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DEGLI STUDI DELLA  
TUSCIA



**ICAR & INTERBULL**  
**MAY 19-24, 2024**  
**SLOVENIA**



# The use of beef semen in Italian Holstein cows

Martino Cassandro



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*Special Thanks: to Maurizio Marusi, Raffaella Finocchiaro, Chiara Franzoni, Mariasole Caccin, Mauro Penasa e Ferdinando Galluzzo, Gloria Manighetti*

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# OUTLINE

1. Italian beef market circumstances
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6. Conclusions

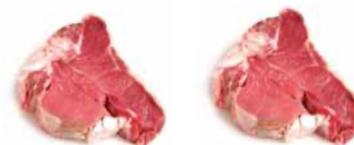




**In Italy we  
produce  
52% of beef**



**In Italy we import  
48% of beef from  
abroad**



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*Unicarve - Triveneto Beef Producers Association, 2023*



## Italian beef cattle breeders take more abroad every year

**1 billion euro**

to buy young cattle (broutard/ristalli/weaned calves) to fatten

Slaughtering year 2021 - Vitellone/Scottona (12-24 months of age)

| item                          | N. of animals         | Animals in %        |
|-------------------------------|-----------------------|---------------------|
| Born in Italy                 | 479.973               | 33.54               |
| <b><u>Imported abroad</u></b> | <b><u>951.064</u></b> | <b><u>66.46</u></b> |
| Total need for Italy market   | 1.431.037             | 100                 |

**Year 2021:** The number of young cattle purchased abroad to be fattened in Italy n. 951,064 x approximately 1,200 euros/head  
**= Euro 1,141,276,800**





## INCREASE THE WEANED CALVES PRODUCED IN ITALY IN COLLABORATION WITH DAIRY COW BREEDERS!



- *Stipulate supply chain commercial agreements*
- *Use of sexed semen for internal replacement (dairy cow herds)*
- *Use of semen from beef bulls to obtain beef crossbreeds*
- *Application of quality and sustainability regulations*
- *Organize collection of unweaned calves in collection centers*
- *Organization of weaning centers*
- *Fattening in protected stables*
- *Certification of fattened cattle and use of the brand of Italian consortia*





# OUTLINE



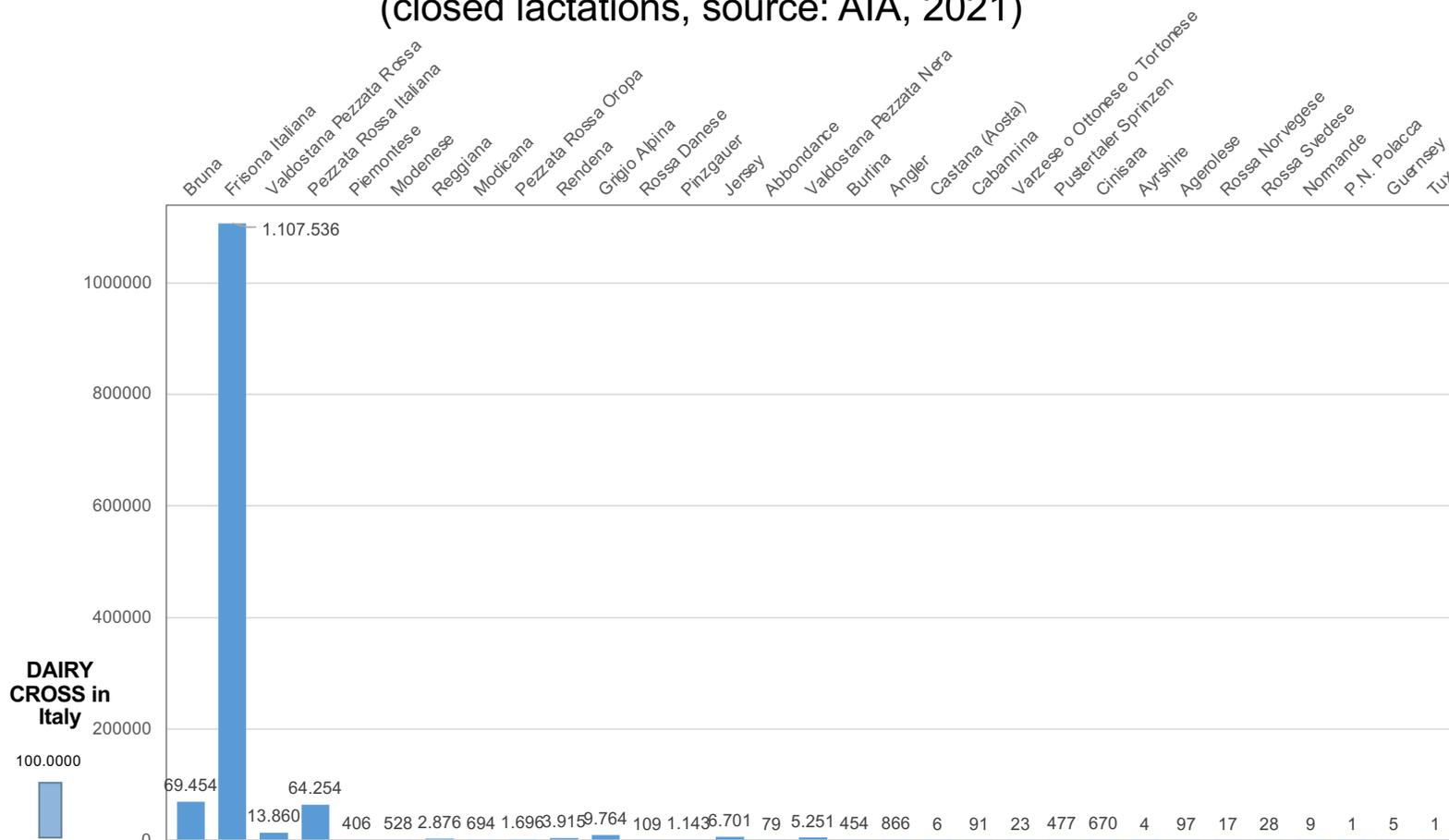
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## Italian dairy cattle skyline

### 31 dairy cattle breeds in milk recordings (closed lactations, source: AIA, 2021)



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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/yea



| Records processed (2023)        | Numbers    |
|---------------------------------|------------|
| Pedigree data-records           | 20,863,419 |
| Cow lactation records           | 32,822,933 |
| Evalutaiotn 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      |

ANAFIBJ is one  
of the 15  
members  
of FEDANA



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# Italian 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   | <b>1</b> | 7.990.000        | <b>5</b> | 1.000.000             | <b>6</b> | 12%  |
| France          | <b>2</b> | 2.674.000        | <b>2</b> | 1.244.946             | <b>4</b> | 46%  |
| Germany         | <b>3</b> | 2.345.673        | <b>1</b> | 1.656.116             | <b>3</b> | 71%  |
| United Kingdom  | <b>4</b> | 1.600.000        | <b>6</b> | 650.000               | <b>5</b> | 41%  |
| <b>ITALY</b>    | <b>5</b> | <b>1.500.000</b> | <b>4</b> | <b>1.148.705</b>      | <b>2</b> | <b>77%</b>                                 |
| The Netherlands | <b>6</b> | 1.152.495        | <b>3</b> | 1.152.495             | <b>1</b> | 100%                                       |

