0.63	
2013	-1.69	0.74	
2014	-1.89	0.86	
2015	-2.07	0.98	
2016	-2.22	1.08	
2017	-2.32	1.17	
<small>9</small> Slope	-0.10	0.08	

Genetic and Phenotypic Trends in Health Traits-2000-2017

Year	SCC	MAST	LAME
2000	-0.02	0.06	0.05
2001	-0.02	0.06	0.05
2002	-0.02	0.05	0.05
2003	-0.02	0.05	0.05
2004	-0.01	0.05	0.05
2005	-0.01	0.04	0.05
2006	-0.01	0.04	0.04
2007	-0.01	0.04	0.04
2008	-0.01	0.03	0.03
2009	-0.01	0.03	0.03
2010	-0.01	0.02	0.02
2011	0.00	0.02	0.02
2012	-0.01	0.01	0.01
2013	-0.01	0.01	0.01
2014	-0.01	0.00	0.00
2015	-0.01	0.00	0.00
2016	-0.01	0.00	0.00
2017	-0.01	0.00	-0.01
¹⁰ Slope	0.000	-0.004	-0.005

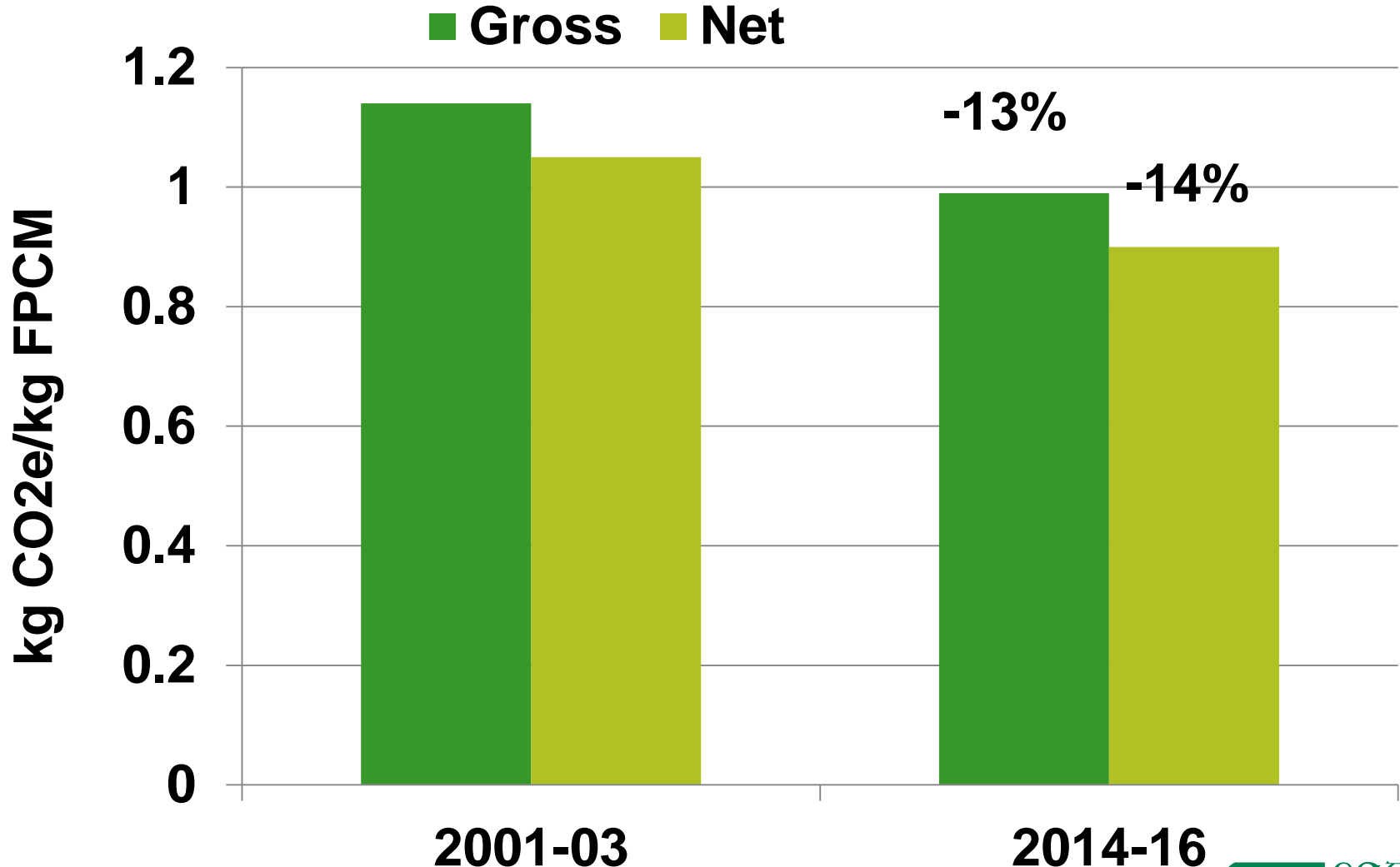
Genetic and Phenotypic Trends in Beef Traits-2000-2017

