COUNTRY'S NAME	SPAIN
Production traits	**Milk, fat and protein**
Breed	Holstein-Friesian
Trait definition and unit of measurement	Direct: Production of Kg of milk, fat , protein in 305 days calculated with Fleischman method from monthly test day data Indirect: Percentages are calculated from yield figures at 305 days.
Criteria for inclusion & extension of records	Only records from cows in official milk recording, in the herdbook and with known sire and dam. Close lactations and records of culled cows are included, projected to 305 days, if days in milk ≥215. Records in progress are included, projected to 305 days, if days in milk ≥65 and two tests. Method for projecting lactations: Unknown monthly test days between last test and 305 DIM are estimated based on last available test and expected shape of the lactation curve (standard lactation curves defined by production level, age at calving within parity and season of calving)
Time period for data inclusion	Calvings since 1986, but it varies a lot between regions. All available and informative pedigree is included.
Sire categories	All sire categories are considered: AI, NS, first crop, second crop, young bulls, proven bulls
Number of lactations included in the evaluation	5 lactations with equal weights, however, weights are given in the genetic evaluations based on days in milk.
Environmental effects: Pre-adjustment	
Base for age pre-adjustment	
Method (model) of genetic evaluation	ST – R – BLUP – AM
Environmental effects in the genetic evaluation model	Fixed: Month of calving within parity (1 or greater), region, period and level of production at first calving (288 classes); age within lactation (1,2,3,4,5) within region, period and level of production at first calving (456 classes); Herd-Year-Imported-Parity-Season (depending on amount of lactations available). Random: Permanent environmental effect. Heterogeneous variances within herd-year are adjusted to a common variability (cows calved in 1997) simultaneously with the genetic evaluation applying the multiplicative model of Meuwissen et al (1996) assuming constant heritabilities across environments.
Use of genetic groups	Phantom groups for unknown parents, based on path of selection, birth year, country of origin (9 countries), and also region of origin for animals born in Spain.
Genetic parameters in the evaluation	h2=0.28 r=0.50
System validation	Input data quality is checked in three phases: First data must qualify to get into national database at CONAFE (Edits I); Second, edits are applied to test day data (Edits II); Third, edits are aplied when generating files for genetic evaluation (Edits III). In all three steps detail statistics by edit and region are produced to verify inconsistencies in new data or with statistics of previous evaluations. Records not incorporated at the database or not usable for genetic evaluation are returned to regional organizations for being verified (each record with a key that describes the kind of error detected). Checks on results: Proof correlations with previous evaluation and analysis of individual changes.
Expression of genetic evaluations	EBV KG
Genetic (reference) base	Cows born in 1995
Next base change	Year 2005: Cows born in year 2000
Criteria for official	Spanish Bulls: 20 daughters in 10 herds.

publication of evaluations	Foreign Bulls: 75 spanish daughters in 50 herds and previous proof in other country.
Number of evaluations / publications per year	2 per year: January and July
Use in production / total merit index	$ICO = 300 + 9 * \left(10 * \frac{EBV_{FAT}}{SD_{FAT}} + 51 * \frac{EBV_{PROT}}{SD_{PROT}} + 5 * \frac{EBV_{\%PROT}}{SD_{\%PROT}} + 8.16 * \frac{EBV_{IPP}}{SD_{IPP}} + 17 * \frac{EBV_{ICU}}{SD_{ICU}} + 8.84 * \frac{EBV_{IGT}}{SD_{IGT}} \right)$ SD_{FAT}=23.7; SD_{PROT} =19.8; $SD_{\%PROT}$ =0.10; SD_{IPP}=1; SD_{ICU} =1; SD_{IGT} =1 SD=Standard deviation of bull proofs; IPP=Feet and Legs Composite Index; ICU=Udder Composite Index; IGT=Global Type Index
Anticipated changes in the near future	
Key reference on methodology applied	*Model and genetic parameters:* Pena, J., M.A. Ibañez, M.J. Carabaño, L. L.G. Janss. New genetic parameters for National Evaluations of production traits in Spanish Holsteins excluding selected base animals from the estimation of genetic variance. 2001. Interbull Technical Workshop in Verden, Germany, October 22-23 2000. *Heterogeneity of variance adjustment*: Meuwissen, T.H.E., G. De Jong and B. Engel. 1996. Joint estimation of breedingvalues and heterogeneous variances of large data files. *J. Dairy Sci. 79:310.* *Projection of lactation in progress to 305 days:* Rekaya,R., Bejar, F., Alenda, R., Carabaño, M.J.. 1996. La nueva metodología de extensión de la lactación. Frisona española Julio /Agosto 96. Pg 33-41 Wilmink,J.B.M.; Outweltjes,W. 1992. Calculation of lactation production in the Netherlands. Proc. ICAR Meeting, Neustif, Austria. 1992, pg 121-126.
Key organization: name, address, phone, fax, e-mail, web site	CONAFE Apartado de correos 31 Valdemoro 28340 Madrid Phone 91-8952412. Fax: 91-8951471 e-mail: genetica@conafe.com Web: http://www.conafe.com/