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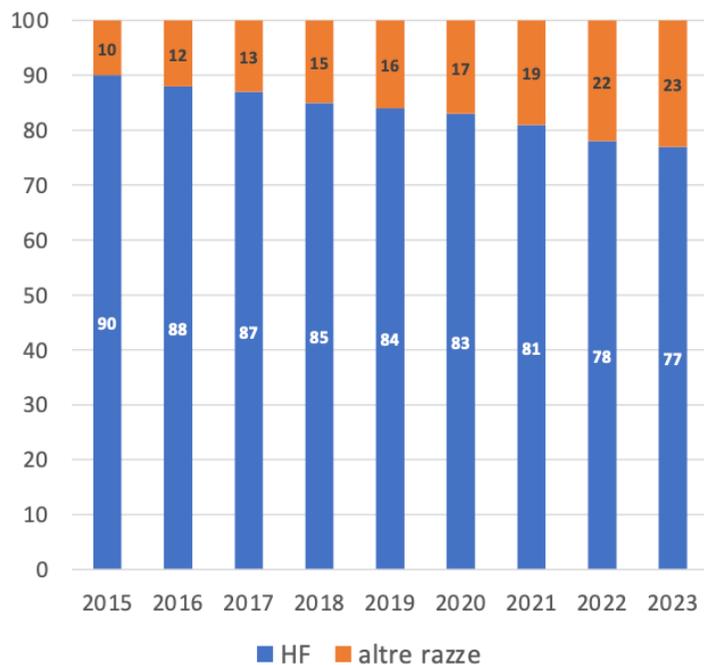
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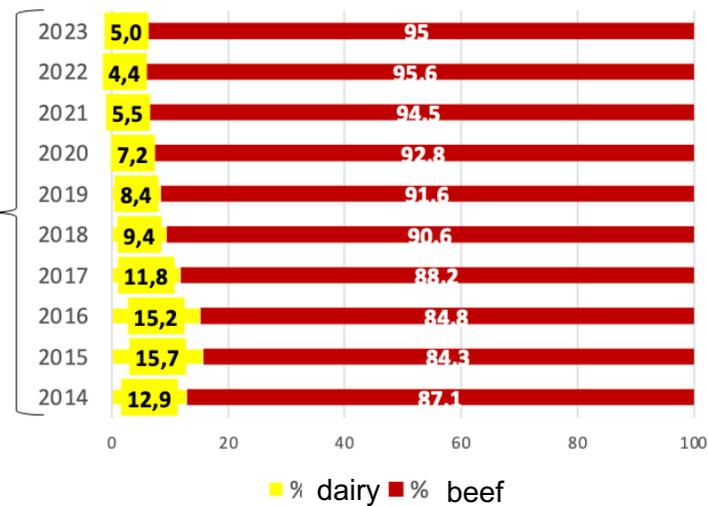


# Crossbreeding and Beef on Dairy in Italian HF population



In 2030 we expected a 34% (trend is +1.6% per year)

Trend of inseminations with dairy-not-HF and beef breeds

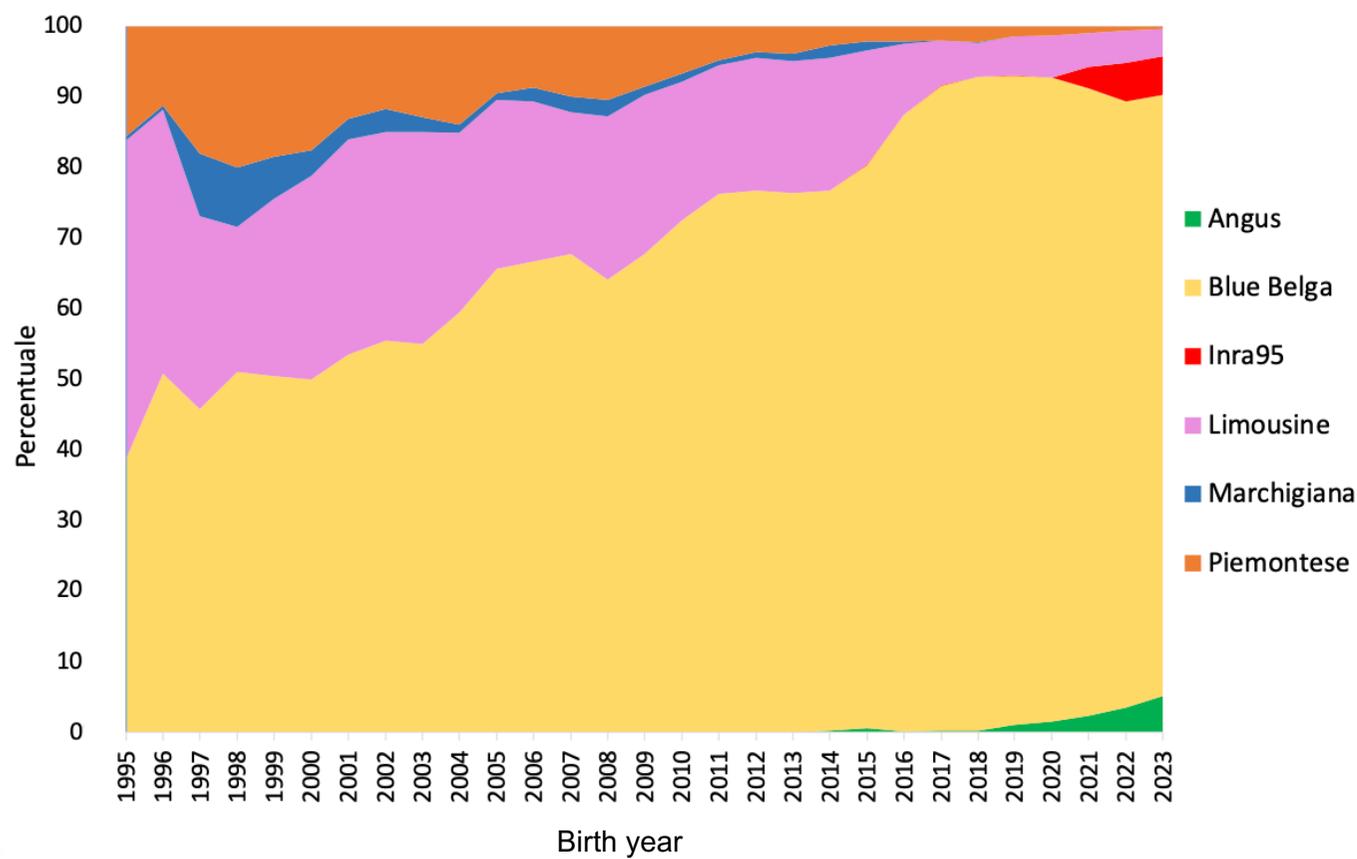


Official data available on the Anafibj Ddatabase, 2024

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## Trend of breed of sire use for BoD in Italian Holstein population