Year	CARCWT	CARCCONF	CARCFAT	
2000	-2.26	-0.18	0.04	
2001	-2.22	-0.20	0.03	
2002	-2.14	-0.22	0.02	
2003	-2.06	-0.23	0.02	
2004	-2.00	-0.23	0.02	
2005	-2.01	-0.24	0.02	
2006	-2.06	-0.25	0.01	
2007	-2.18	-0.28	-0.01	
2008	-2.26	-0.29	-0.02	
2009	-2.28	-0.31	-0.03	
2010	-2.31	-0.33	-0.04	
2011	-2.60	-0.36	-0.05	
2012	-2.88	-0.38	-0.06	
2013	-3.14	-0.42	-0.08	
2014	-3.36	-0.44	-0.09	
2015	-3.64	-0.47	-0.11	
2016	-3.95	-0.49	-0.12	
2017	-4.21	-0.51	-0.13	
Slope ¹¹	-0.17	-0.02	-0.01	

Genetic and Phenotypic Trends in Calving Traits-2000-2017

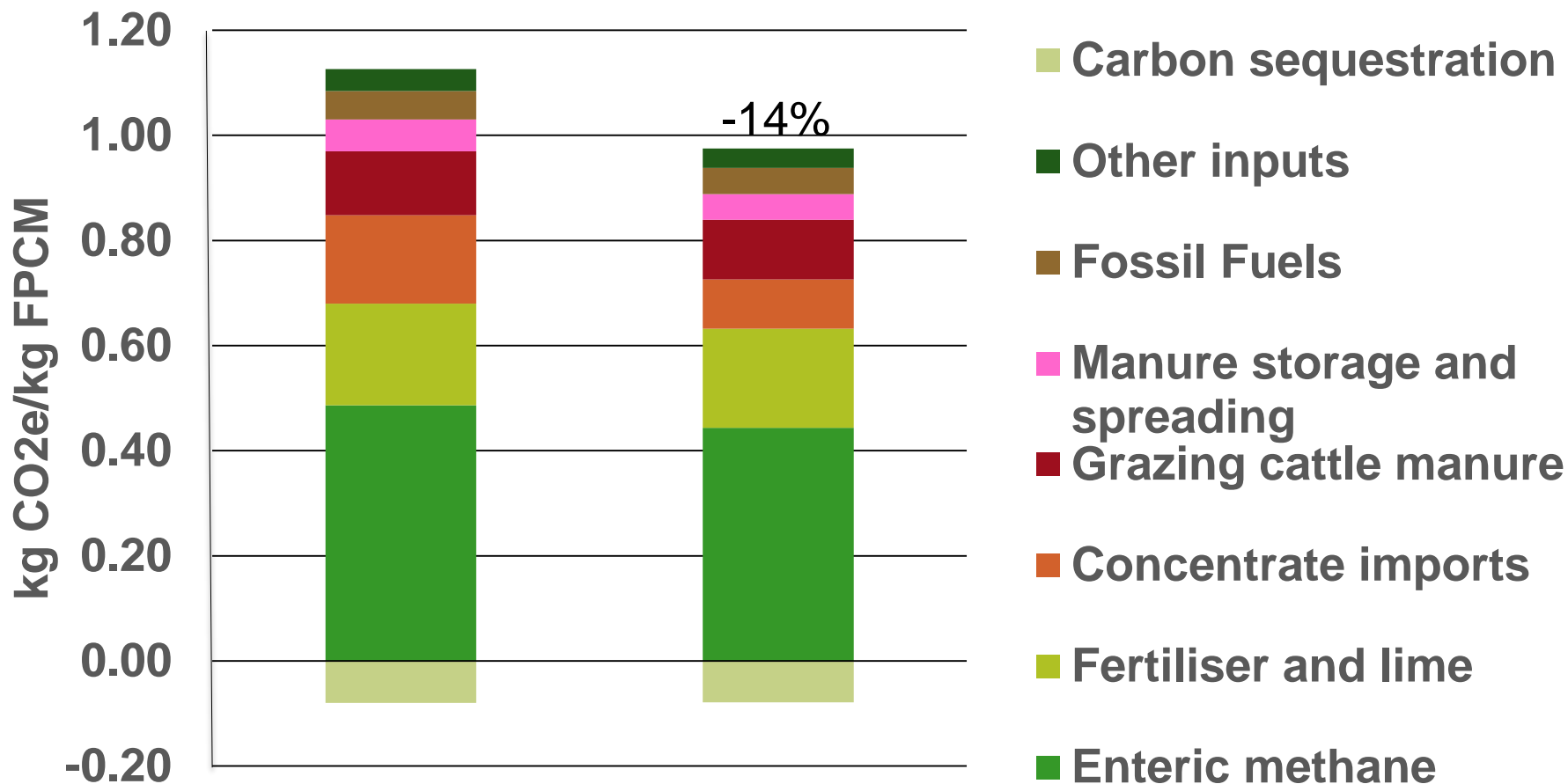
Year	CALVING DIFFICULTY	GESTATION LENGHT	
2000	3.23	0.65	
2001	3.25	0.52	
2002	3.27	0.39	
2003	3.28	0.34	
2004	3.27	0.37	
2005	3.27	0.31	
2006	3.29	0.21	
2007	3.30	0.09	
2008	3.27	-0.03	
2009	3.24	-0.18	
2010	3.21	-0.33	
2011	3.17	-0.50	
2012	3.12	-0.68	
2013	3.03	-0.90	
2014	2.95	-1.11	
2015	2.88	-1.32	
2016	2.82	-1.52	
2017	2.78	-1.71	
¹² Slope	-0.04	-0.17	

Influence of increase EBI on Carbon Footprint of Milk Produced (LCA)



