

CREMONA 16.17.18.19/04



CREMONA 17/04/2024

today



- 8.00 - 12.00 Theoretical session I
- 8.00 - 8.15 Opening, welcome by ANAFIBJ and chair WG
- 8.15 - 8.35 Presentation by ANAFIBJ
- 8.35 - 9.00 Update on correlations conformation between traits based on Interbull data / G. de Jong
- 9.00 - 10.00 Analysis of phenotypic correlations among traits / S. Rensing
- 10.00 - 10.20 coffee break
- 10.20 - 10.50 Harmonization of six extra traits / G. de Jong
- 10.50 - 12.00 Conformation defects / S. Rensing Lunch
- 13.00 - 18.00 Practical session, on farm in Cremona, Cristella farm

CREMONA 18/04/2024
today



8.00-12.00 **Practical session, on farm Sabbiona farm**

Lunch

14.00 - 18.00 **Theoretical session II**

14.00 - 15.30 **Role of classification in future – 4 speakers (15 min each)
+ discussion (30 min)**

T. Menard / France

J. Steinhoff / USA

T. O'Connor / New Zealand

P. Guimaraes Ribas Neto / Brazil

15.30 - 16.00 **Coffee break**

16.00 - 17.00 **Presentation from countries on a topic they want to share
with the group (10 min)**

17.00 - 18.00 **Update from countries (20 * 3 min's)**



Welcome to ANAFIBJ

*Prof. Martino Cassandro
General Manager -ANAFIBJ*

Cremona April 16 -18 2024



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ANAFIBJ Cremona, Lombardia region



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IL TEAM ANAFIBJ



Administration office group



«Service» office group

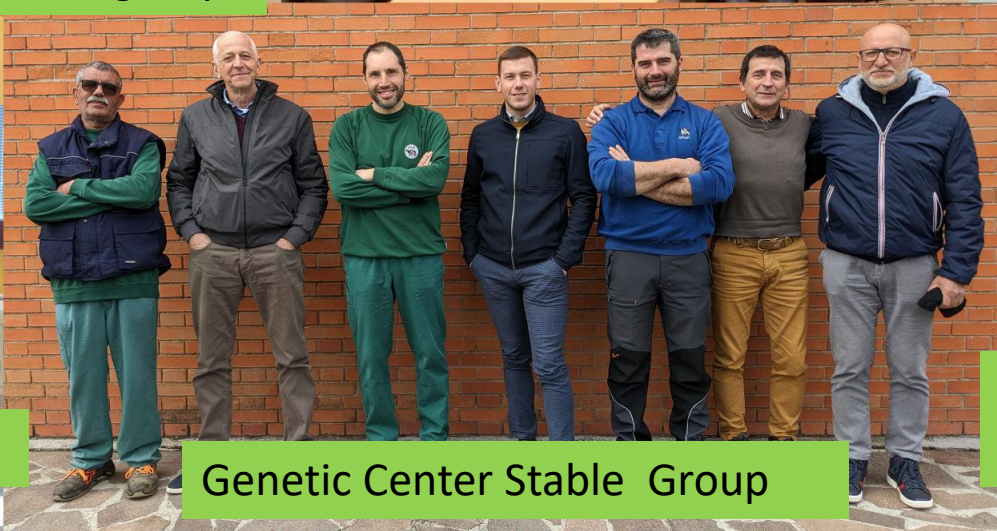


Herdbook office group



President Anafibj

DG Anafibj



Genetic Center Stable Group



Conformation office group



Promotion office group



IT office group



R&D office group



Bianconero editorial board



ANAFIBJ Classifiers Team

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ANAFIBJ in numbers

- 2 Herdbooks (Holstein and Jersey)
- third one is working progress (Brown)
- ≈ **10.000** members
- > **1.100.000** registered cows
- ≈ **800.000** young stock



- 27 employes
- 6 bianconero magazine /year
- 70 breeding values
- 49 runs/year

Records processed (2023)	Numbers
Pedigree data-records	20,863,419
Cow lactation records	32,822,933
Evaluatoin Scoring records	11,287,374
Cows changing herds	2,769,903
Grade animals	15,851,240
Managment herd registration	58,379
Cow's Insemination records	69,991,452
Genealogical Certificate (2023)	5,142





Holstein population around the world (WHFF, 2023)

Country	Rank	Total HF cows	Rank	HB-Registered HF cows	Rank	% of di Vacche Holstein iscritte su Totali
United States	1	7.990.000	5	1.000.000	6	12%
France	2	2.674.000	2	1.244.946	4	46%
Germany	3	2.345.673	1	1.656.116	3	71%
United Kingdom	4	1.600.000	6	650.000	5	41%
ITALY	5	1.500.000	4	1.148.705	2	77%
The Netherlands	6	1.152.495	3	1.152.495	1	100%





ANAFIBJ in numbers



AVERAGE MILK/FAT/PROTEIN PRODUCTION OF RECORDED ITALIAN HOLSTEINS 2023



YEAR	TOTAL NUMBER		PHENOTYPIC TREND			AVERAGE COWS
	HERDS	COWS	MILK KG	FAT %	PROTEIN %	
2014	11,517	1,076,181	9,472	3.67	3.29	93
2015	11,477	1,095,576	9,582	3.66	3.27	95
2016	11,123	1,106,461	9,742	3.75	3.32	99
2017	10,629	1,091,652	9,980	3.73	3.33	103
2018	9,896	1,081,855	10,136	3.76	3.35	109
2019	9,769	1,079,338	10,097	3.81	3.36	110
2020	9,711	1,107,536	10,386	3.79	3.35	114
2021	9,552	1,130,734	10,710	3.89	3.37	118
2022	9,280	1,148,844	10,786	3.85	3.35	124
2023	8,903	1,136,874	10,802	3.86	3.38	128