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## Market average Value of males and females calves of different genotypes, (Trento province, FPA-TN)

|                                       |  | Breed                  | Avg. weight | Mean /Euro/kg | Average value |                       |
|---------------------------------------|--|------------------------|-------------|---------------|---------------|-----------------------|
| <b>Avg.<br/>3,1<br/>Euro<br/>/ kg</b> |  | Holstein Friesian (HF) | 62,9        | €2,07         | €144,94       | P<br>U<br>R<br>E      |
|                                       |  | Brown Swiss (BS)       | 71,1        | €1,75         | €124,67       |                       |
|                                       |  | Simmental (Sim)        | 72,8        | €4,50         | €327,79       |                       |
|                                       |  | Rendena                | 70,7        | €3,64         | €257,23       |                       |
|                                       |  | Alpine Grey (AG)       | 73,3        | €3,65         | €267,65       |                       |
| <b>Avg.<br/>6,4<br/>Euro<br/>/kg</b>  |  | BB x Brown Swiss       | 72,9        | €6,48         | €472,63       | C<br>R<br>O<br>S<br>S |
|                                       |  | BB x Holstein Friesian | 72,7        | €5,58         | €405,66       |                       |
|                                       |  | BB x Simmental         | 73,6        | €7,42         | €545,70       |                       |
|                                       |  | BB x Rendena           | 73,5        | €6,70         | €492,59       |                       |
|                                       |  | BB x Alpine Grey       | 73,7        | €6,67         | €491,33       |                       |
|                                       |  | Lim x Brown Swiss      | 72,7        | €5,44         | €395,40       |                       |