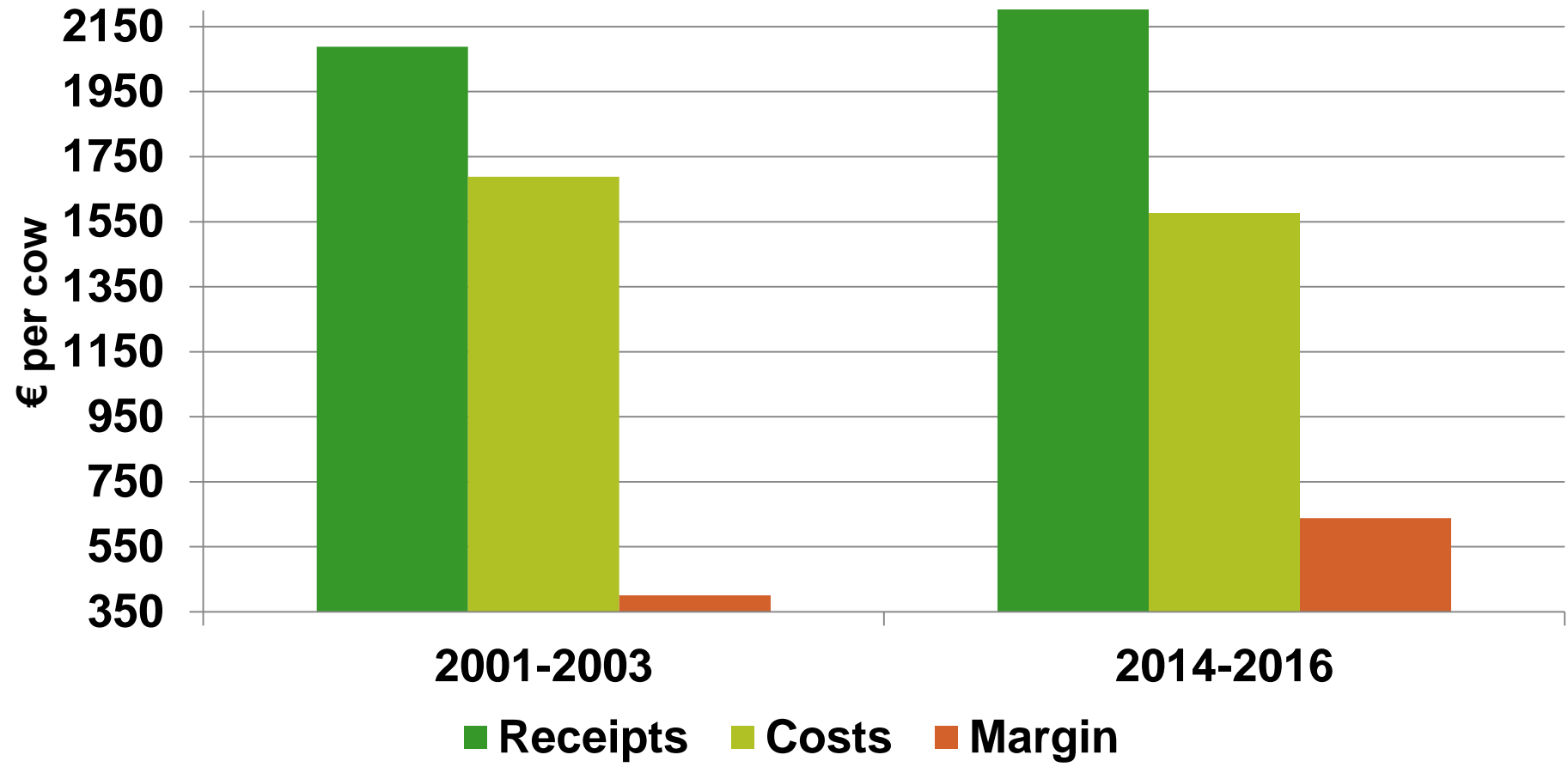
- FPCM = Fat and protein corrected milk
- Net includes carbon sequestration

Influence of increase EBI on Carbon Footprint of Milk Produced (LCA)