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ANAFIBJ in numbers



MEDIE PRODUZIONI LATTE/GRASSO/PROTEINE VACCHE CONTROLLATE RAZZA JERSEY 2023

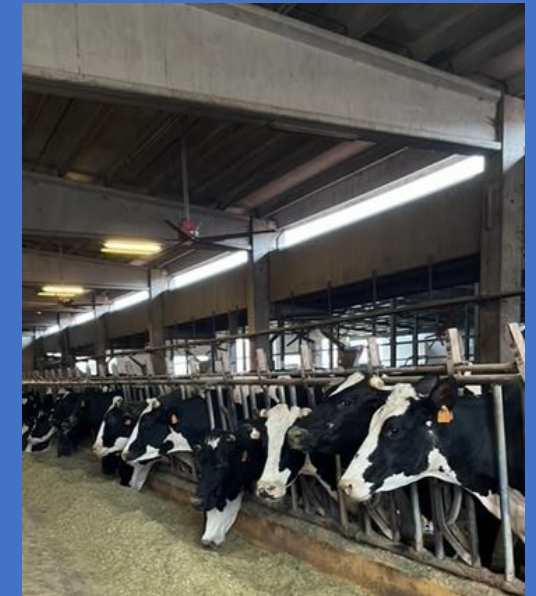
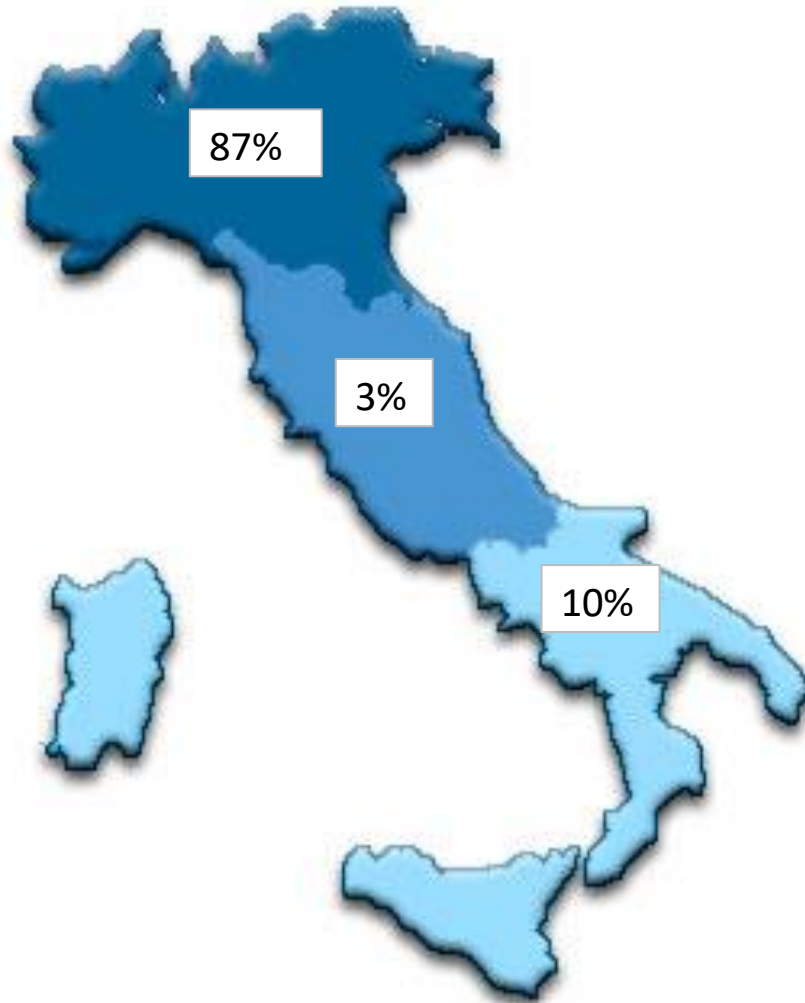
ANNO	NAZIONALI					
	CONSISTENZA		TREND FENOTIPICO			VACCHE x ALLEVAMENTO
	ALLEVAMENTI	VACCHE	LATTE KG	GRASSO %	PROTEINE %	
2014	727	7.272	6.314	4,85	3,90	10,0
2015	747	7.099	6.387	4,82	3,88	9,5
2016	751	7.009	6.521	4,93	3,94	9,3
2017	727	6.730	6.514	4,87	3,93	9,3
2018	725	6.695	6.623	4,93	3,94	9,2
2019	760	6.859	6.587	4,94	3,93	9,0
2020	773	6.701	6.794	4,86	3,91	8,7
2021	776	6.757	7.006	4,94	3,95	8,7
2022	795	7.025	7.050	4,91	3,92	8,8
2023	802	6.760	7.089	4,81	3,91	8,4
2023	805	6.380	7.089	4,81	3,91	8,4
2023	182	1.052	1.020	4,81	3,95	8,8
2023	118	6.121	1.008	4,84	3,92	8,1
2023	113	6.107	6.184	4,88	3,91	8,1
2023	180	6.828	6.281	4,84	3,93	8,0
2023	152	6.892	6.853	4,83	3,94	8,3



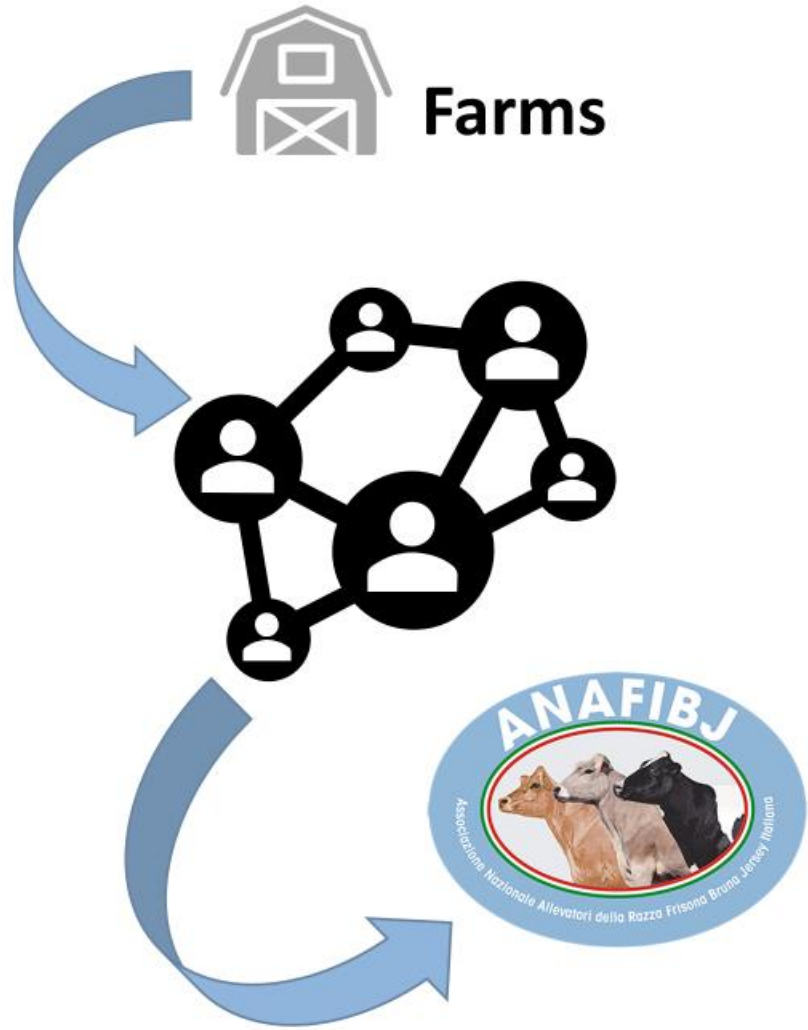
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ANAFIBJ distributed in Italy as dairy cows



DATA FLOW SYSTEM



AIA: ITALIAN BREEDERS' ASSOCIATION
Association delegated to collect data:

- Regional districts;
- Data collection of Productions, Health, Birth, Mating...

The data enter into the **ANAFIBJ database** after a series of checks. Data are the basis for the estimation of genetic indexes and services.