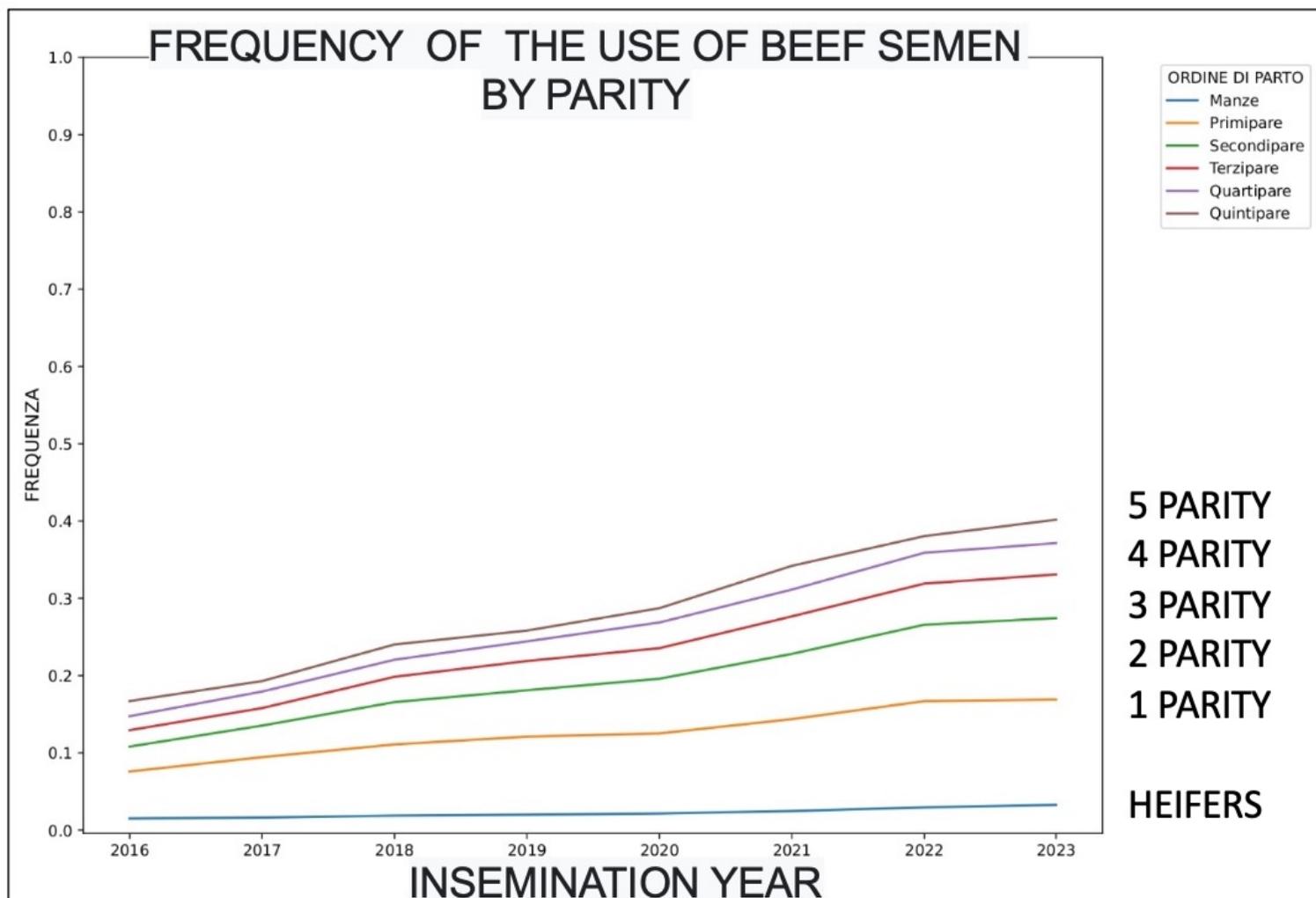


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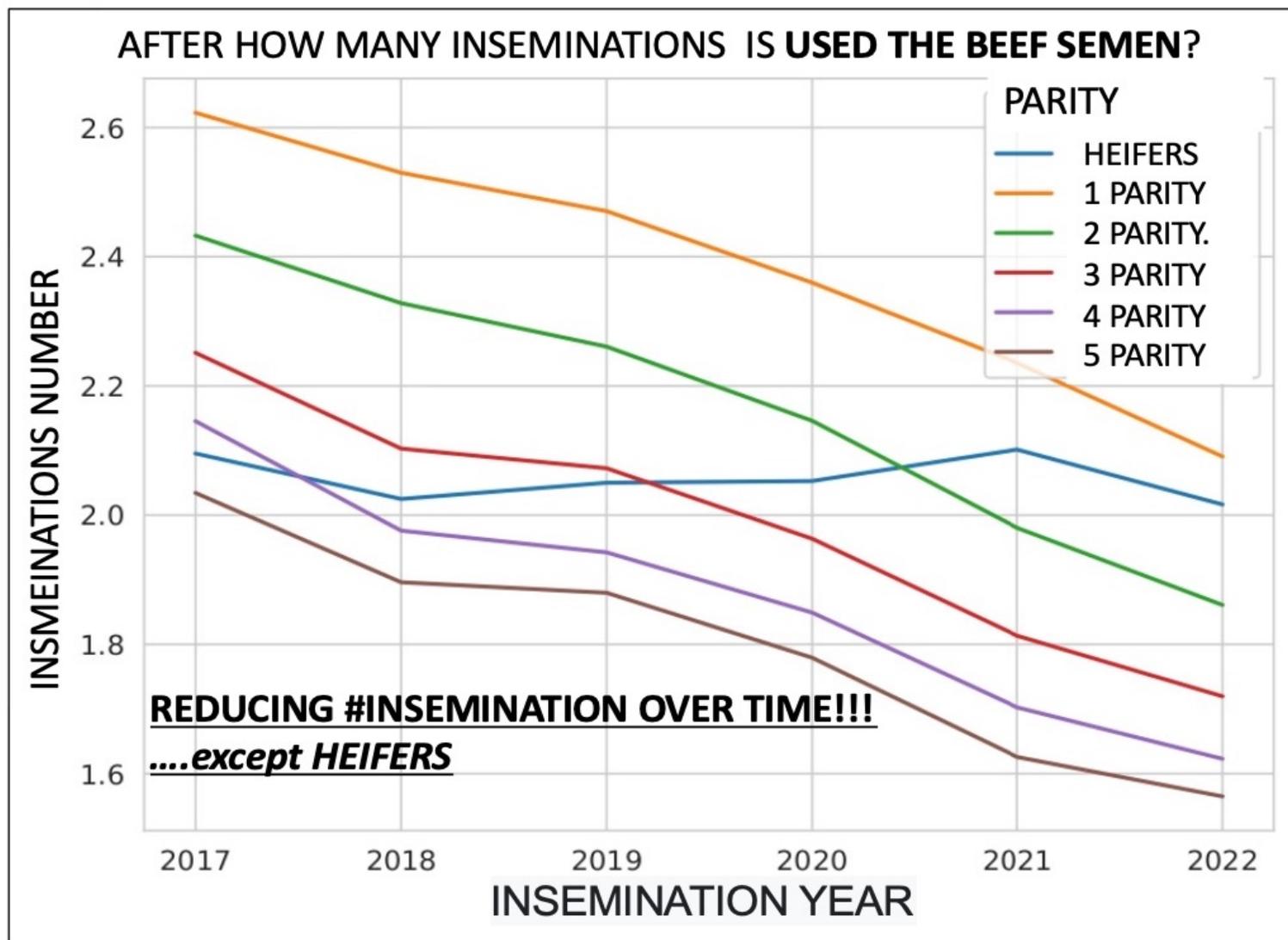
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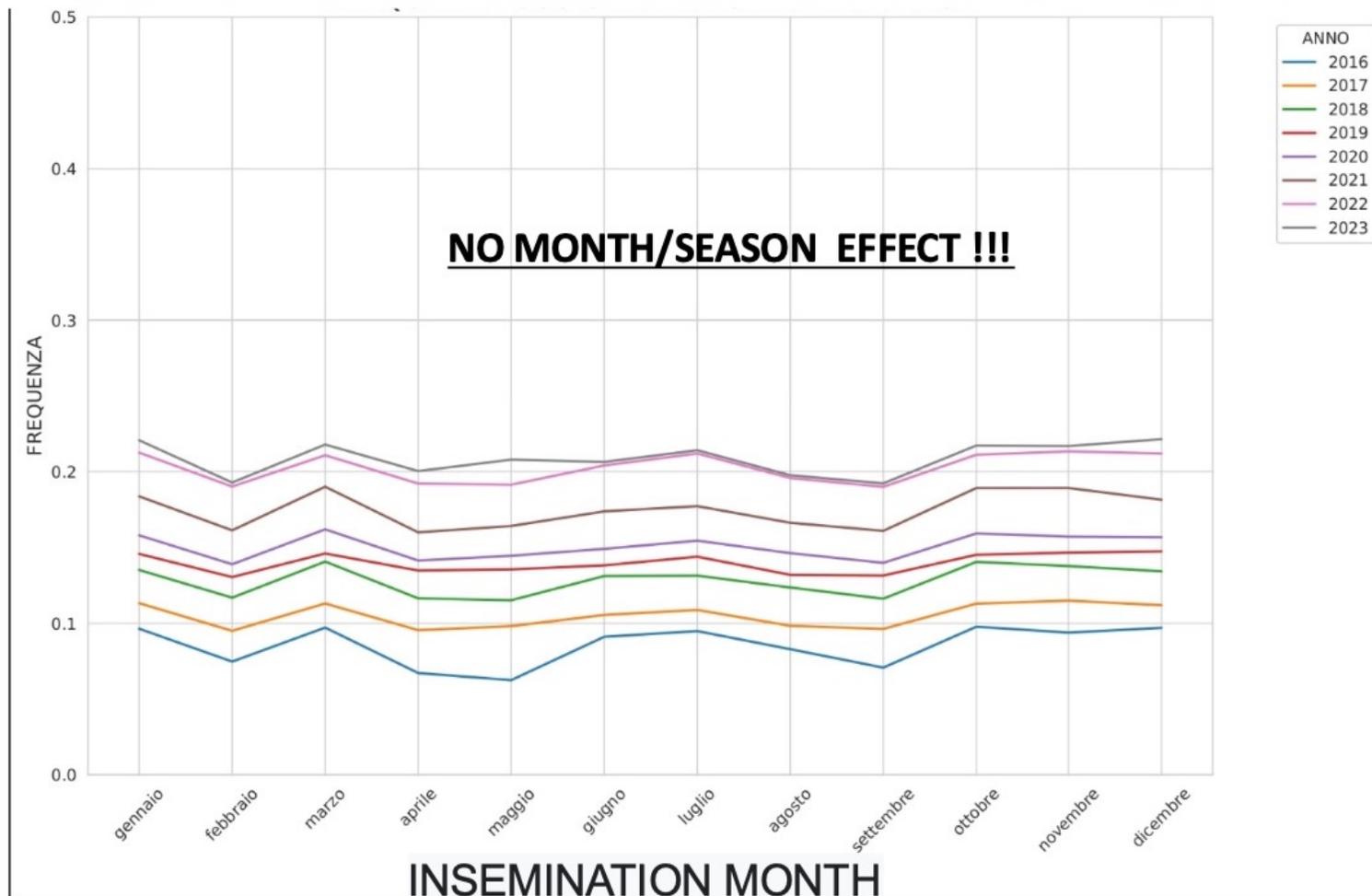


