

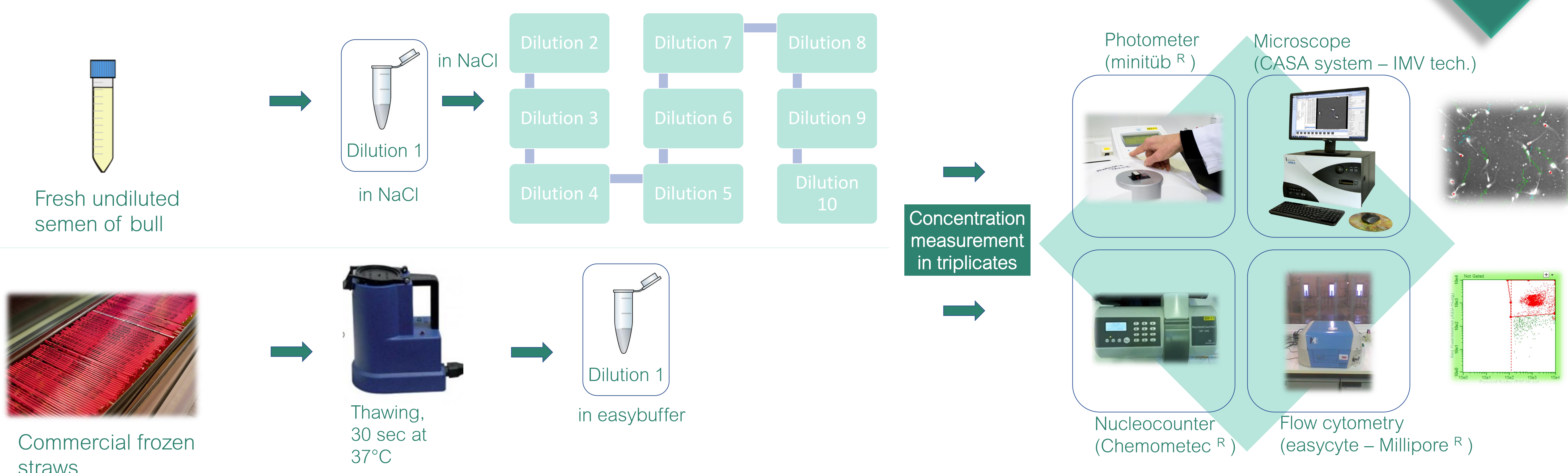
Introduction

Number of straws produced in an AI (artificial insemination) center are dependent on sperm concentration that is usually measured by a photometer on the fresh semen. The aim of the present work was to evaluate how precise is the concentration obtained by the photometer, in comparison to other existing techniques.