Knowing members and phenotypic trends of ANAFIBJ 2023

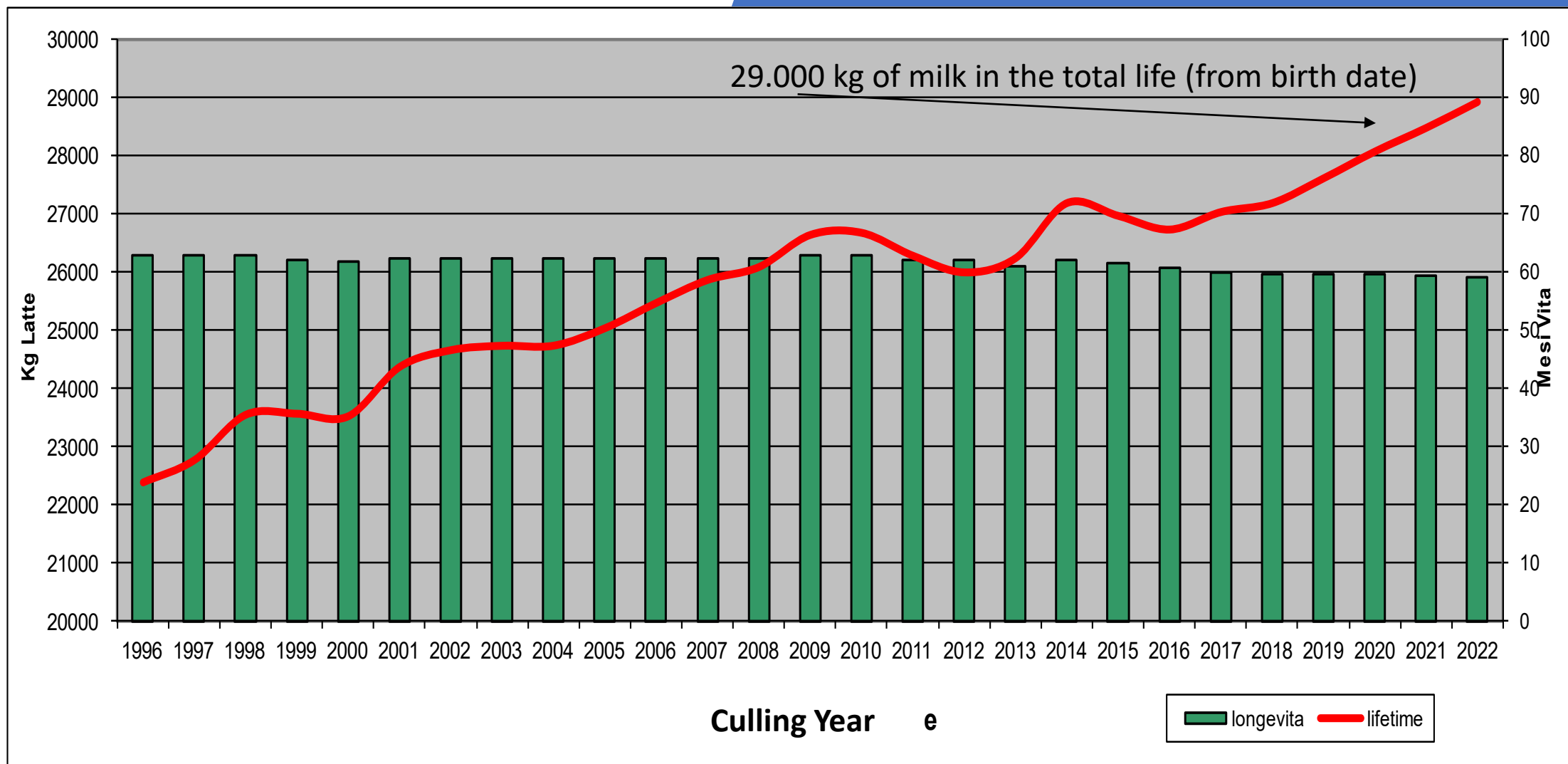
Milking cows	Herds	% on total herds	Total milking cows	% on total cows
< 20	3,020	31.2	19,729	2.1
20-100	3,604	37.2	192,946	20.9
100-200	1,785	18.4	250,110	27.1
200-400	931	9.6	255,100	27.7
400-800	285	2.9	146,924	15.9
> 800	53	0.5	57,203	6.2
Total	9,678		922,012	

13% of herds rearing 49.8% of cows





Lifetime Production of Italian Hosltein Friesian



Dairy milk production in Italy?

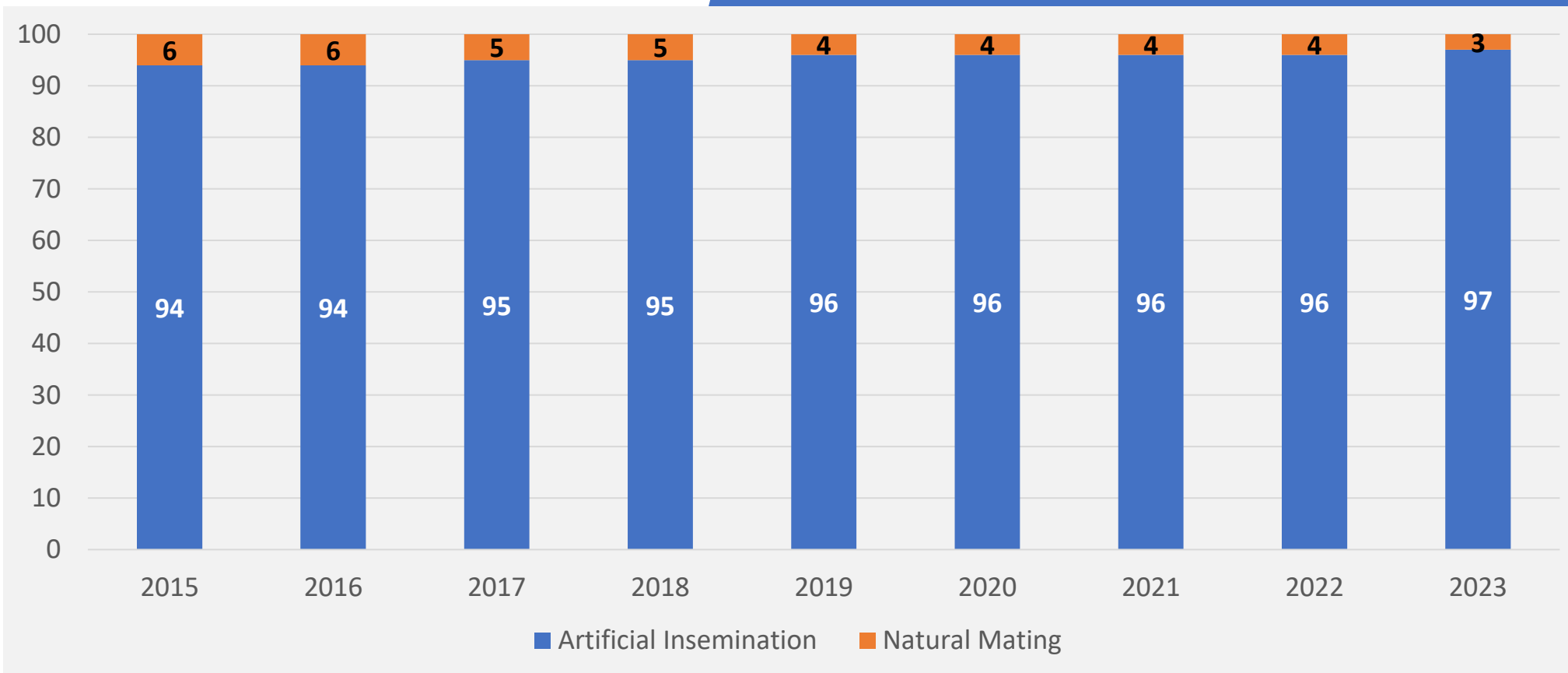
- **70% cheese production**
 - Hard cheeses
 - Parmigiano Reggiano
 - Grana Padano
 - Asiago
 - Montasio
 - Fresh cheeses
 - Mozzarella
 - Ricotta
 - Crescenza
- **30% drink milk products**





EVOLUTION OF NATURAL or ARTIFICIAL INSEMINATIONS in ITALY

(Trend of the LAST 10 years)