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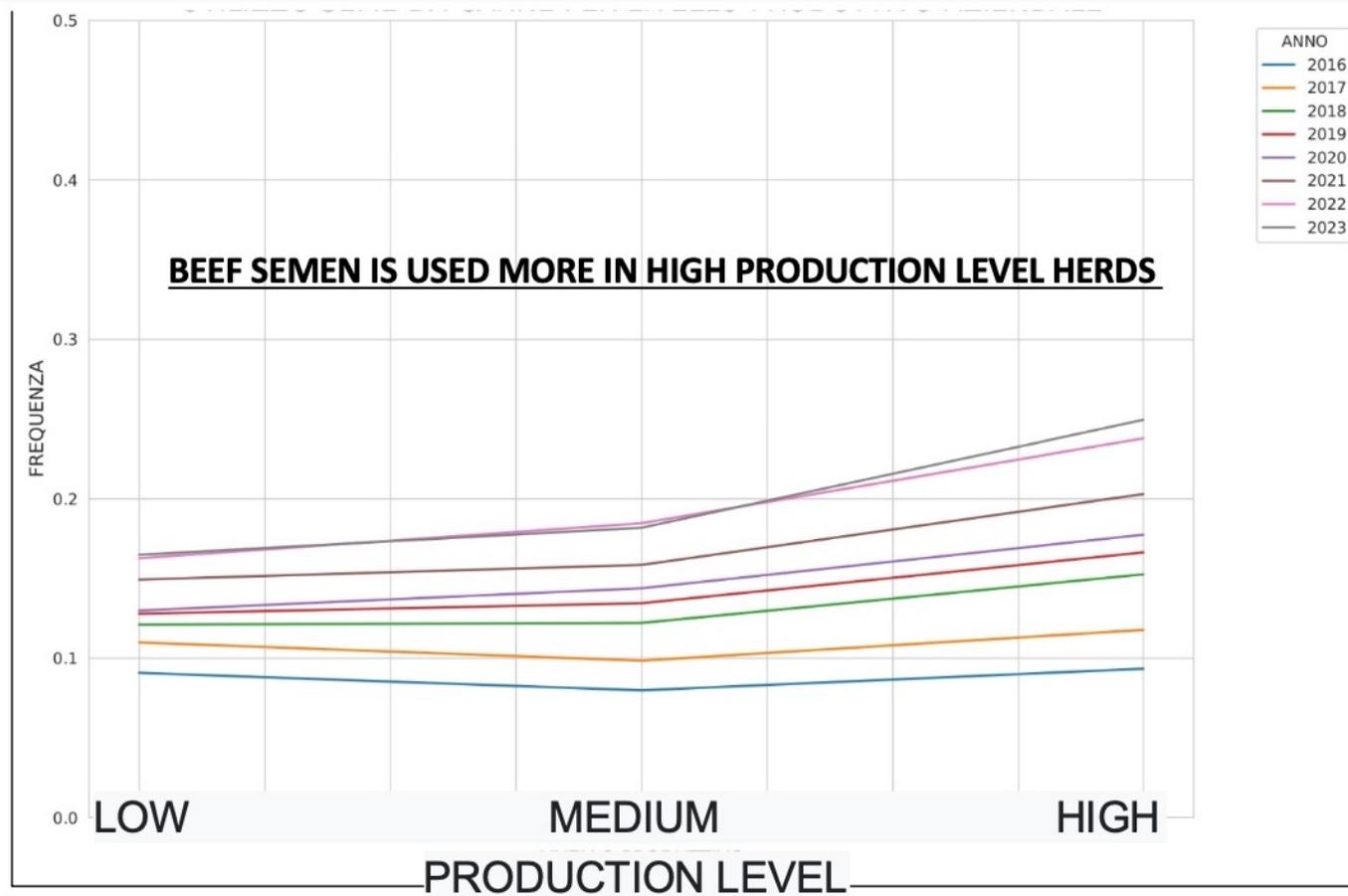
## FREQUENCY OF THE USED OF BEEF SEMEN PER MONTH



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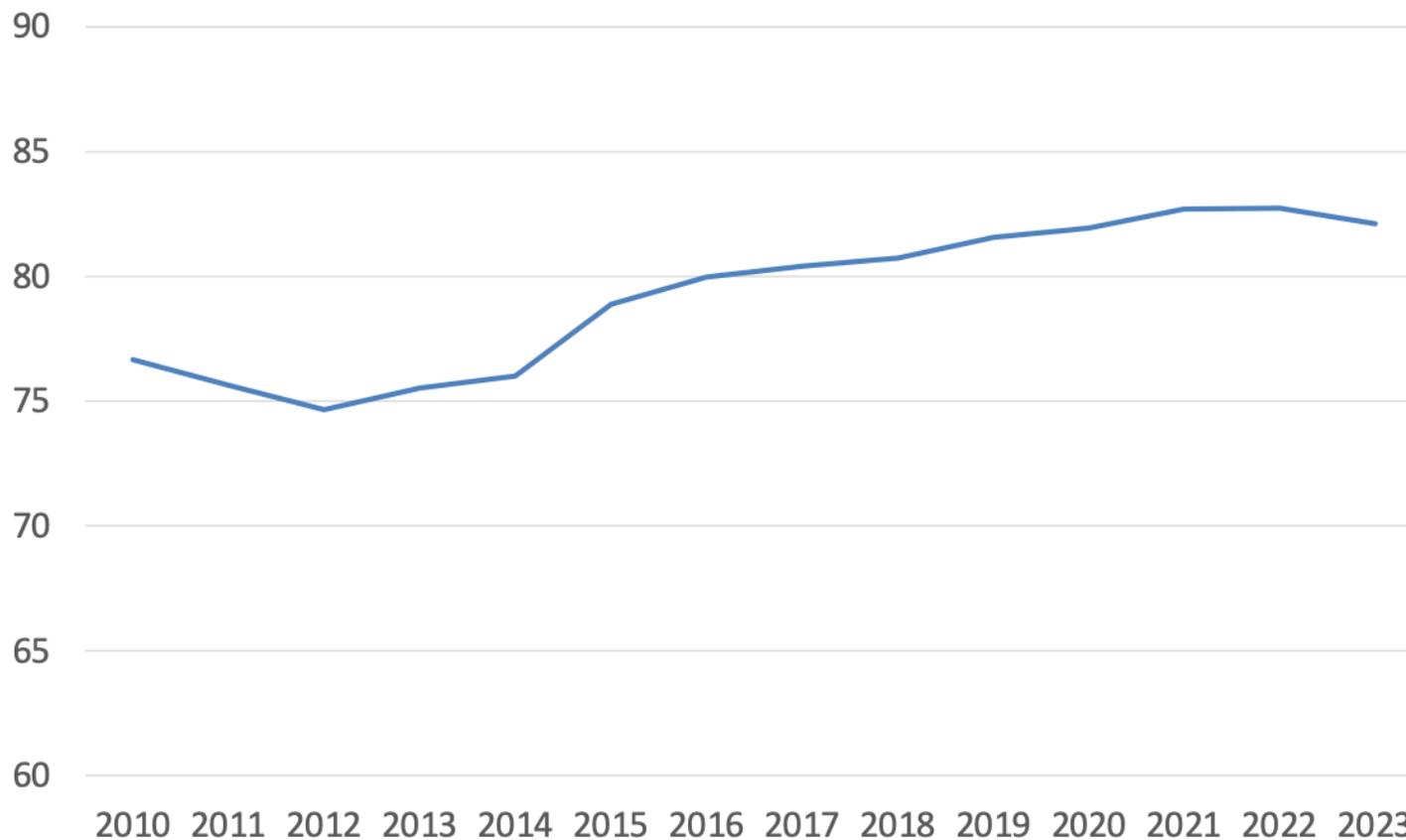
## FREQUENCY OF THE USED OF BEEF SEMEN PER PRODUCTION LEVEL