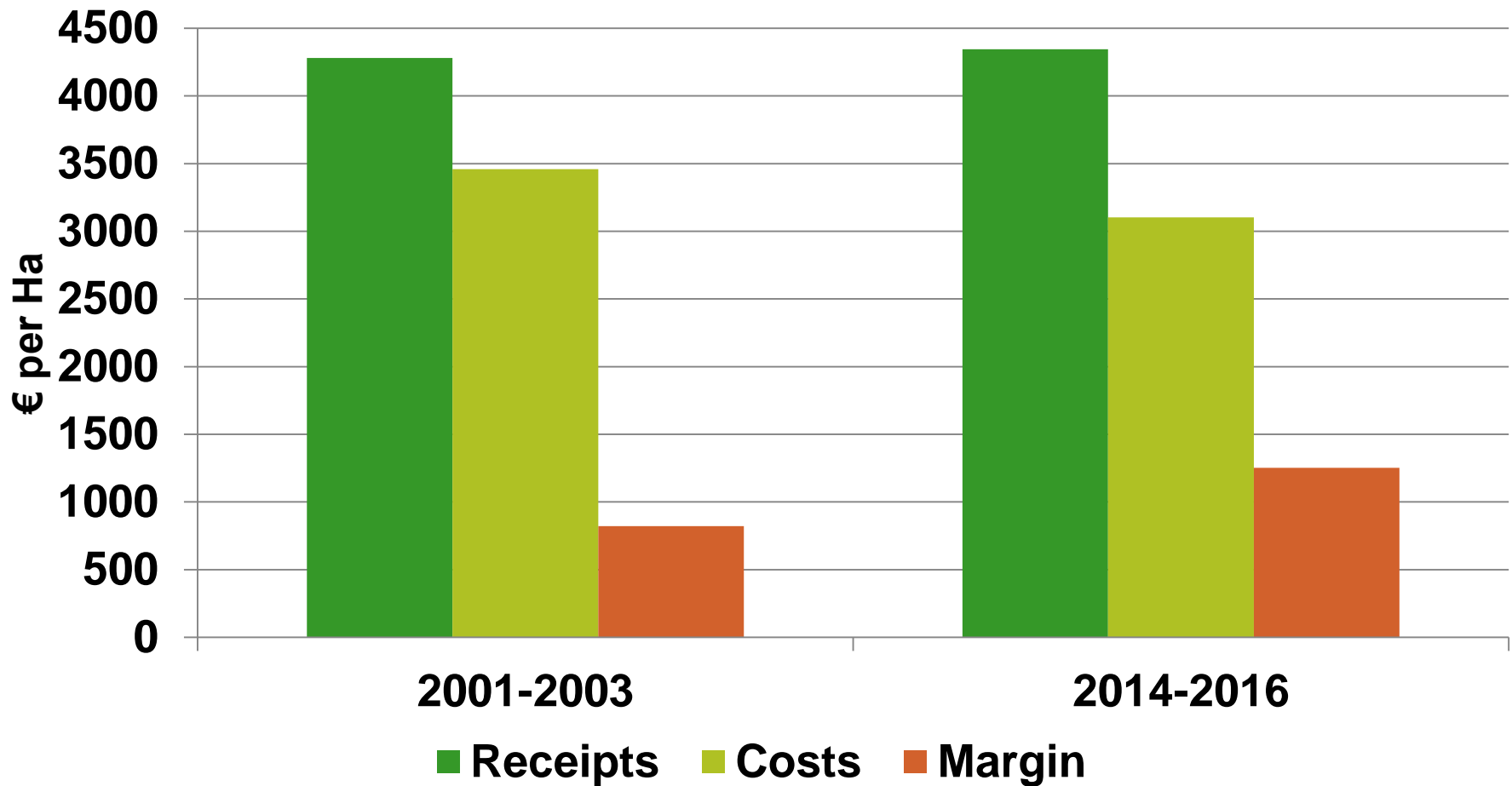


- FPCM = Fat and protein corrected milk

Comparison of the Financial Performance of the average of 2001 to 2003 compared to the average of 2014 to 2016 (€/cow)

