

EVOLUTION OF THE REGISTRATION SYSTEMS IN LATINAMERICA



REGISTER

Country	Open	Name	Since	Org. in charge
Argentina	Yes	Herd Book Argentino	1910	SRA (Soc. Rural Argentina)
		Registro de Crías	1946	ACHA (Asoc. Criad. Holando)
Bolivia (only Santa Cruz de la Sierra)	No	Herd Book	1989	Asocrale (Asoc. Criad. Razas Lech.)
		Puro por Cruza	1989	Asocrale
Brazil	Yes	Puro de Origen	1984	ABCRRH
		Puro por Cruzamiento	1934	ABCRRH
		Fêmea Mestiça	1934	ABCRRH
Colombia	Yes	Puro	1942	Asoc. Holstein Colombia
		Holstein Colombiano	1996	Asoc. Holstein Colombia
Costa Rica	Yes	Libro de Registro	1989	Asoc. Holstein Costa Rica
Chile	Yes	Libro de Registro	1975	(n.a.)
Mexico	Yes	Libro Registro Regular	1959	Asoc. Holstein Mexico A.C.
		Registro Suplementario	1959	Asoc. Holstein Mexico A.C.
Dominican Rep.	Yes	RD	1995	Asoc. Holstein Dominicana
Uruguay (open in a near future)	No	Herd Book Uruguayo	1879	ARU (Asoc. Rural del Urug.)
		Selección Holando	1950	SCHU (Soc. Criad. Holando)

POSSIBLE CATEGORIES IN REGISTRATION. 1

Country	Registered	Grade
Argentina	5 Generations or RCD's offspring	"Registro de Crías": PB, CI, CL, CLT, (all 1, 2 y 3), then RCD (PP). Service: Pure sires.
Bolivia	5 Generations	Base Animals, GC1, GC2, GC3, PB (Puro Boliviano). Offspring: PB
Brazil	Imported animals or imported animal's offspring.	"Puro por cruzamiento": PCD (identified origin) 31/32 or PCC (non identified origin) 31/32. Always with official inspection. Service: pure sires.
		"Fêmea Mestiça": cross of breeds with different percentage of Holstein. Offspring of a 15/16 with PO sire becomes PC (15/16 with identified origin or 15/16 with an official inspection if the origin is non identified).
Colombia	5 Generations or Puro's offspring	"Vaca Fundadora", 1 ^o Gen., 2 ^o Gen., 3 ^o Gen., "Holstein Puro por Pedigree". Service: Pure sires.

POSSIBLE CATEGORIES IN REGISTRATION. 2

Country	Registered	Grade
Costa Rica	5 Generations or Hato Fundación's offspring	"Encastado" or "gradado", "Purificado", "Hato Fundación" and "Ganado puro". Service: pure sires.
Chile	(n.a.)	Any animal phenotypically Holstein with indication of the ancestry percentage.
Mexico	5 Generations or 2F's offspring	"Registro Regular": Class X, Class Y, Class 1F and Class 2F Service: pure sires.
Dominican Rep.	5 Generations or Puro Nativo's offspring.	-Pure or "hato fundación", 75% purebred, 87% purebred, 94% purebred and 100% purebred or "puro nativo". Service: pure sires.
Uruguay	5 Generations	Base (phenotypic view only), Gen. 1, Gen. 2 y Gen. 3. Service: pure sires.

REGISTRATION OF IMPORTED ANIMALS

Country	Herd Book	Procedure
Argentina	Yes	Correlative number with national products. No keeping of numbers of origin/international. Five generation Pedigree, blood type analysis, certificate of any carriers of undesirable recessive.
Bolivia	Yes	Correlative number with national products. No keeping of numbers of origin/international.
Brazil	Yes	Correlative number with national products. No keeping of numbers of origin/international.
Colombia	Yes	Correlative number with national products. No keeping of numbers of origin/international.
Costa Rica	Yes	Correlative number with national products. Keeping of numbers of origin/international
Chile	Yes	Correlative number with national products. No keeping of numbers of origin/international
Mexico	Yes	Correlative number with national products. No keeping of numbers of origin/international.
Dominican Rep.	Yes	Keeping of origin number adding country and sex codes.
Uruguay	Yes	Correlative number with national products. No keeping of numbers of origin/international. Five generation Pedigree, blood type analysis