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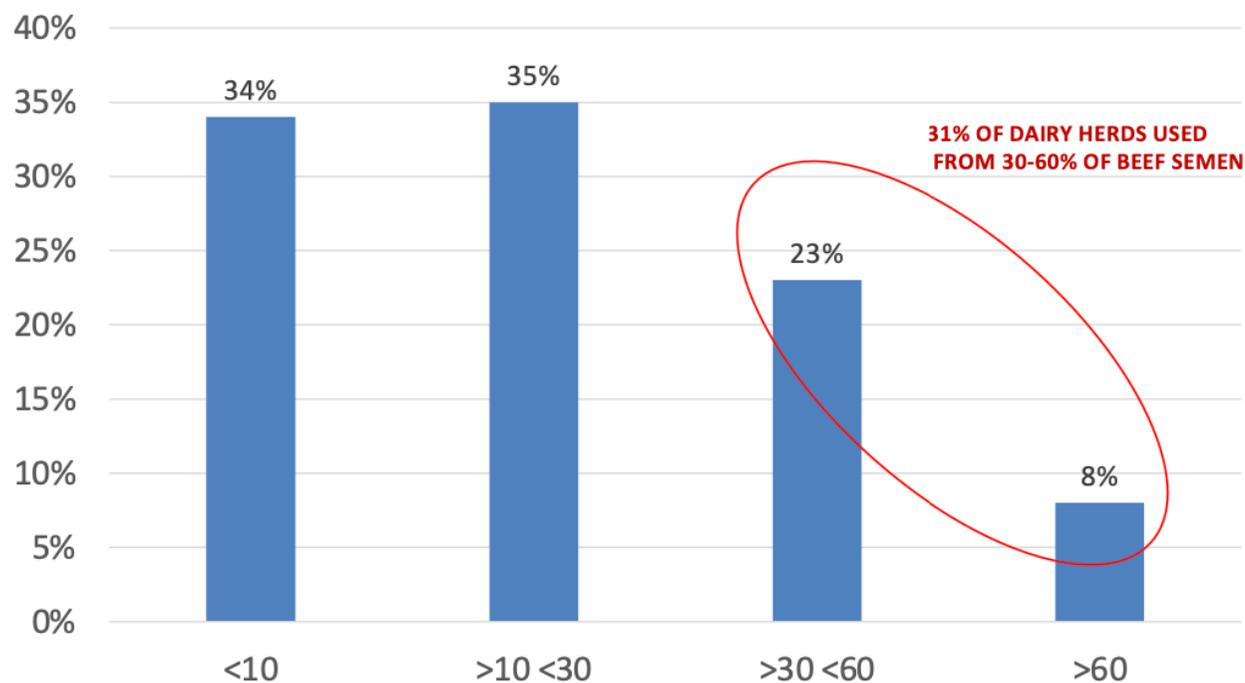
Trend of dairy herds using beef semen (%)



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## % of dairy herd for % of beef semen used



DAIRY HERDS classes for % of use BEEF semen within Holstein in official HB data of ANAFIBJ

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## **BREED EFFECT analyses for STILLBIRTH, CALVING EASY and GESTION LENGTH EDITING**

***Starting observations (calvings) = 949,409***

Editing:

- delete sire breeds which recorded a frequency <1%, i.e., Maremmana (30), Podolica (34) and Romagnola (69);
- delete cows for which we did not know date of birth;
- retention of cows born from 1985 onwards;
- retention of **calves born between 1995 and 2023**
- retention of parity orders from 1 to 10. Parities  $\geq 5$  were grouped in one class ('5');
- retention of records with the following **age at calving within parity**:
  - $18 \leq \text{cow age} \leq 40$  for parity = 1
  - $30 \leq \text{cow age} \leq 58$  for parity = 2
  - $42 \leq \text{cow age} \leq 76$  for parity = 3
  - $54 \leq \text{age of cow} \leq 94$  for parity = 4
  - cow age = any for parity  $\geq 5$
- retention of **herds for which the number of parity was  $\geq 50$**  distributed over at least 5 years.

***Final observations (calvings) = 807,985.***

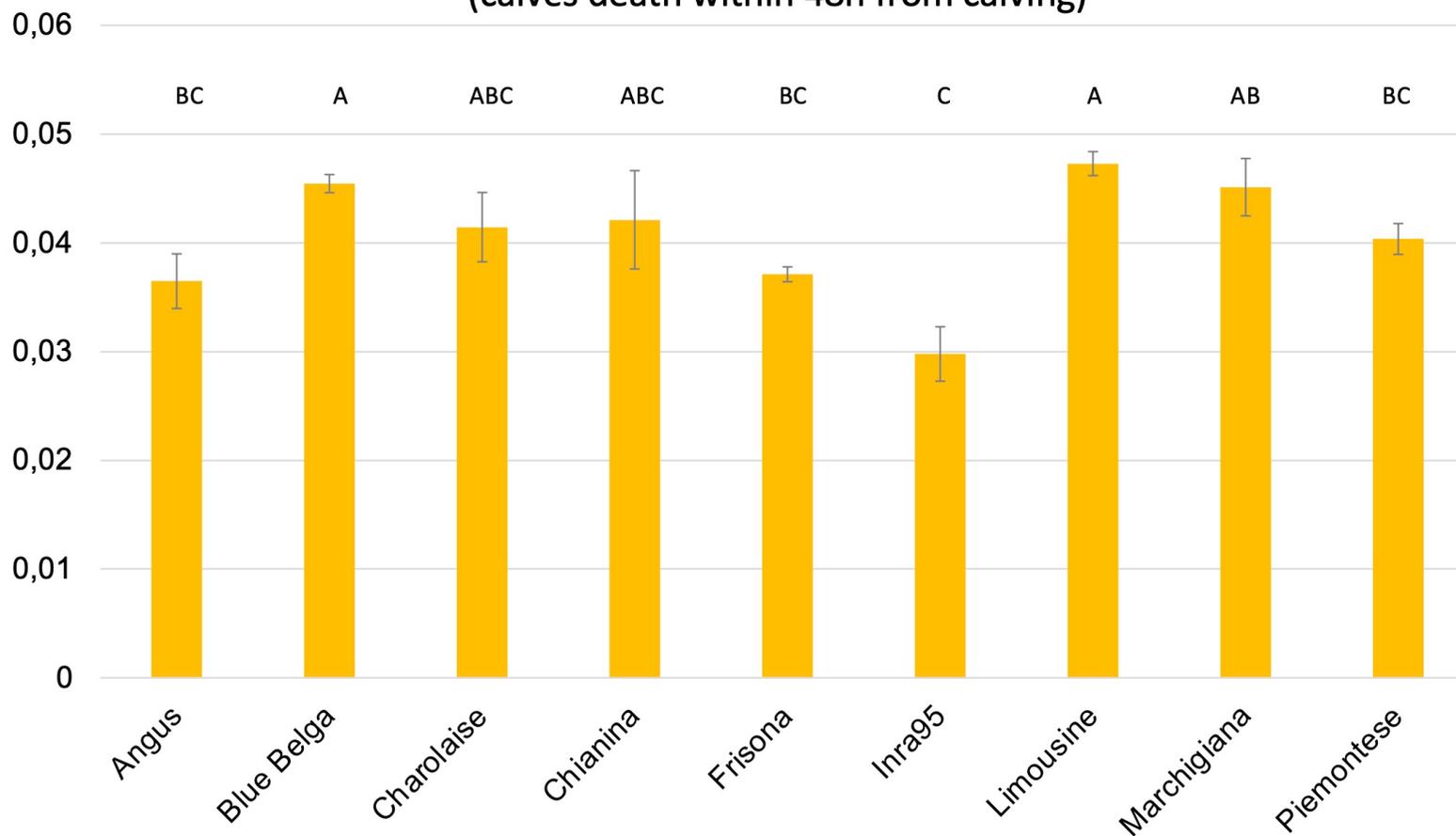
USING A GLINMIX PROCEDURE (SAS)

