

## OBJECTIVES

1. To analyse the environmental effects on calving ease traits of Simmental cattle in Croatia;
2. To estimate the genetic parameters for calving ease traits.



## MATERIAL AND METHODS

### Data and pedigree

#### Data and pedigree structure

Animals in pedigree	639999
Base animals	135982
Non-base animals	504017

### Traits

- ▶ Calving ease at first parity (CE1P);
- ▶ Calving ease at second or later parities (CE2P);
- ▶ Calving ease was scored from 1 to 5:
  - 1 No problem
  - 2 Slight Problem
  - 3 Needed Assistance
  - 4 Considerable Force
  - 5 Extreme Difficulty

### Statistical model

**Fixed effects:** Age at calving,  
Sex of calf,  
Region-year interaction

**Random effects:** Owner,  
Direct additive genetic effect

### Covariance components

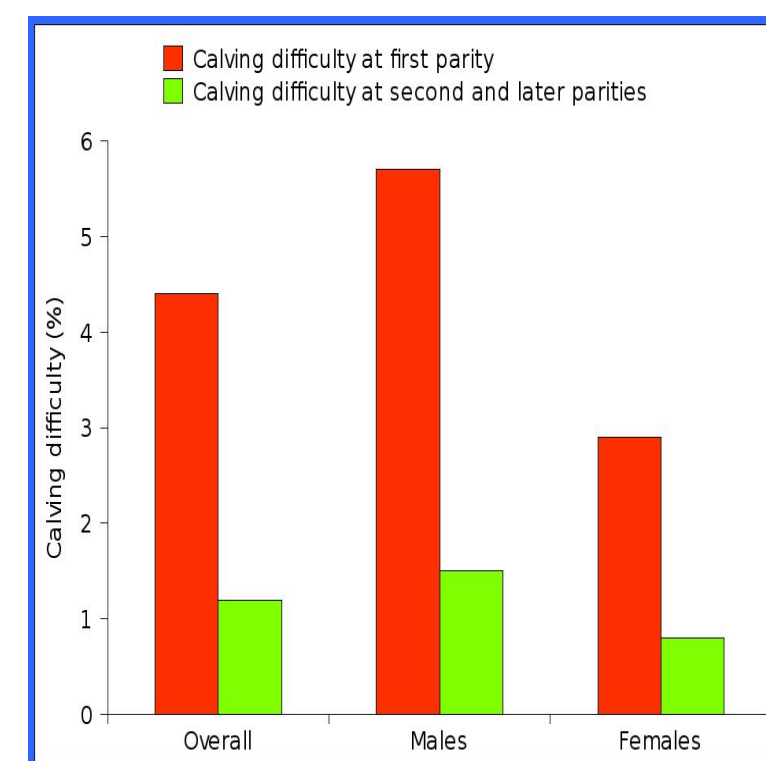
- ▶ Estimated by Residual Maximum Likelihood (REML) method

## CONCLUSIONS

1. Heritability estimates were low for CE1P (0.105) and for CE2P (0.078);
2. These two traits presented medium (0.369) genetic correlation;
3. Based on these results, the genetic evaluation for calving ease traits of Simmental cattle in Croatia will be implemented.

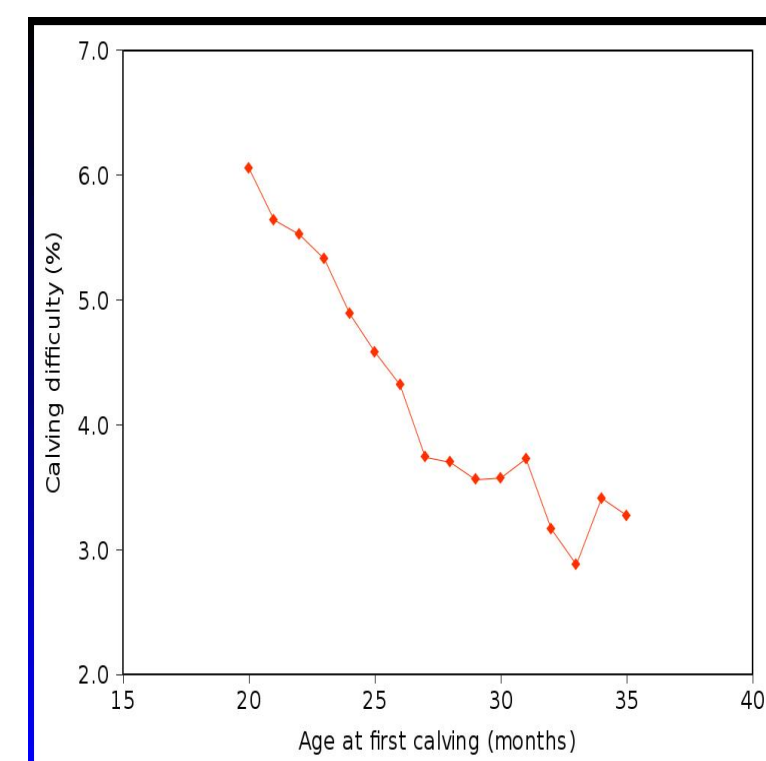
## RESULTS

A high incidence of calving problems was observed in Simmental cattle population. Males presents more difficult births than females (5.7% vs 2.9%). Cows at first parity presents more difficult calving than later parities (4.4% vs 1.2%).



Incidence of calving difficulties in the Simmental cattle

At first calving, young cows presents higher calving problems (6.1% at 20 months of age), and a linear decrease was observed with the age increase (2.9% at 33 months of age).



Effect of age at first parity on calving difficulty of Simmental cattle

The estimated heritabilities were  $0.105 \pm 0.013$  for calving ease at first parity, and  $0.078 \pm 0.017$  for calving ease at second and later parities.