IDENTIFICATION SYSTEMS

Country	Specifications	Government System
Argentina	Tag and tattoo with farm number and left side photo .	Only for export
Bolivia	Tag, photo and spots draw.	No
Brazil	Left side photo. Inviolable tags in 2005.	No
Colombia	Right side photo with farm number (nowadays, digital photos).	No
Costa Rica	Left side photo.	No
Chile	Right and left side photos.	No
Mexico	Tag, spots draw and photo (two sides or left)	No
Dominican Rep.	Right, left and front side photos.	No
Uruguay	Aluminum tag with unique alphanumeric number.	Beginning a system for beef cattle.

HERD BOOK REGISTRATIONS

Country	Registered (Males and females)		Grade (Males and females)		Imported (Males and females)
	Total	Annual	Total	Annual	Annual
Argentina	520,000	7,000	3,262,097 f.*	200,000 f.*	230
Bolivia	8,300 f.*				304 historic
Brazil	640,961	18,000	1,277,839	35,000	447 (without semen)
Colombia		1,800		1,800 f.*	150
Costa Rica	80,413 historic				4,750 historic**
Chile	(n.a.)	(n.a.)	(n.a.)	(n.a.)	(n.a.)
Mexico	155,073	4,200	136,643 f.*	5,000	1,000
Dominican Rep.	650 annual aprox.				46 aprox.
Uruguay	(n.a.)	3,000	2,000,000 f.*	45,000 f.*	(n.a.)

*Females
**Importation suspended

CLASSIFICATION OVERVIEW

Country	Classifies	Org. in charge	Annual Classifications
Argentina	Yes	ACHA	10,000
Bolivia	No		
Brazil	Yes	ABCBRH	6,000
Colombia	Yes	Asoc. Holstein de Colombia	9,000
Costa Rica	Yes	Cattle Chambers; Associations	1,000
Chile	Yes	Asoc. Holstein Chile (Holstein USA and CAN up to 2001 too)	850
Mexico	Yes	Asoc. Holstein Mexico A.C.	5,000
Dominican Rep.	Yes	Asoc. Holstein Dominicana (Holstein USA before)	200
Uruguay	Yes	SCHU	8,000

GENETIC EVALUATION

Country	Evaluation	Org. in charge	Frequency
Argentina	Yes, sires and dams	ACHA – FCV	Annual since 1981
Bolivia	No		
Brazil	Yes, sires	EMBRAPA	Annual
Colombia	No		
Costa Rica	No		
Chile	No		
Mexico	Yes, sires and dams	Inst. Nac. de Inv. For., Agr. y Pecuarias	Annual
Dominican Rep.	No		
Uruguay	Yes, Sires and dams	SCHU – ARU – INIA- INML – Fac. Agr.	Annual since 1994

GENERAL INFORMATION

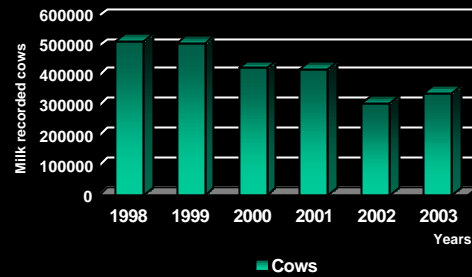
Country	Inhabitants	Milk/Inh./year	Total Cows	Cows in MRS	I/Cows/305d
Argentina	36,000,000	170 l	1,775,000	345,000	6,127
Bolivia	8,000,000	35 l	300,000	2,500	4,270
Brazil	170,000,000	150 ml	1,080,000	120,000	8,000
Colombia	45,000,000	136 l	560,000	12,000	6,200
Costa Rica	4,175,000	195 l	384,880	-	2,000
Chile	(n.a.)	(n.a.)	(n.a.)	(n.a.)	(n.a.)
Mexico	97,483,412	100 l	2,140,130	43,785	4,426
Dominican Rep.	8,400,000	80 l	1,400,000		1,350
Uruguay	3,000,000	240 l	1,000,000	300,000	5,000