`Y = birth_year_calf +calf_season +sire_breed +sex +parity +herd +cow (as random)`



## Stillbirth

(calves death within 48h from calving)



$P < 0.001$

**Belgian Blue, Limousine and Marchiana >> Inra95, Holstein, Angus**

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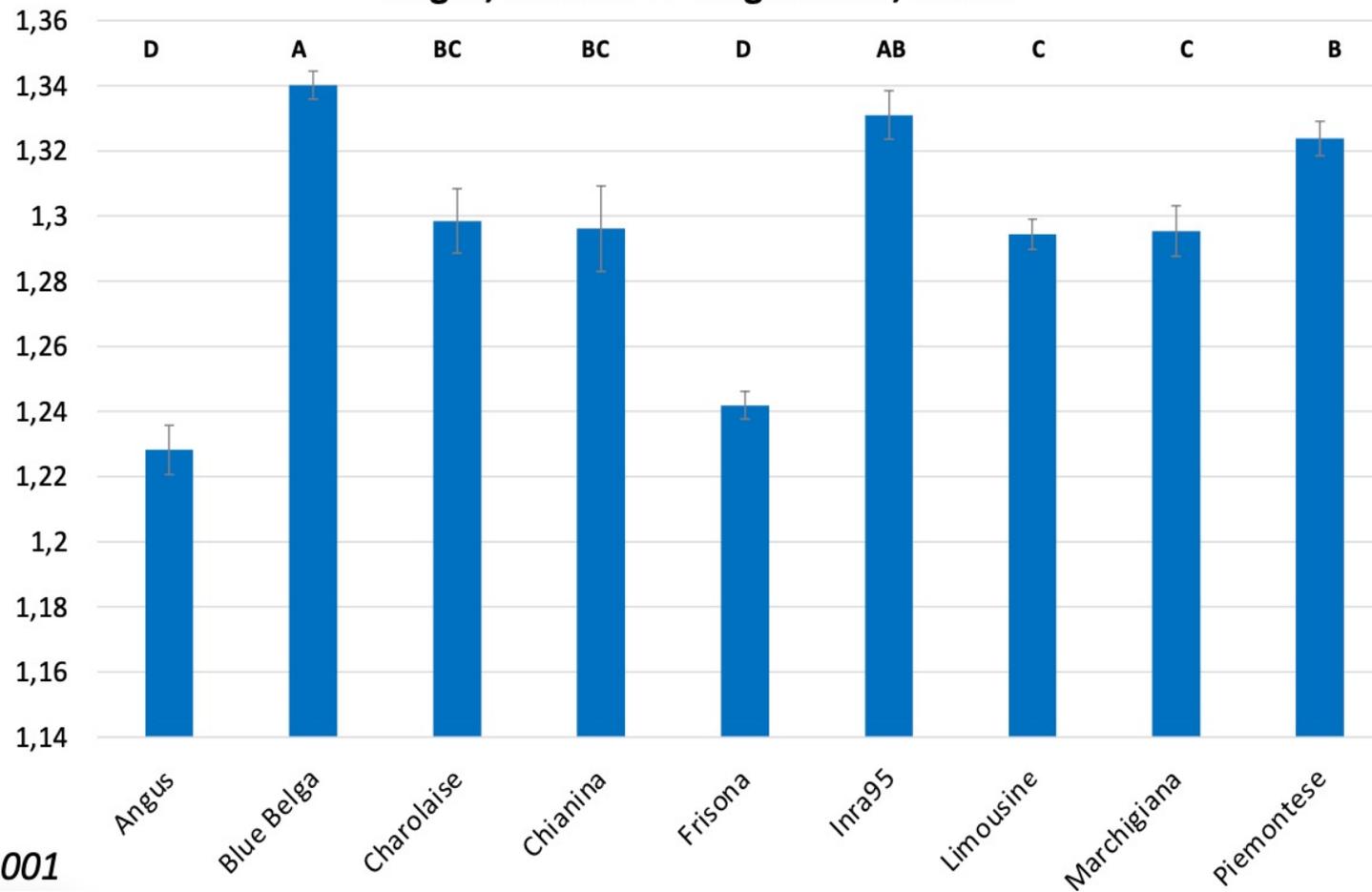


## CALVING EASE

(1 = easy 2 = birth assisted by one person only 3 = cesarean section 4 = difficult part 5 = embryotomy)