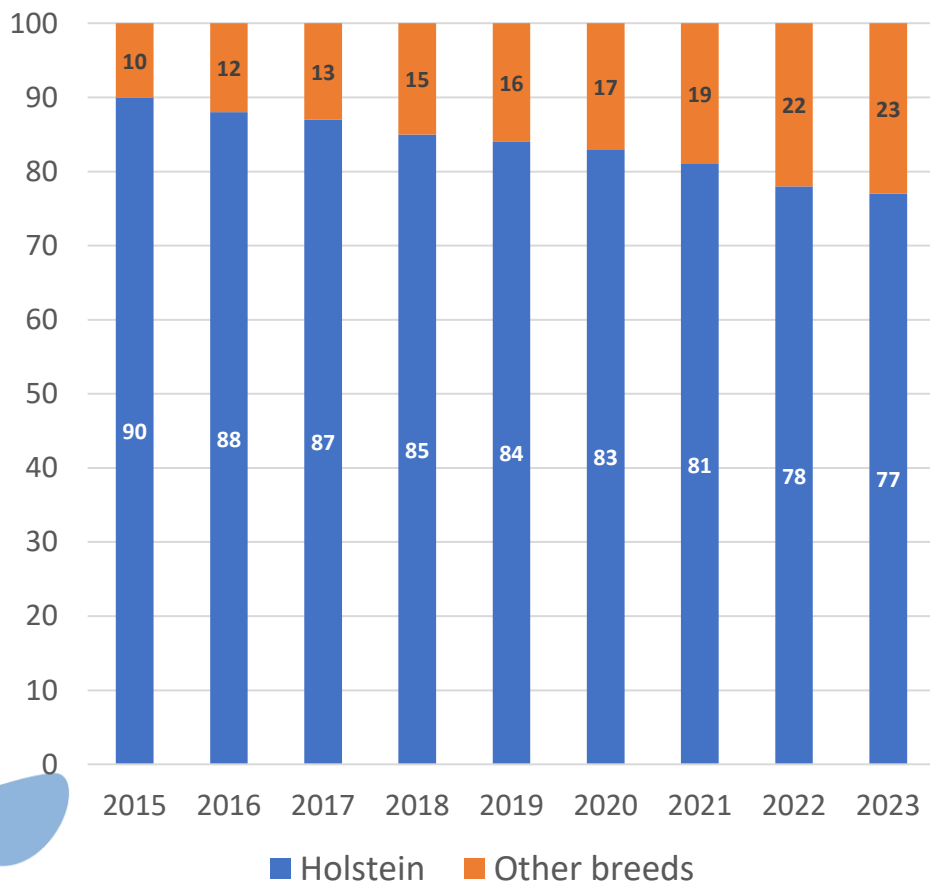


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Inseminations used by Holstein Breeders*

(LAST 10 years)



Insemination trends for other breeds

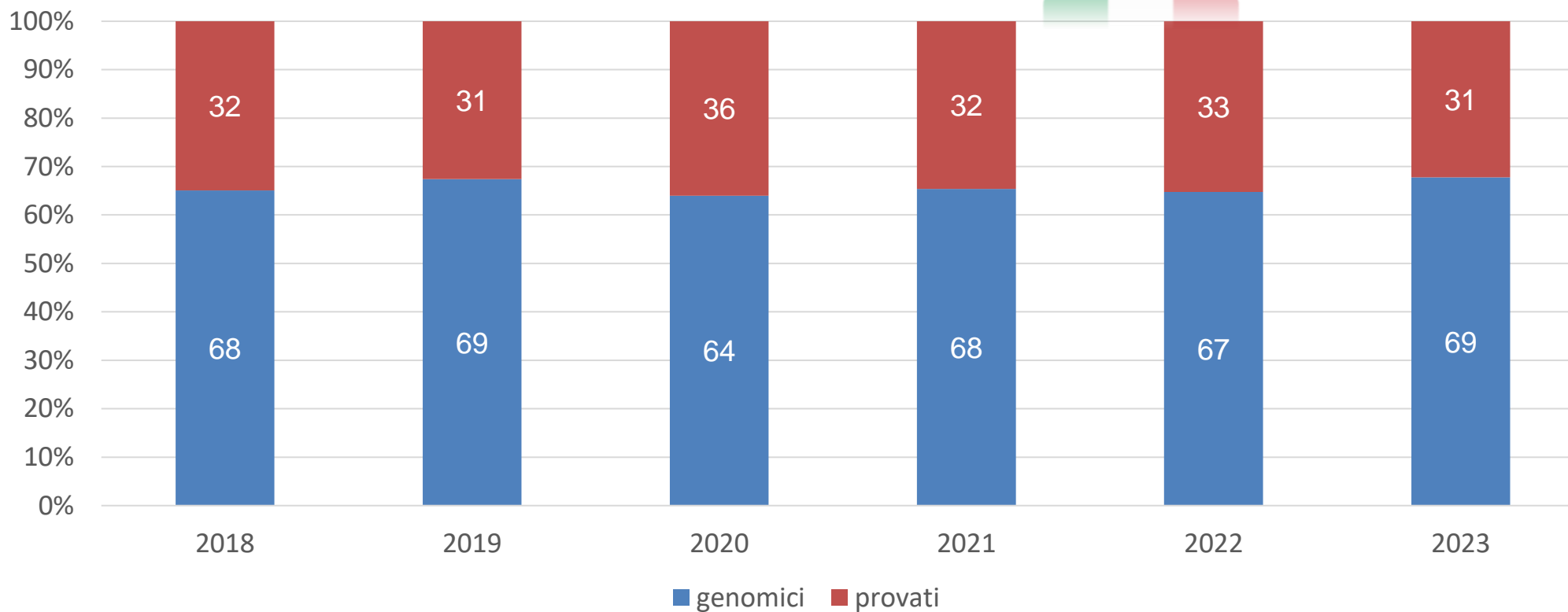


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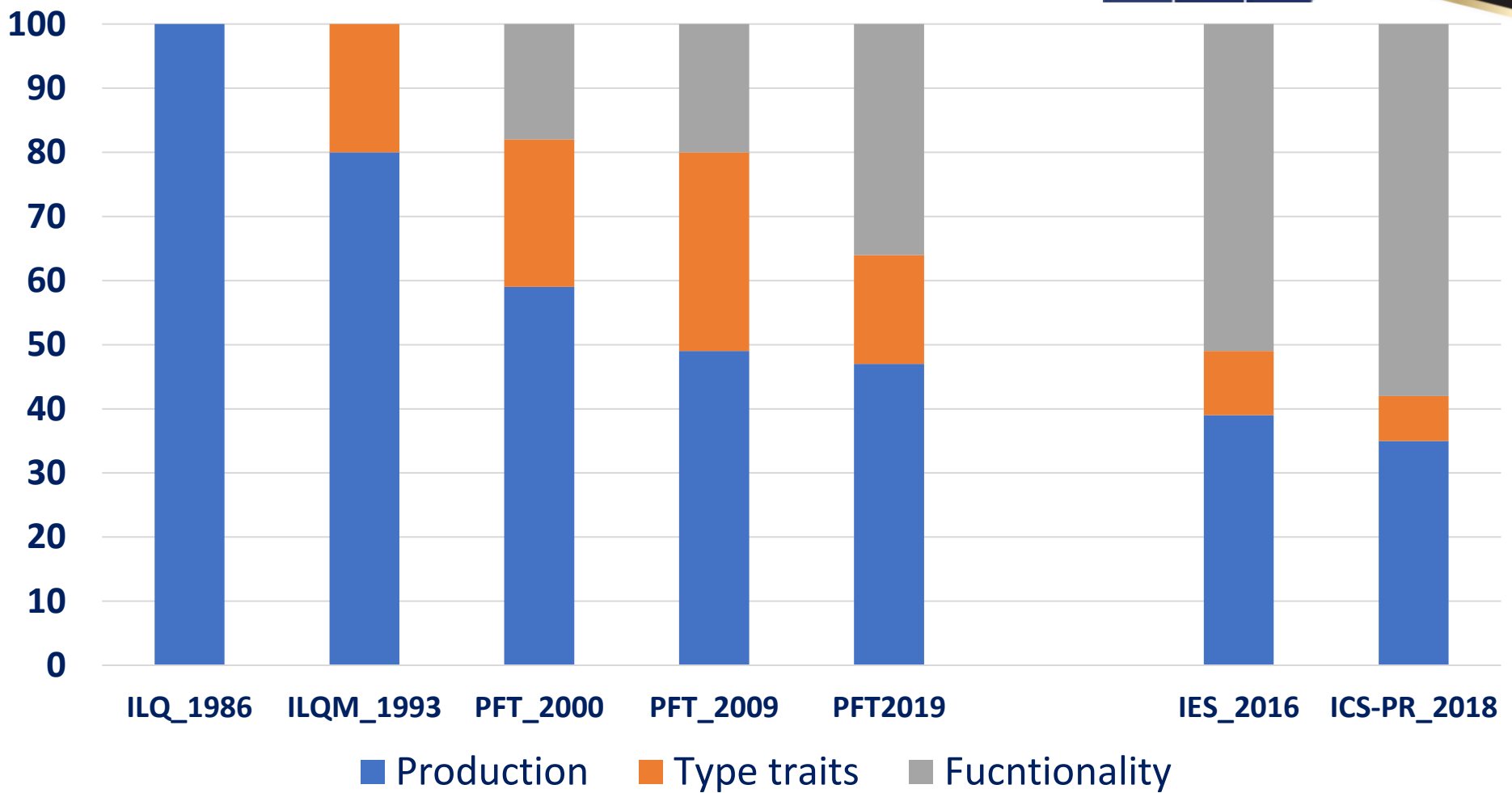
Proven Bulls vs Genomics Bulls