ACTIVITIES OF THE ASOCIACION CRIADORES DE HOLANDO ARGENTINO

- ACHA →
- ✓ OFFICIAL MILK RECORDING SYSTEM
 - ✓ REGISTRATION
 - ✓ TYPE CLASSIFICATION SYSTEM
 - ✓ HOLSTEIN SHOWS
 - ✓ GENETIC EVALUATIONS

✓ Official Milk Recording System

OFFICIAL MILK RECORDED COWS IN THE LAST SIX YEARS



EVOLUTION OF THE ARGENTINE
OFFICIAL MILK RECORDING SYSTEM

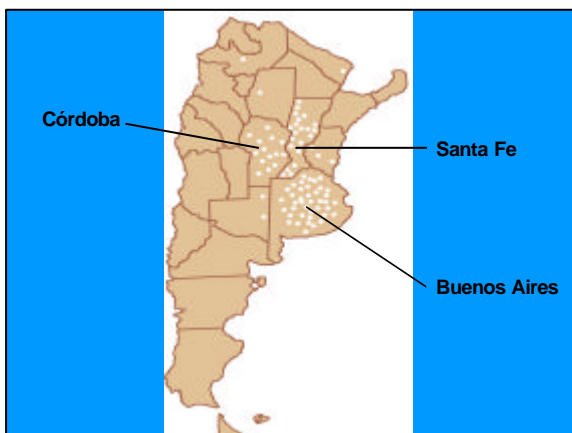
Periods	Farms	Cows
June, 1998	2,502	515,110
June, 1999	2,377	506,684
June, 2000	1,900	424,627
June, 2001	1,892	421,698
June, 2002	1,330	305,536
June, 2003	1,448	341,773

ACHA, 2003.

ARGENTINA DAIRY REGIONS

Regions	Farms	Milk recorded cows
Buenos Aires	689	170,810
Santa Fe	518	105,751
Córdoba	178	50,790
Entre Rios	47	11,044
La Pampa	18	4,334
Salta	3	822
Formosa	3	256
Total	1,456	343,807

