



Genetic parameters for health traits using farmer recorded data in the Netherlands

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ANIMAL HEALTH & FUNCTIONAL TRAITS

Breeding values based on routinely recorded data

Udder health

- Clinical mastitis
- Subclinical mastitis

Somatic Cell Score

Female fertility

- Non-return
- Calving interval
- Interval first-last insemination
- Conception rate cow
- Conception rate heifer
- Age at first insemination

Birth index

- Calving ease
- Vitality
- Mat. Calving process
- Mat. Vitality

Gestation Length

Birth Weight

Calf survival

- Calf survival (d. 3-365)
- New Born (d. 3-14)
- Fattening (d. 15-180)

Hoof health

- Sole haemorrhage
- Digital dermatitis
- Interdigital dermatitis
- Sole ulcer
- Interdigital hyperplasia
- White line disease

Ketosis

Longevity

See Poster **Mathijs Van Pelt**
Theory to Application - 1
**Validation of genetic evaluation
for longevity with a random
regression model**



FARMER RECORDED DATA

Farmer recorded data available via Veemanager (CRV-management tool)

Opportunities for develop breeding values for new health traits

Reproduction disorders:

- retained placenta
- endometritis
- metritis
- cystic ovaries
- anoestrus (or inactive ovaries)

Metabolic disorders:

- Milk fever (hypocalcaemia)
- Clinical ketosis





DATA SELECTION

Important for farmer recorded data!

- Parity 1 to 20; parity > 5 treated as 5
- 5% of the animals in the herd should have a diagnosis in one year
- 1% of the animals in the herd should have a diagnosis for each of the traits, per parity (par 1 and 2+)
- Age at calving at least 640 days
- Reproduction disorders must occur within specified time frame after calving