Insemination trends in Italy





Evolution italian breeding objectives



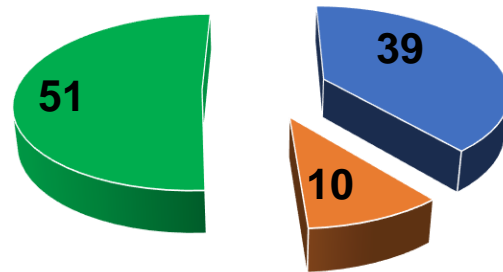
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Economic and Sustainable Indexes

■ Production ■ Type conformation ■ Functionality

Economic Health Index (2016)



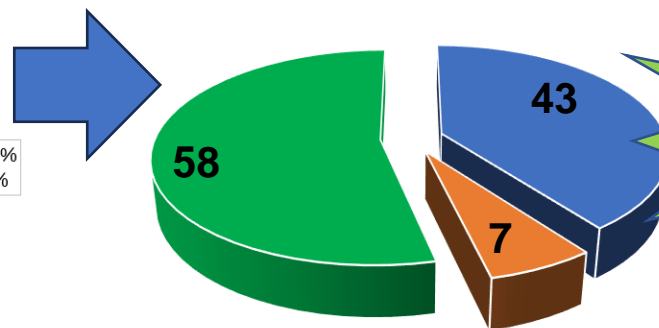
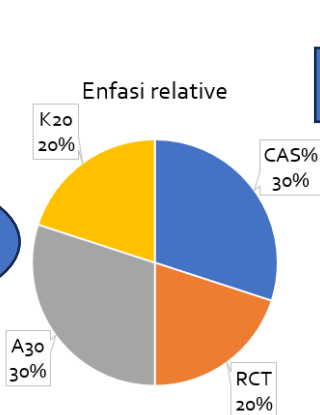
Functionality

- Longevity **21%**
- Fertility **18%**
- Somatic cells **6%**
- Calving easy **3%**
- BCS **3%**

Sustainability and cheese-making capacities Index– Parmigiano Reggiano (2018) vs 3.0



IQC 6% index



Aword K-Cas B

Penalty K-Cas E

- Fertility **15%**
- Somatic sells **14%**
- Longevity **11%**
- Calving easy **5%**
- Mastitis **5%**

BB +0,10 euro/d of milk lifetime
 B +0,05 euro/d of milk lifetime

EE -0,050 euro/d of milk lifetime
 E -0,025 euro/d of milk lifetime

Increase number of cheese wheels over time (40 kg/wheel)