### Angus, Holstein >> Belgian Blue, Inra95

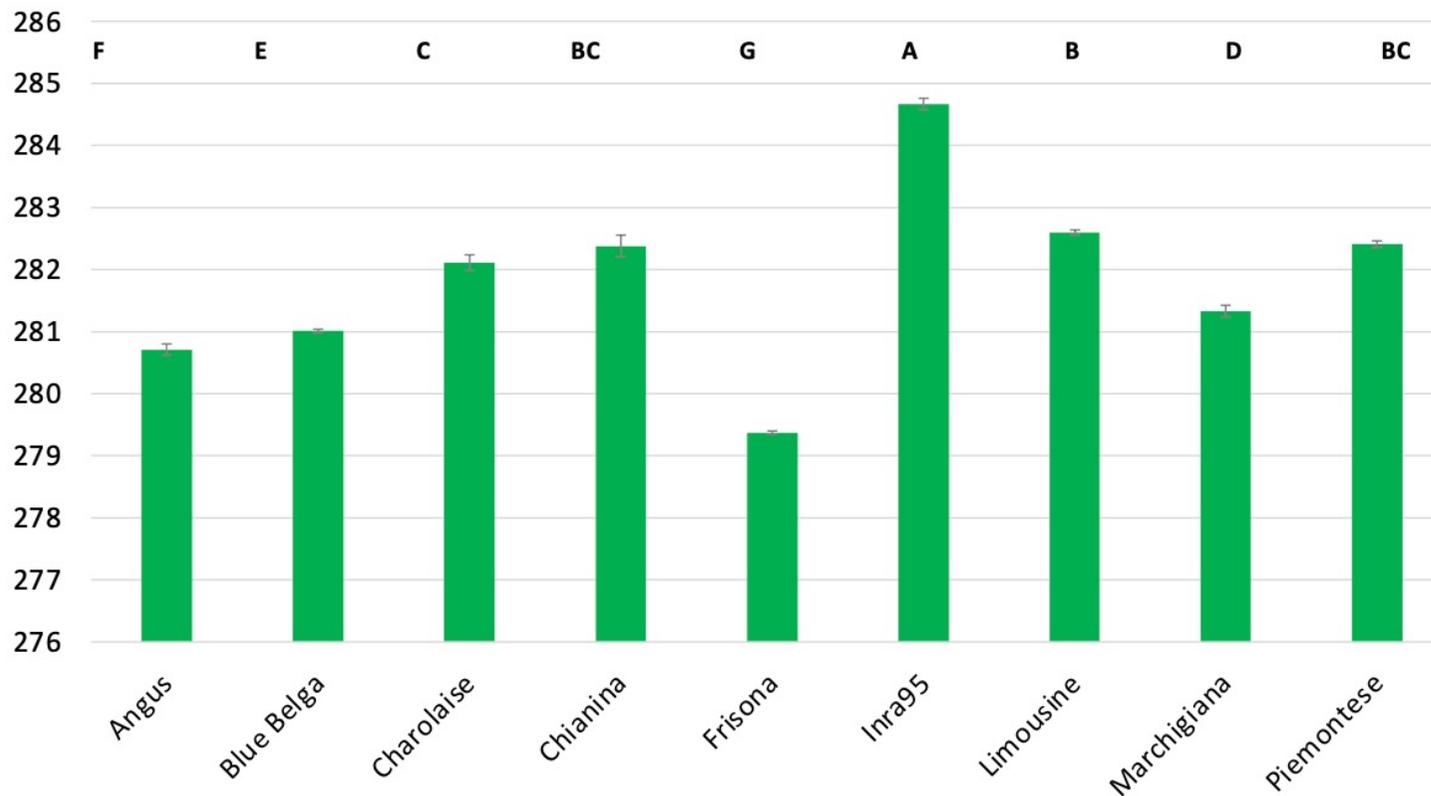


$P < 0.001$

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## Gestation length (d)



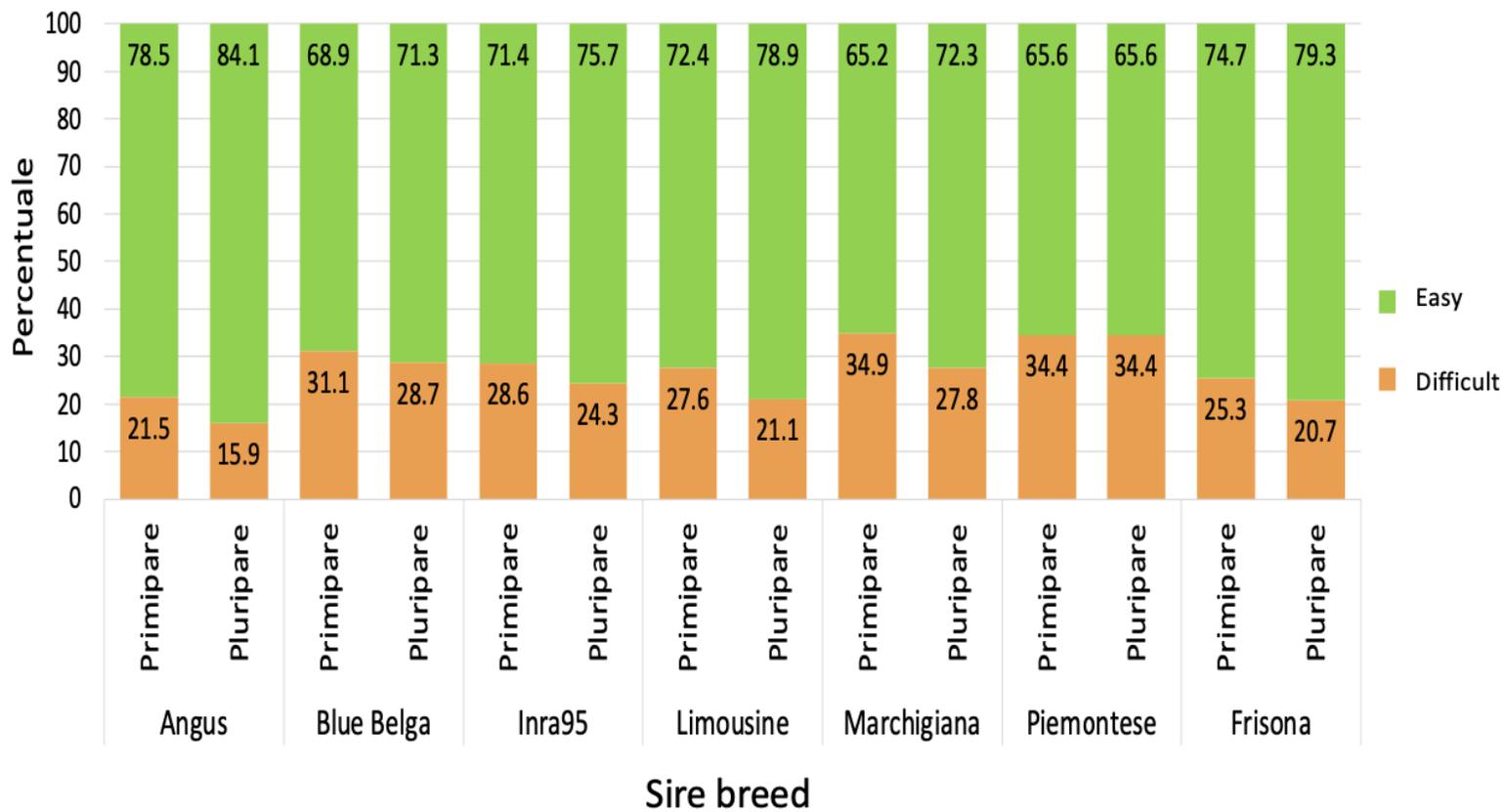
$P < 0.001$

**Inra95 >> Holstein (+5d)**

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### Parity effect on Calving easy for different breed of Sire



**Multiparous cows showed a higher calving easy then primiparous, in avg. around -4%**

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## Conclusions

**BoD is a common practice in Italy in Holstein populations and its interest and use are growing.**

**Farm profit can benefit from combining the use of sexed semen on the best heifers and cows and beef semen on cows exceeding the replacement needs.**

**The sire beef breed has an impact on the calving ease of the dam and stillbirth, and this has to be taken into account when BoD is used.**

**Anafibj developed a tool for the dairy farmers**

*(ICAR Session 1a – Ferrari et al., 23 May 2024 - 8:54 a.m.)*



# Thank you for your attention



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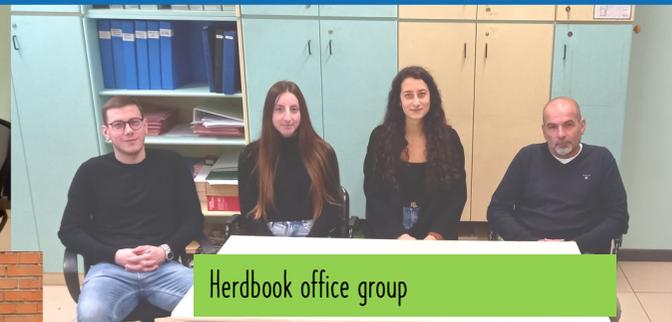
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