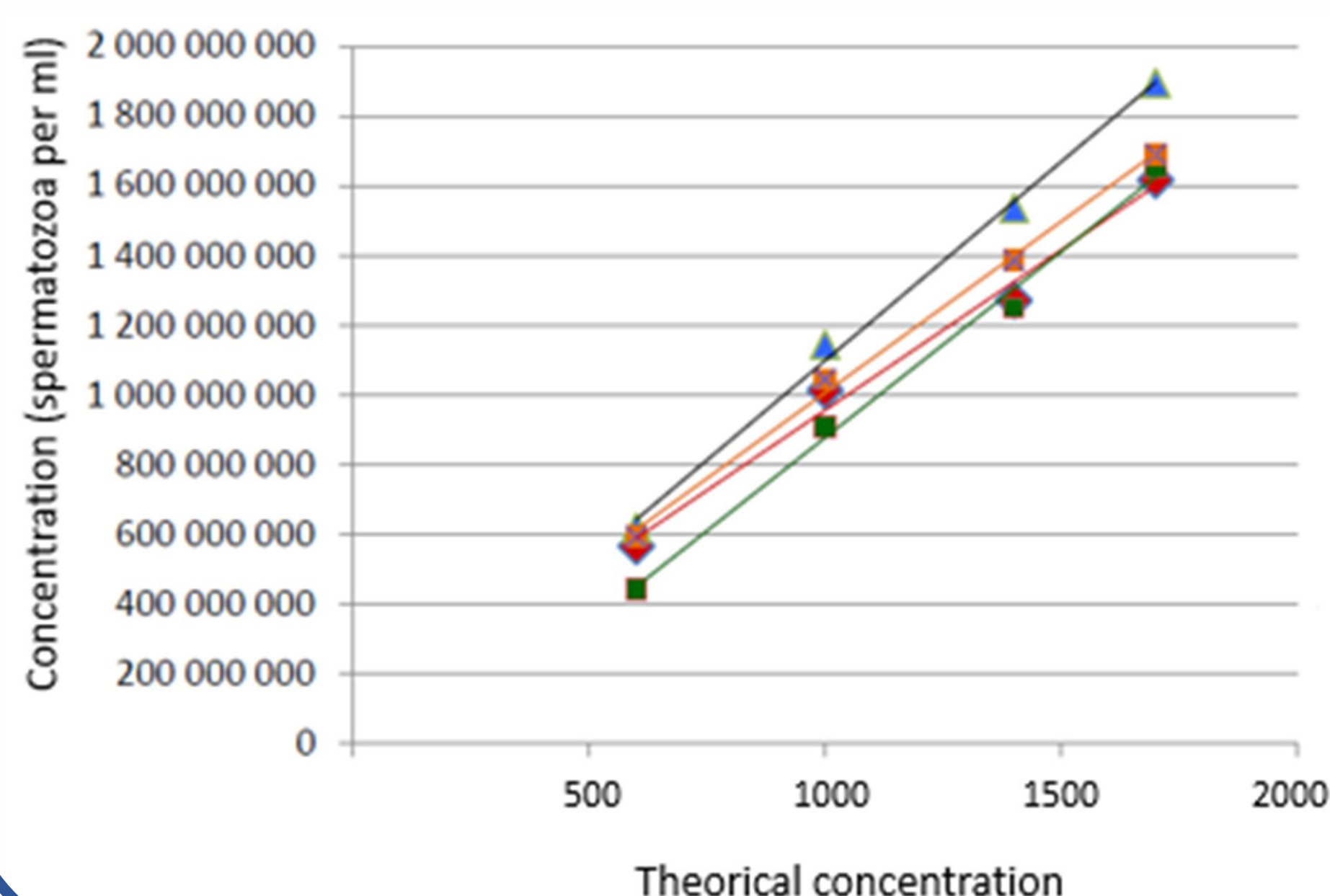
Materials and Methods

- Evaluation of concentration was evaluated both on fresh semen (on 3 highly concentrated ejaculates), and on commercial frozen straws.
- Repeatability was assessed by calculation of CV (Coefficient Variation).