**2005: 14
wheels/cow/year**

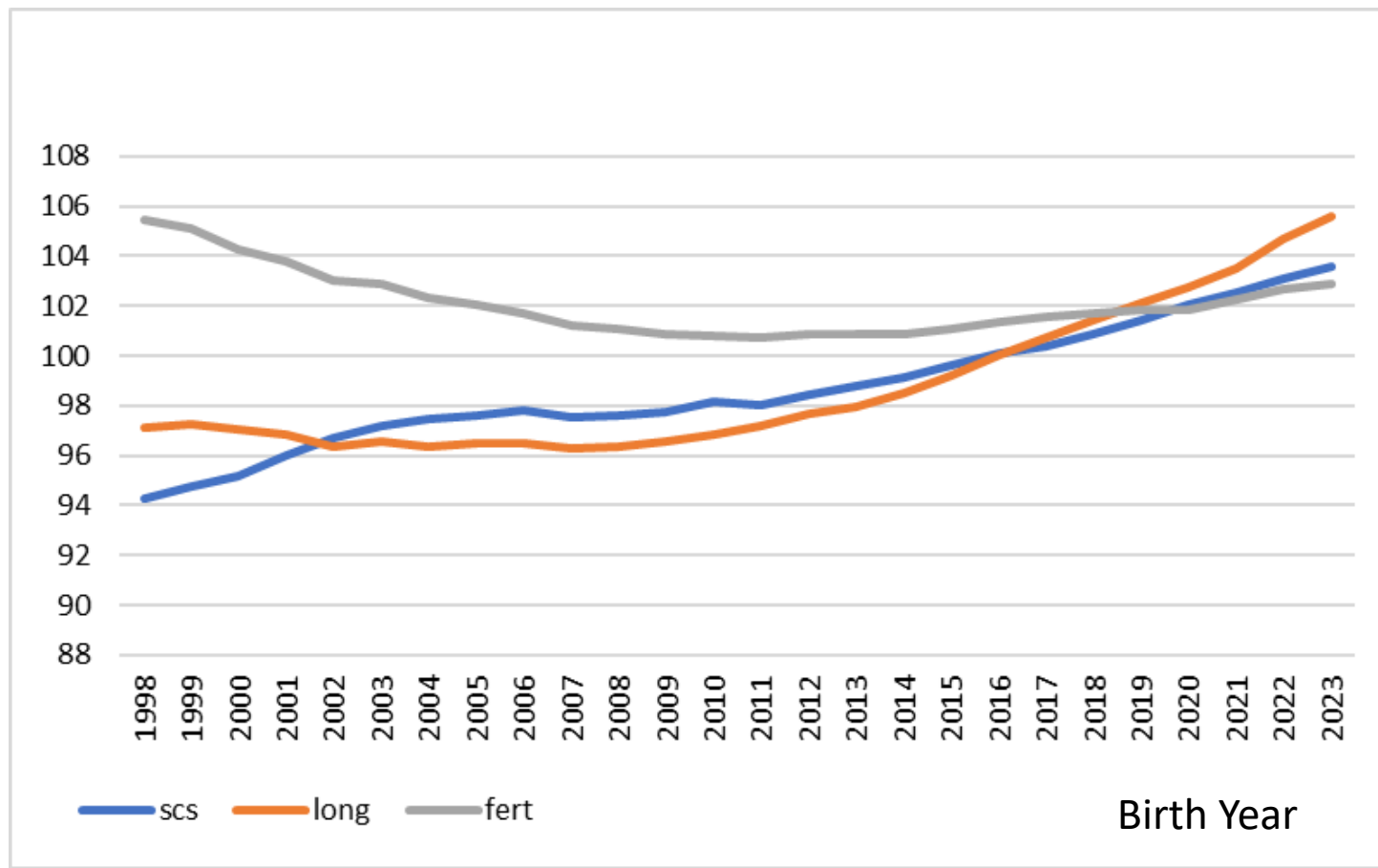
**2023: 19
wheels/cow/year**



since 2018
Introduced
ICS-PR index



Genetic trend for somatic cell count, Longevity and Fertility



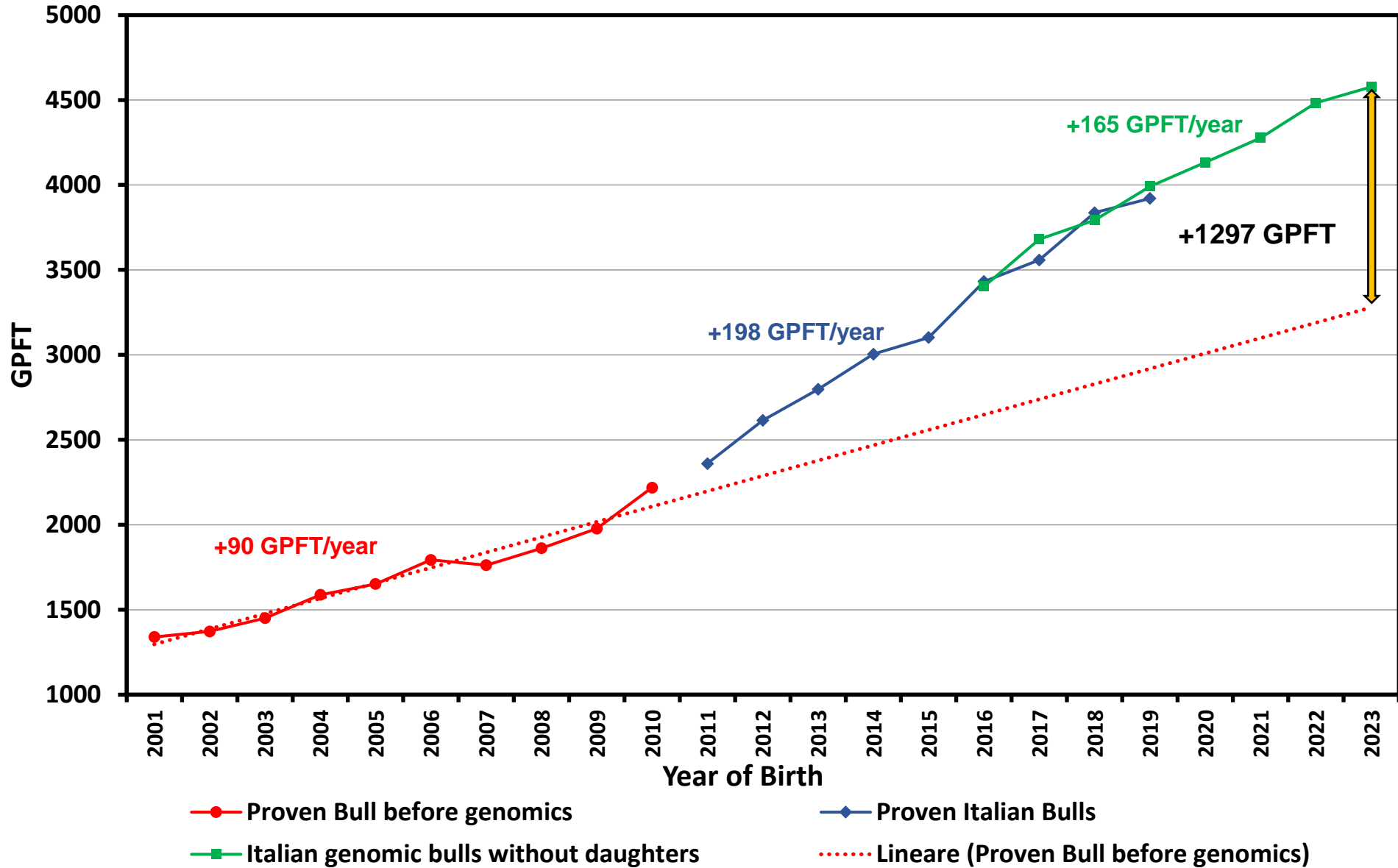
+92 productive days

-80 000 cell / mL

-14 days calving-concive

Phenotypic value of 1 1 DS of index

PFT trend 2001-2023

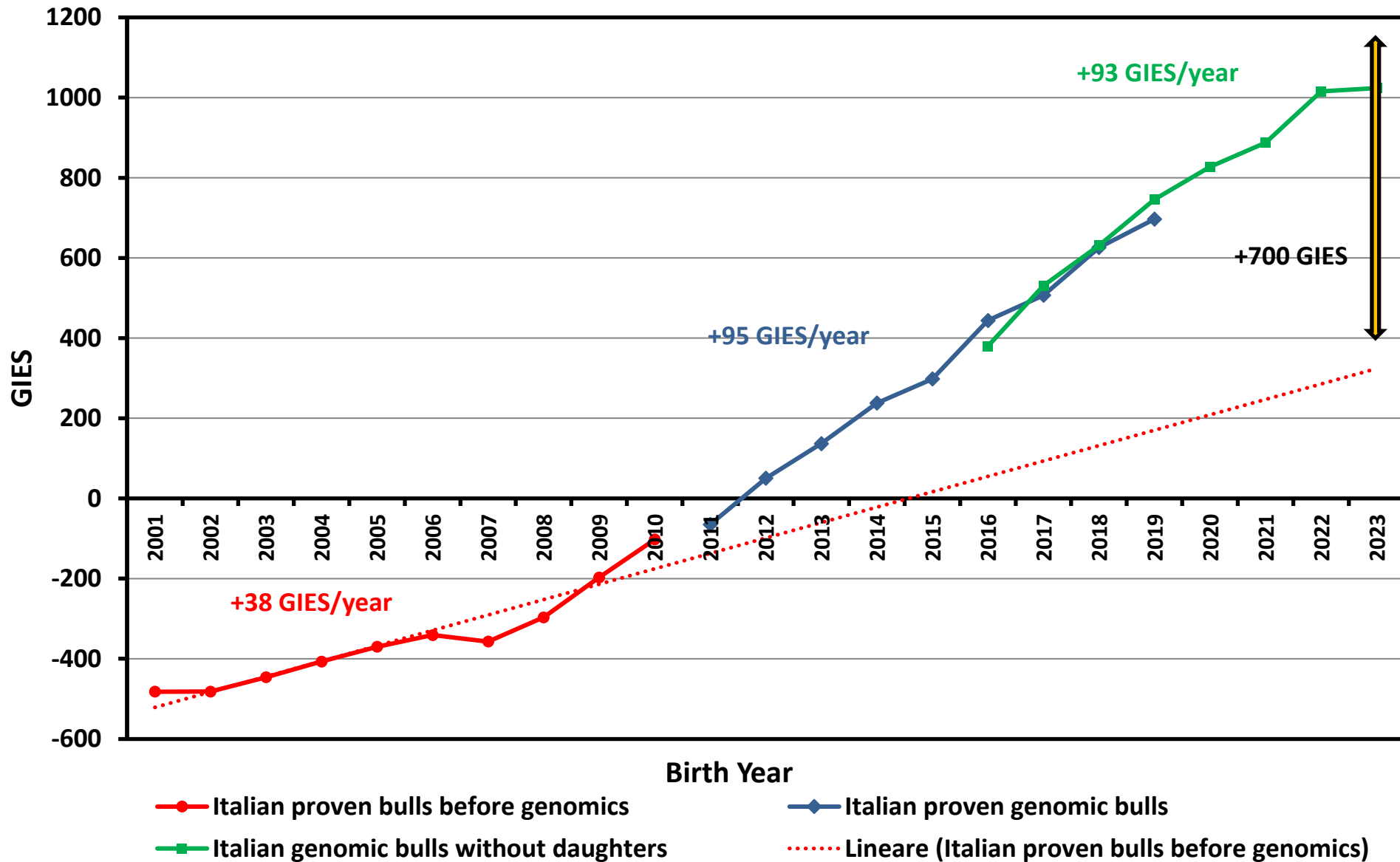




IES

Indice Economico Salute

IES trend (2021-2023)