STATISTICAL ANALYSIS

Univariaat sire model

Reproduction: parity 1 and parity 2+

Metabolic disorders: parity 1, parity 2 and parity 3+

Observation =

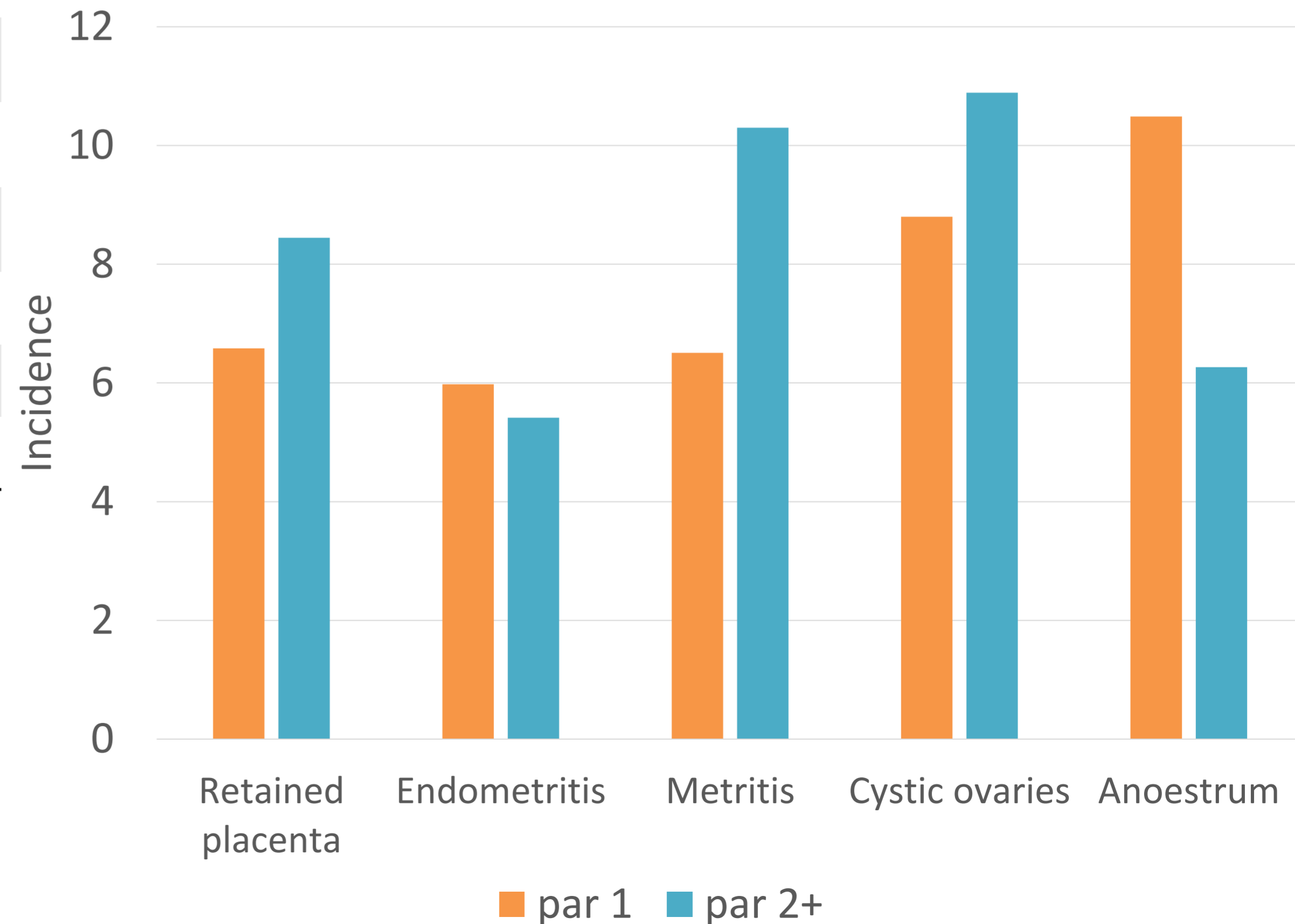
Healty = 0 & Sick = 100

Herd*Year	of calving	F
+ Year*Month	of calving	F
+ Age Calving	for heifers only	F
+ Parity	for cows only	F
+ Sire		R
+ Permant Environment		R
+ Error		R



