

Inventory of reproduction performances in cattle herds from the artificial insemination network

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Introduction

Wallonia – Southern part of Belgium

- farms: 17109
- cattle farms: 8800
- 1.350.000 cattle
- 1.110.000 beef cattle (Belgium Blue)
- 240.000 dairy cattle (Holstein)



Introduction

Reduction of reproduction performance:

- overall trends
- well documented in all countries
- little studied in Wallonia.



Aims

Assessment of the reproduction performance in cattle herds from the artificial insemination network

Materials and methods

Survey study

- Association Wallonne de l'Elevage (AWE)
- Inseminator network:
 - 18 teams spread over Wallonia
 - 6000 farms



Materials and methods

Survey study: data collection

- each team
- one inseminator
- one working day



Materials and methods

Survey study: parameters

- Fecundity:
 - *Calving interval (CI)* – cows
 - *Age at first calving (AFC)* – heifers
- Fertility:
 - *Apparent fertility index (AFI)*
 - *Conception rate at first insemination (CRFI)*



Materials and methods

Statistical analysis

■ Database :

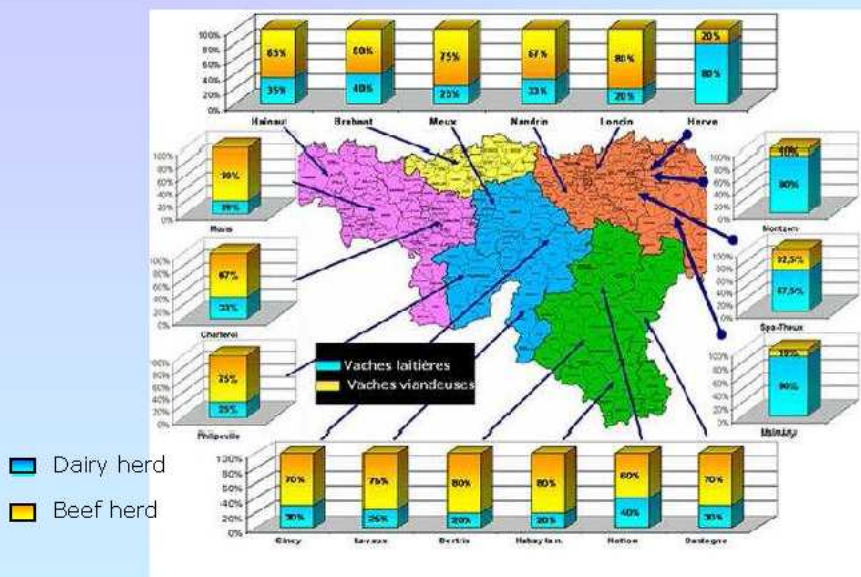
- *Reproduction performance (continuous and classe variables)*
- *Herd size standardized on a 100 basis (classes)*

■ Statistics:

- *Student t test: performance*
- *Cochran-Mantel-Haenszel test : classes of data ($\approx$ chi-square test)*
- *Correlation between sets of data within table classes*



Results



Results

Size	Dairy herd		Beef herd	
	<i>n</i>	(%)	<i>n</i>	(%)
< 50 cows	1574	45,0	1492	26,7
50-100 cows	1524	43,6	2148	38,4
100-150 cows	347	9,9	1591	28,4
> 150 cows	50	1,5	367	6,6
Total	3495	100	5598	100



Results

		HERDS		HERDS		
		Dairy	Beef	Dairy	Beef	
Age at 1st calving	Distribution (%)			Mean (months)		Sign level
	< 26 months	27,9	17,3	27,0± 1,43	28,9± 1,73	0.002
	26-30 m.	60,6	63,7			
	> 30 m.	11,5	19,0			
Calving interval	Distribution (%)			Mean (days)		Sign level
	< 380 days	34,5	26,3	400 ± 22.9	412 ±16.4	0.130
	380-420 d.	37,0	37,5			
	420-480 d.	20,5	26,9			
	> 480 d.	8,0	9,3			
Fertility	CRFI (%)			IAF		Sign level
	Heifers	77,1	77,3	1,92 ± 0,29	2,20 ± 0,53	0.029
	Cows	56,2	53,9			

Results

Herd size

■ Correlation coefficients:

	Size	
	dairy	Beef
AFC	0.004	-0.183
CI	-0.152	-0.267
AFI	0.034	-0.324

■ Classes (CMH test)

- Herd size classes non randomly distributed ($P < 0.001$) within :
 - Geographical area
 - Cattle type



Results

Reproduction performance

■ Correlation coefficients

	AFC		CI		AFI	
	Dairy	Beef	Dairy	Beef	Dairy	Beef
AFC			0.126	0.264	0.109	0.230
CI	0.126	0.264			0.154	0.091
AFI	0.109	0.230	0.154	0.091		



Results

Fecundity (CMH test):

- AFC and CI were differently distributed according to
 - *Geographical areas (teams)* ($P < 0.001$)
 - *Breeds* ($P < 0.001$)



Conclusion

- Large disparity on
 - *Size of herds*
 - *Breed type*
 - *Reproduction performance*
- Reproduction problems comparable to those observed in other countries
- Possible improvements by correct management and adaptable tools