COUNTRY: Spain

Number of AI bulls (NB) tested, means (X), and standard deviations (SD) of proofs (kg, %) from most recent run, by bulls' year of birth (YB) and breed.

		Milk		Fat		Protein		Fat %		Protein %	
YB	NB	X	SD	X	SD	X	SD	X	SD	X	SD
Breed											
84	21	-290	536	-17.4	17.7	-14.4	14.6	-0.082	0.161	-0.062	0.124
85	23	-251	480	-10.5	14.8	-12.1	10.4	-0.008	0.211	-0.046	0.097
86	23	-297	387	-7.8	17.2	-11.9	11.9	0.043	0.191	-0.03	0.08
87	32	-174	393	-7.8	15.2	-8.7	11.1	-0.012	0.216	-0.036	0.095
88	25	-73	517	-2.1	20.7	-4	16	0.012	0.206	-0.018	0.076
89	12	-111	381	-0.4	8.6	-4.3	10.1	0.055	0.188	-0.003	0.105
90	40	175	378	6.9	16.2	4.4	13.2	0.01	0.175	-0.01	0.083
91	29	300	420	12.1	13.7	8.2	7.6	0.025	0.26	-0.008	0.121
92	33	405	457	9.3	14.7	12.7	13.1	-0.058	0.217	0.004	0.09
93	46	523	455	11.6	19.3	15.6	12.4	-0.083	0.224	-0.006	0.077
94	43	468	442	14.2	17.8	15.9	13.2	-0.03	0.158	0.018	0.117
95	35	563	407	17.2	17.6	18.8	10.3	-0.033	0.242	0.016	0.105
96	19	643	260	14.5	13.3	19.5	11.8	-0.102	0.16	-0.005	0.091

COUNTRY: Spain

Average of production records (kg, %) included in the most recent evaluation run, by year of calving (YC), number of cows (NC) and breed.

		Milk		Fat		Protein		Fat %		Protein %	
YC	NC	X	SD	X	SD	X	SD	X	SD	X	SD
Breed						Holstein-Frisian					
1986	6697	5760		205		175		3.56		3.04	
1987	13349	6043		213		185		3.52		3.06	
1988	22345	6126		220		186		3.59		3.04	
1989	27988	6612		239		201		3.61		3.04	
1990	35919	6877		251		208		3.65		3.02	
1991	48405	7066		256		213		3.62		3.01	
1992	62174	7140		259		218		3.63		3.05	
1993	88867	7326		267		227		3.64		3.10	
1994	109714	7625		276		236		3.62		3.10	
1995	126204	7855		285		244		3.63		3.11	
1996	142905	7930		289		248		3.64		3.13	
1997	162085	8004		292		250		3.65		3.12	
1998	184736	8262		302		261		3.66		3.16	
1999	203982	8418		306		265		3.64		3.15	
2000	140389	8243		297		256		3.60		3.11	