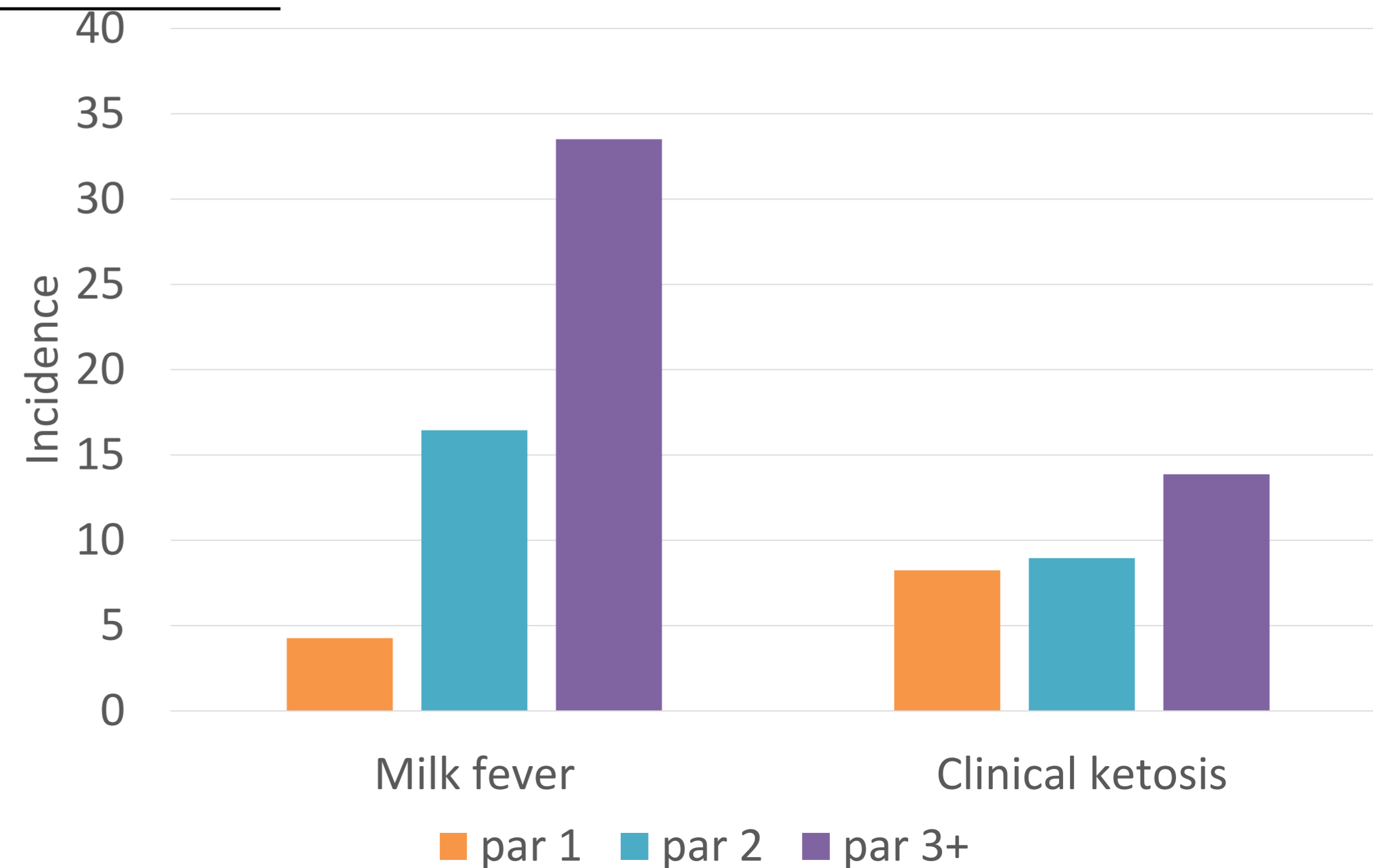
SUMMARY STATISTICS - REPRODUCTION

Trait	Parity	Animals	Records	Herds	Sires
Retained placenta	1	25050		534	1092
	2+	36125	50349	522	1207
Endometritis	1	21015		427	1032
	2+	28991	41249	409	1172
Metritis	1	15563		304	856
	2+	23720	33327	296	1101
Cystic ovaries	1	20124		403	965
	2+	29760	43174	397	1173
Anoestrus	1	18087		354	1023
	2+	24409	34253	345	1140



SUMMARY STATISTICS

Trait	Parity	Animals	Records	Herds	Sires
Milk fever	1	1407		37	409
	2	1176		37	397
	3+	1838	2089	37	540
Clinical ketosis	1	5088		116	779
	2	4094		116	808
	3+	6163	7854	116	1080



HERITABILITIES

Trait	Heritability 1	SE	Heritability 2	SE	Heritability 3	SE
Retained placenta	0.029	(0.008)	0.020	(0.005)		
Endometritis	0.036	(0.005)	0.013	(0.002)		
Metritis	0.008	(0.007)	0.011	(0.004)		
Cystic ovaries	0.008	(0.005)	0.015	(0.005)		
Anoestrus	0.043	(0.011)	0.012	(0.005)		
Milk fever	0.133	(0.094)	0.079	(0.091)	0.024	(0.033)
Clinical ketosis	0.083	(0.032)	0.035	(0.028)	0.023	(0.013)



PLANS & CONCLUSIONS

- Breeding values for health traits based on routinely recorded data available
- Possible to use farmer recorded data for (new) health traits

- Develop breeding values for reproduction and metabolic disorders
 - Look at correlation with other (health) traits
 - Monitor the population
 - Possibly include in health-index



THANK YOU FOR YOUR
ATTENTION.

ARE THERE ANY QUESTIONS?