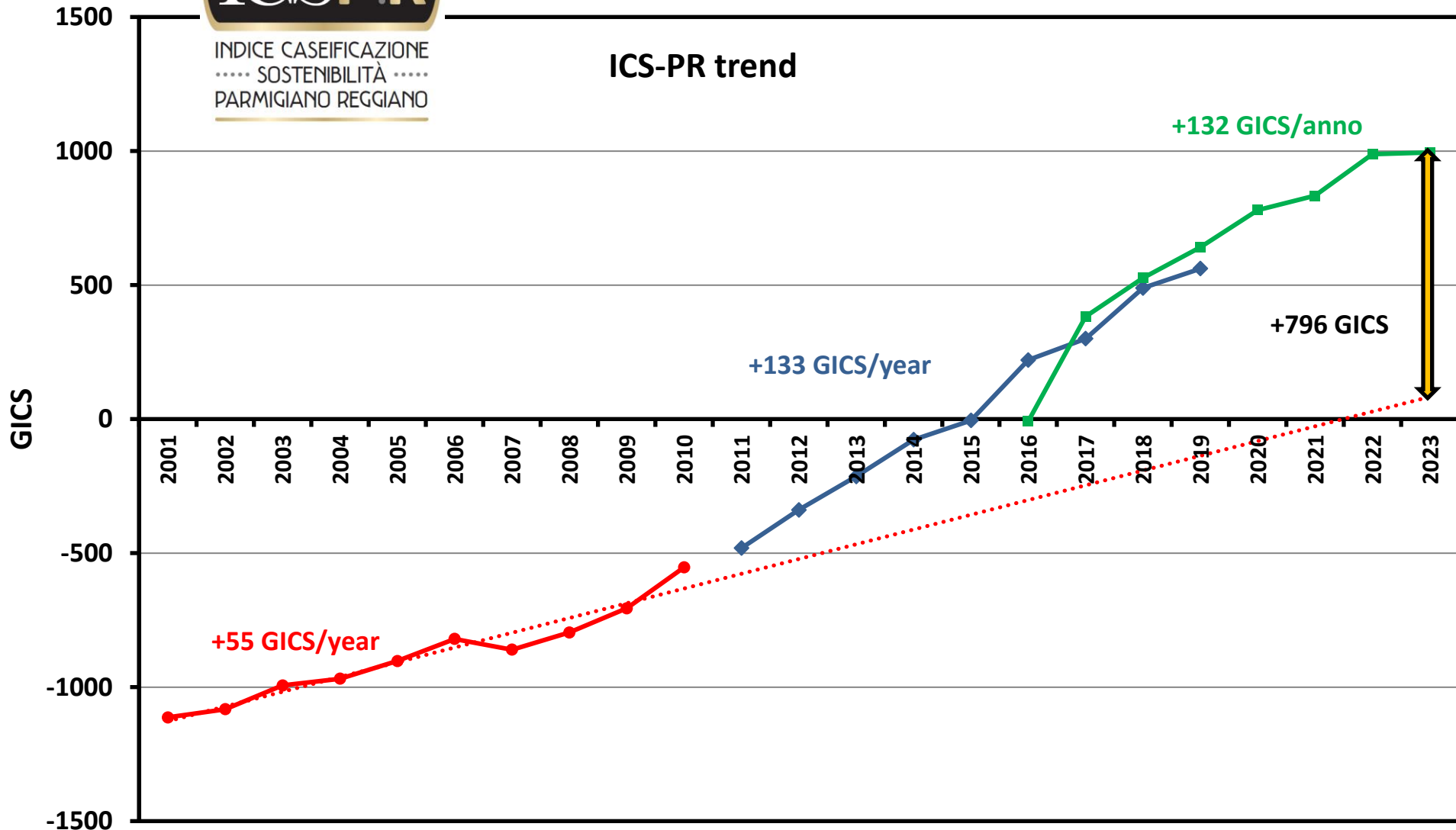


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INDICE CASEIFICAZIONE
 SOSTENIBILITÀ
 PARMIGIANO REGGIANO

ICS-PR trend



—●— Italian proven bulls before genomics

—◆— Italian proven genomic bulls

—■— Tori italiani genomici senza figlie

..... Lineare (Italian proven bulls before genomics)

+55 GICS/year

+133 GICS/year

+132 GICS/anno

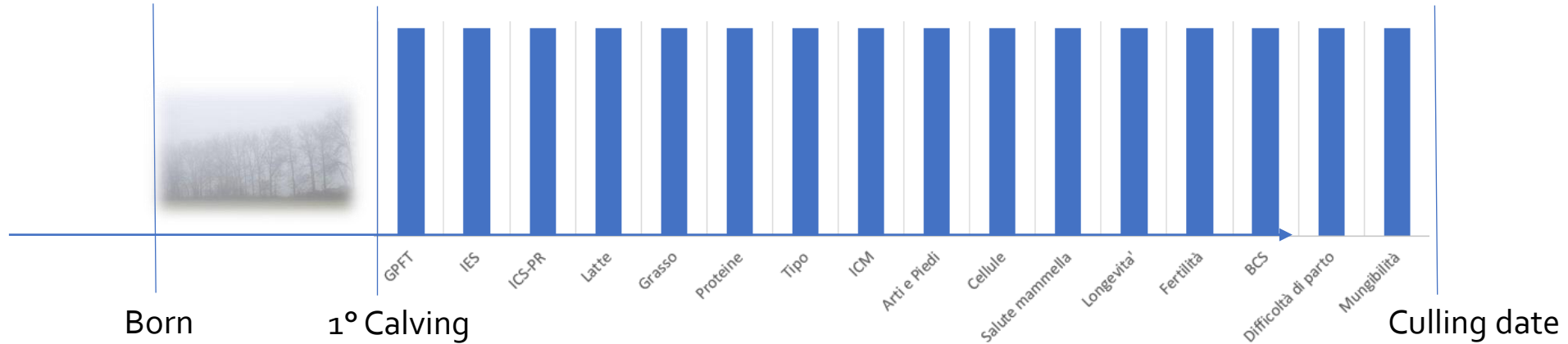
+796 GICS

GICS

Anno di nascita

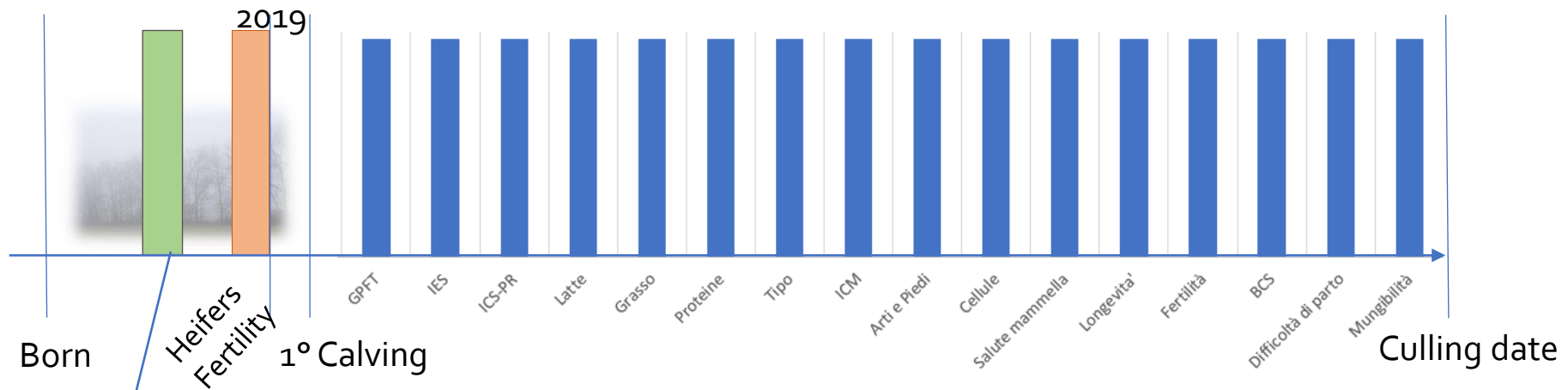
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Genetic evaluation until 2019...