Results and Discussion

Fresh semen



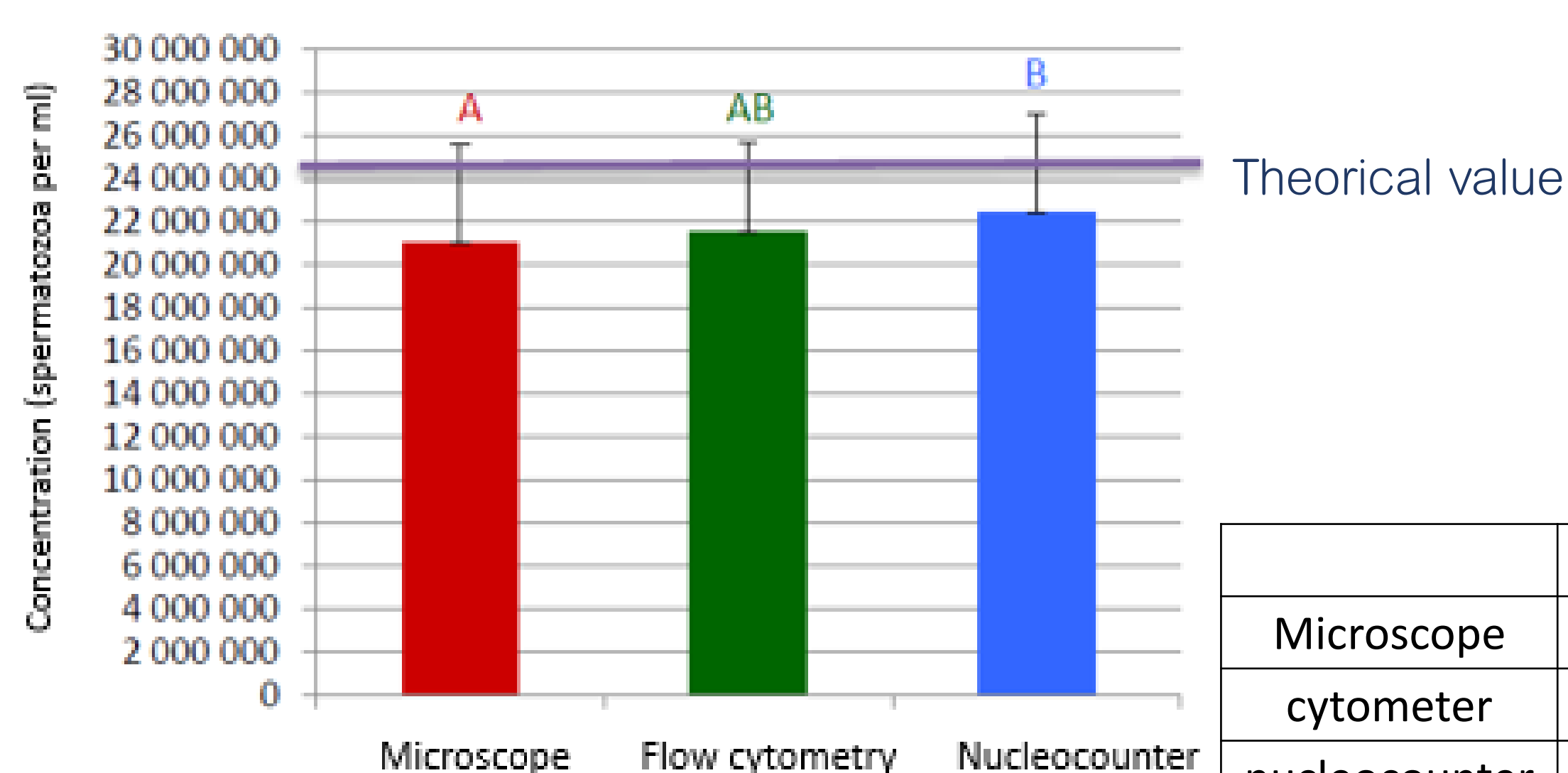
	R ²	CV
Microscope	0,9883	9,8 A
cytometer	0,9942	9,19 A
nucleocounter	0,9966	5,02 AB
photometer	0,9968	3,02 B

microscope	AD
cytometer	A
nucleocounter	BC
photometer	CD

– None of the alternative methods were significantly different from the photometer, and the coefficients of correlation for the dilution curve were all very high (>0.98). Nevertheless, the concentrations given by the CASA system were significantly lower than the ones predicted by the nucleocounter.

– In terms of repeatability (coefficient variation = CV), the nucleocounter and the photometer were very efficient by comparison with the CASA system and the flow cytometer that were more variables.

Frozen straws



	R ²	CV
Microscope	0,9883	9,8 A
cytometer	0,9942	9,19 A
nucleocounter	0,9966	5,02 AB
photometer	0,9968	3,02 B

– The results obtained with the nucleocounter were closer to the theoretically values predicted by the photometer, and were not significantly different from the ones given by the flow cytometer. The concentrations measured with the CASA system were significantly lower ($P < 0.005$).

– The repeatability (CV) was better with the flow cytometer and the nucleocounter.

– From a price value and repeatability point of view, the photometer is recommended to measure the concentration of the fresh semen.

– Concerning the post thawing control quality, flow cytometry or nucleocounter are more reliable.

Conclusions