Official Milk Recording System. ACHA, October 2003



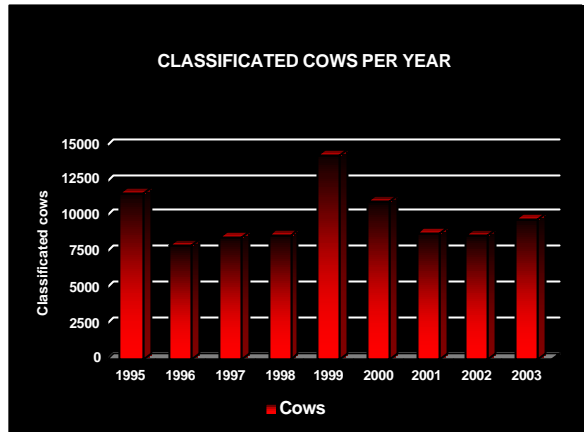
✓ Type Classification System

Canadian lineal system

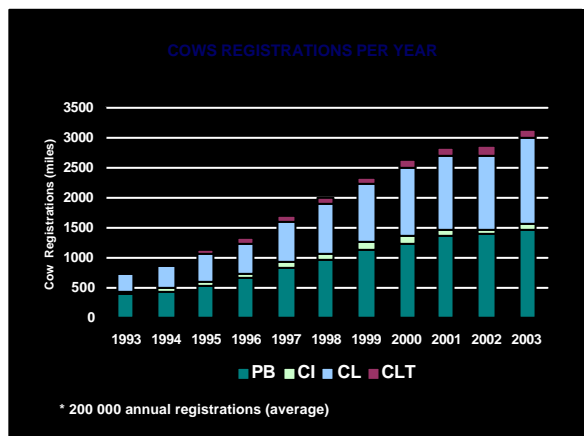
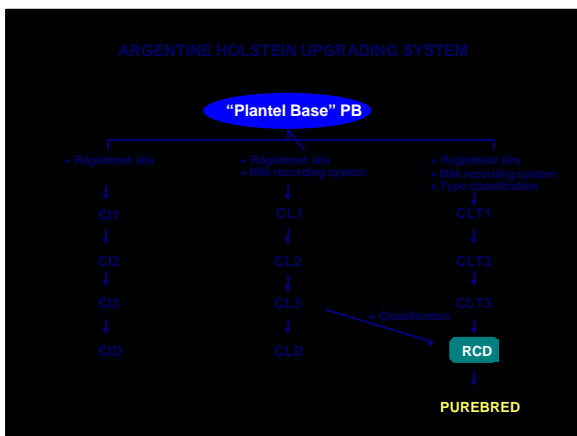
23 Lineal characteristics

8 General characteristics

BOLETA DE CALIFICACION HEMBRA		206427	
Lineal	General	Fract. Max.	Reg. Tipo
Lineal	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23		
General	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23		
Fract. Max.		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	
Reg. Tipo			1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23



✓ Register



✓ Genetic evaluation

DESCRIPTION OF THE GENETIC EVALUATION

BLUP
ANIMAL MODEL
METHODOLOGY

Production:
771 942 cows
6 995 bulls

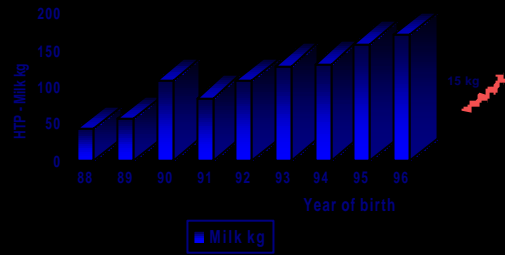
Type:
127 065 cows
4 265 bulls



✓ Genetic trend

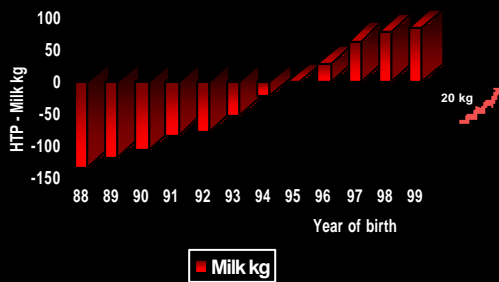
MILK PRODUCTION GENETIC TREND

-BULLS-



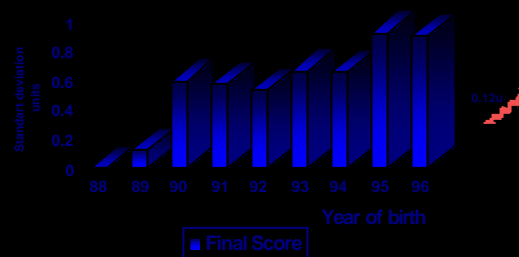
MILK PRODUCTION GENETIC TREND

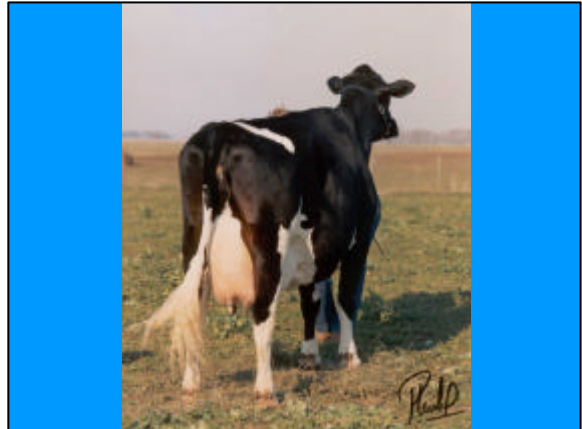
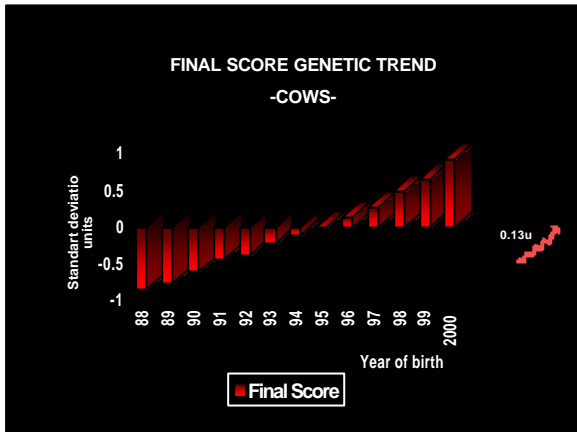
-COWS-



