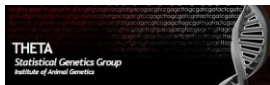


Estimation of economical values for Polish Holstein, Polish Red and Scandinavian Red

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Abstract

- ❑ The objective of the present study was to calculate economical values (EV) of breeding traits for the Polish dairy breeds such as Polish Holstein (PH), Polish Red (PR) and Scandinavian Red dairy breeds (ScR).
- ❑ Economical values (EV) are key elements in derivation of breeding goals for dairy cattle.



Fat : 4.01 %
Protein: 3.37 %

No herds: 20 063

No of cows: 691836



Fat : 4.3 %
Protein: 3.39 %

No herds: 403

No of cows: 2 838



Fat : 4.36 %
Protein: 3.56 %

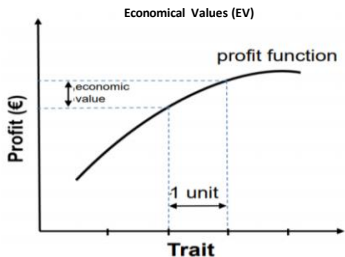
No herds: 437

No of cows: 575



Introduction

- ❑ The definition of proper breeding goals is an important initial step when introducing systematic breeding
- ❑ **Breeding Goal = EV1 * trait1 + EV2 * trait2 + ... + Evn * traitn**
- ❑ The EV for a trait is defined as expected monetary gain per unit improvement of the trait, while keeping the remaining traits constants (Groen et al., 1997).
- ❑ Bio-economical models for derivation of EV, which allow to connect biological, economical and management parameters of the dairy herd, via stochastic simulation.
- ❑ Here we propose to use the SimHerd model, which accounts for dynamics changes in the dairy herd over the simulated years (Østergaard et al., 2005).



Material & Methods

Input performance/biological/management parameters of analysed herds

305-day performance	PR	ScR	PH
1. lactation. kg	3442	7202	7815
2. lactation. kg	3934	7820	8643
3. lactation. kg	3893	8012	8856
> 3. lactation. kg	4026	8145	8377
ECM (energy corrected average milk yield)	3787 kg	7940 kg	7940 kg

+

Prices related to milk production, feed and veterinary cost



Simulation of 40 years outcome in weakly steps.



trait on a standard level

Increase the level of the trait



Uncorrected EV



Due to the changes in the herd demography that appear in time, the output of the model has to be corrected using multiple regression analysis with mediator variables.

Results

Trait complex	Trait	EV per marginal unit				Relative Weights (%)		
		Unit	PH	PR	ScR	PH	PR	ScR
Production	ECM	kg	0,18	0,19	0,18	37	34,3	38
Direct health	Mastitis	%	-1,3	-1,15	-1,27	14,5	16,6	14
	Lameness	%	-1,44	-1,09	-1,23			
	Ketosis	%	-0,94	-0,58	-0,86			
	Milk fever	%	-1,53	-1,25	-1,52			
	Metritis	%	-1,1	-1,89	-1,1			
Calving	Dystocia	%	-0,94	-1,26	-1,38	2,8	6,7	3
	Stillbirth	%	-1,53	-1,67	-1,77			
Calf survival	Early calf mortality	%	-1,17	-0,59	-1,1	7,4	9,5	7
	Late calf mortality	%	-4,31	-3,26	-3,14			
Cow survival	Cow mortality	%	-12,39	-12,08	-11,6	22,7	16,9	23
Fertility	Con. rate heifers	%	1,67	1,22	1,53	15,1	16,1	15
	Con. rate cows	%	1,98	0,84	0,91			
	Ins. rate heifers	%	1,65	1,07	1,1			
	Ins. rate cows	%	0,87	0,58	0,68			

Conclusions

- SimHerd model shown to be a suitable tool for derivation of EV for the functional traits of Polish dairy breeds, as take in the simulating changes that appear in the herds due to different circumstances.
- Calculated in this study EV could be potentially transformed into index, which would allow us to present novel breeding goals.