50+ traits evaluated (almost all evaluated on cows)

Genetic evaluation after 2019...



Index age at first calving
 Index calving easy
 Index Stillbirth
 Index Gestation Length



Official indexes since december 2022

Index calves survival



End 2023/24





Latteco project ---ANAFIBJ approach

2018 Female fertility (cow + heifers) - 1° revision

2019 – Feed Efficiency (pFE)

2017 - MST- Udder Health index

2021

- Heat tolerance index (IHT)
- Workability index – revision (MLK)
- Automated milking index (IMA)
- Overall Udder Score index (ICM)



2024 –work in progress

- Mastitis index revision
- Heat tolerance index (female fertility)
- Sustainability index
- BFE (bull fertility index)
- PFT & IES revision

2022

- Well-Being index
- Nitrogen Index
- Age at first calving index
- Gestation length index
- Calving ease and Still-birth index

2023

- Methane Intensity index
- Heat tolerance index (M/F/P)
- Female fertility index - 2° revision
- Cheeseability index (IQC) → ICS-PR
- BHB index

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Group of traits	Total number /group	Single	Aggregate
Production	5		
Udder Health	2		
Conformation	23	20	3
Calving ease	6	4	2
Gestation Length	2		
Female Fertility	6	5	1
Persistency	1		
Workability	1		
Age at first calving	1		
Heat Tolerance	6	5	1
Enviromental impact	2		
BHB - ketosis	1		
Longevity	2		
Cheese-ability	6	5	1
Workability	1		
Nitrogen	1		
Welfare	1		
PFT; IES; ICS-PR	3		



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Group of traits	Total number /group	Single	Aggregate
Production	5		
Udder Health	2		
Conformation	23	20	3
Calving ease	6	4	2
Gestation Length	2		
Female Fertility	6	5	1
Persistency	1		



70 breeding values and 49 rounds / year

Cheese-ability	6	5	1
Workability	1		
Nitrogen	1		
Welfare	1		
PFT; IES; ICS-PR	3		

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Breeding Services for farmers



HERDS GENOCOW PGA WAM Web Anafibj Mate WEB ANAFIBJ PAC

ONLINE ONLINE SCHEDA GENEALOGICA GENOTIPIZZAZIONI DOC CATTLE SOCIETY

SERVIZI on-line ANAFIBJ

VERSATILI e SICURI

 **Chiedi consulenza ai Tecnici ANAFIBJ.**



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New Farmers Tool Modules

- Tool to optimize dairy herd replacements combining conventional, sexed and beef semen
 - Support farmers to identify annual female replacement needs
 - Based on herd performance level and combination of semen type (conventional, sex-sorted and beef semen) in order to optimized farmer economic outcome
- Tool to calculate «Global Warming Potential» at farm level
 - A simplified method for the estimation of the carbon footprint of cow milk. To be used by farmers, both as a self-assessment system, and to simulate what would happen if more indicators varied.



How does this tool work?



1) Define the number of heifers that the farm needs

2) Define the number of animals to breed with Holstein semen

3) Choose which animal to breed with Holstein semen

Materials and methods (1/2)



- We developed a beta-version to let users adapting it to their situations (approach proposed by Genex Cooperative (Ontario, CA) and adjusted to Italian herd and market conditions);
- Simulated case study with input variables below:

Variables	Unit	Input value
Cows (lactating and dry)	n	250
Breeding heifers entering the herd	n/yr	100
Annual replacement rate	%	40
Annual herd growth rate target	%	0
Heifers' safety percentage	%	10
Sex ratio (females/males) by semen type	%	47/53 (conventional and beef), 90/10 (sexed)
Calving Interval	(mo)	13
Animals not inseminated	%	2
Pregnancy loss	%	8
Stillbirth rate	%	7
Mortality from weaning to first calving	%	5

Semen type (conventional, sexed, beef) can be changed accordingly to farmer's utilisation.



Example of heifer management tool



	Situation 1		Situation 2	
	Cows	Heifers	Cows	Heifers
Number of cows (milking + dry)	250		250	
Number of breeding age heifers	100		100	
Annual cull rate	33%		33%	
Dairy conventional semen (%)	60%	20%	30%	10%
Dairy sexed semen (%)	40%	80%	0%	85%
Beef semen (%)	0%	0%	70%	5%
Annual dairy heifers needed (n.)	90		90	
Number of dairy heifers yielded	182		91	
Surplus dairy heifers (n.)	92		1	
Replacement cost on 100 L of milk	13,4 €		8,4 €	



DATA REQUESTED FOR SIMPLIFIED ASSESSMENT OF GHG EMISSIONS

Parameters	Units	Standardized estimate	Contribution to greenhouse gas emissions
Soybean individual DMI	kg DMI/d	15%	↑
Biogas	YES/NO	37%	↓
Total milk sold / UBA	kg	11%	↓
IES (Economic and Functional Index)		4%	↓
CH4 index	n	3%	↑
Pregnant cows at 120 days	%	4%	↓
Age at first calving	mo	6%	↓



Factors that more influencing the environmental impact



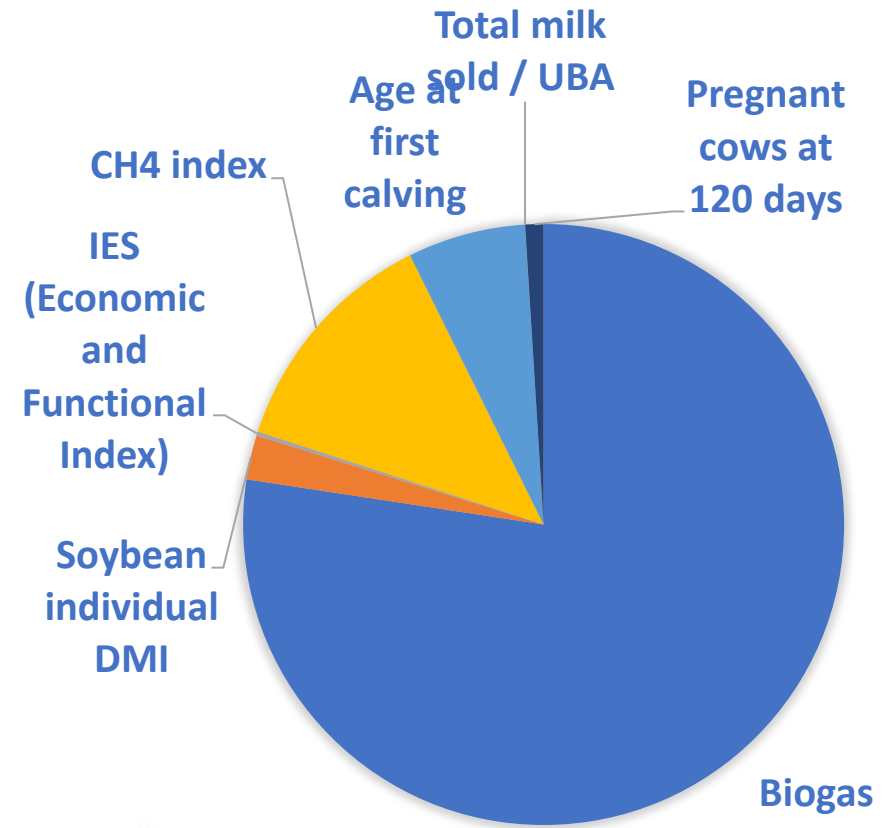
Factor worsening GWP, with a high weight:

- Soybean in lactating cows rations
- CH4 index



Mitigation strategies of GWP, with a high weight:

- Biogas
- Total milk sold / UBA
- Pregnant cows at 120 days
- IES (Economic and functional index)



Thank you



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