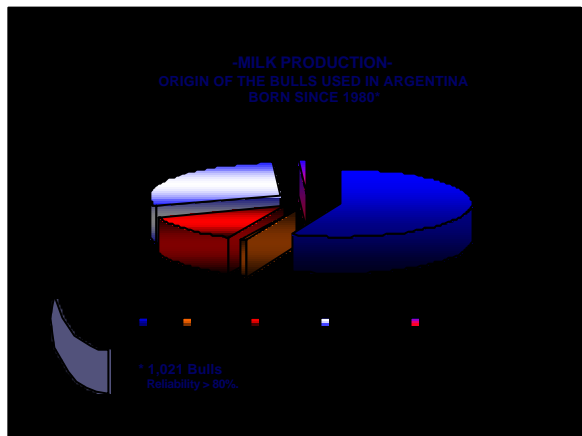
FINAL SCORE GENETIC TREND

-BULLS-





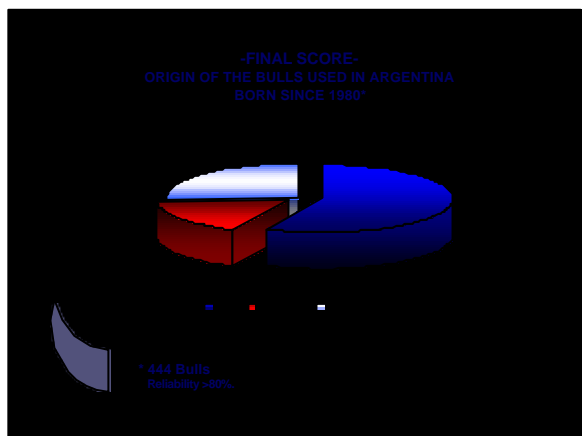
✓ Bull genetic performance



BULLS BORN SINCE 1980* PER ORIGIN (Genetic values of milk production)

Origin	N	Milk kg HTP average	Milk kg HTP Max.	Milk kg HTP Min.	Positives %
USA	578	236	674	-282	92
CAN	132	123	504	-383	81
NLD	8	235	332	16	100
NZL	8	2	233	-218	38
ARG	295	20	582	-471	54

* 1,021 Bulls
Reliability > 80%



BULLS BORN SINCE 1980* PER ORIGIN
(Genetic values of final score)

Origin	N	Final Score HTE average	Final Score HTE Max.	Final Score HTE Min.	Positives %
USA	251	0.71	3.53	-2.54	81
CAN	77	1.06	2.68	-1.42	90
ARG	116	-0.18	2.27	-3.31	41

* 444 Bulls
Reliability >80%.

✓ **Genetic trend of the cow population**
(upgrading system)

COWS IN THE UPGRADING SYSTEM
Average genetic values per generations of identified ancestries

Generations	MILK kg - HTP	FAT kg - HTP	TYPE FS - HTE
Non identified G. - PB	-121	-4.1	-1.23
1st identified G. - CL1	-20	-0.8	-0.83
2nd identified G. - CL2	38	1.1	-0.54
3rd identified G. - CL3	74	2.2	-0.18
4th identified G. - CLD	95	2.8	0.25
Trend	53	2	0.36

Cows: 693 679 for production and 46 978 for type.
ACHA-FCV Genetic Evaluation, August 2003