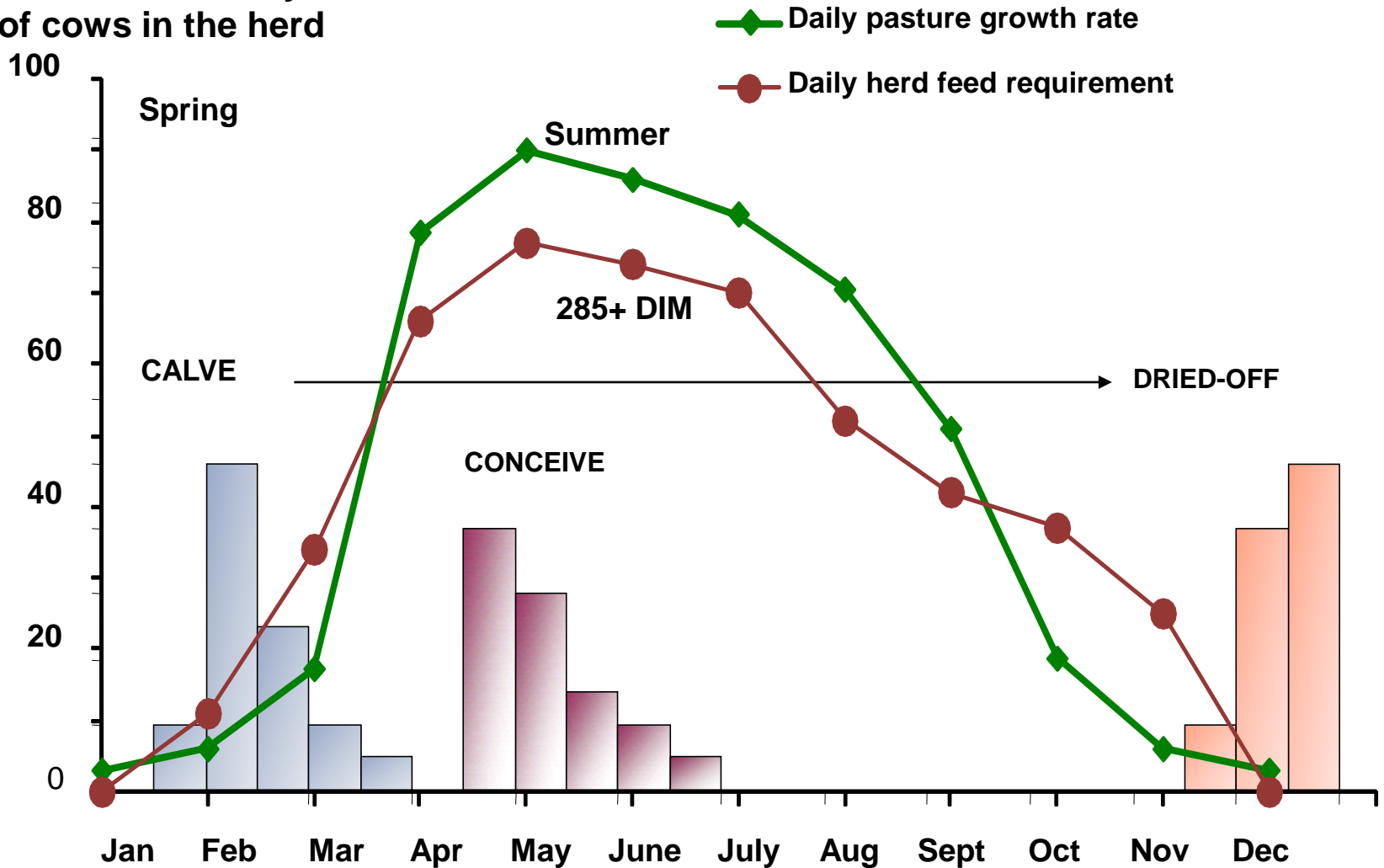


Comparison of the Financial Performance of the average of 2001 to 2003 compared to the average of 2014 to 2016 (€/ha)



Pasture-based System

kg DM / Hectare daily
% of cows in the herd



Where Next for EBI

1. There is still significant gains to be made by the Irish dairy industry through continued increase in EBI
2. Traits in relation to environment, animal welfare and labour efficiency will require greater emphasis in the future
3. Genetic and phenotypic gains in relation to environment, animal welfare and labour efficiency need to be show as sub-index in the EBI
4. The negative genetic trends in beef conformation score needs to be rectified.
5. VistaMilk, Greenbreed & Big Data have the potential to significantly increase rate of genetic improvement- also new traits.

Conclusion

1. The increase EBI of the Irish dairy herd since its introduction has been a main contributor to the current profitable expansion of the dairy industry.
2. The introduction of the EBI has allowed Irish dairy farmers make increase use of the most important resource- grazed grass.
3. The introduction of the EBI has not only increased profitability at farm level but also has resulted in increase environmentally sustainability, animal welfare and labour productivity.
4. The success of the EBI has demonstrated the importance of having national breeding objectives in line with farm profitability.

Comparison of the Financial Performance of the average of 2001 to 2003 compared to the average of 2014 to 2016 (c/l)

