

# Effect Of Pre-freeze Addition Of Cysteine Hydrochloride And Reduced Glutathione On Post-thaw Sperm Parameters And Field Fertility In Jersey Crossbred Bull Semen

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# INTRODUCTION

**FREEZING AND THAWING**

**ROS**

**MEMBRANE DAMAGE**

**SPERM QUALITY**

**ADDITION OF AMINO ACIDS , CYSTEINE-NUCLEAR  
PROTEIN STABILIZER**

**&**

**ANTIOXIDANT , MEMBRANE STABILIZER**



**IMPROVING FERTILITY IN SUB-FERTILE BULLS**

# OBJECTIVES

- To assess the effect of addition of glutathione and cysteine before freezing on post-thaw functional parameters and field fertility

# ADDITIVES

- Cysteine @5mM
- Glutathione @5mM

# SELECTION OF BULLS AND EJACULATES

- 4- 6 years age
- Three good and three poor freezable bulls from a FSB, Govt. of Orissa
- 36 ejaculates @ 6 from each bull



# SEMEN PROCESSING

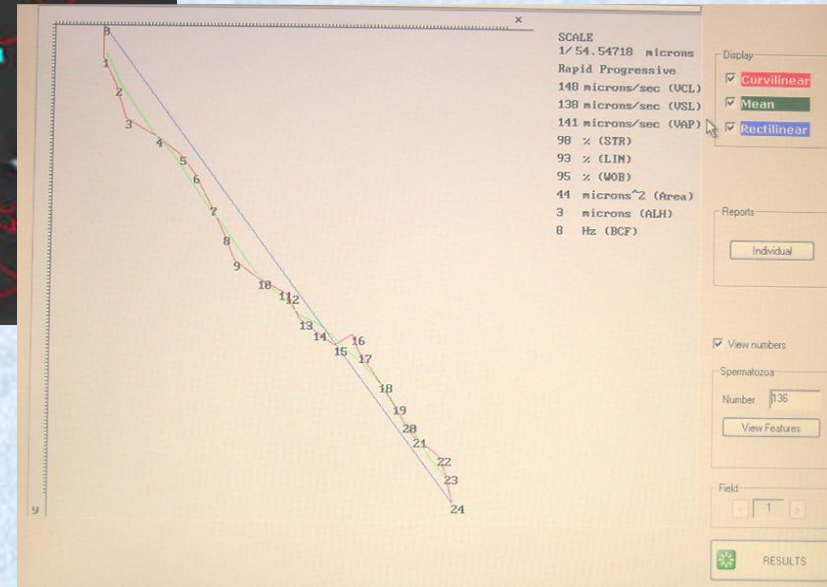
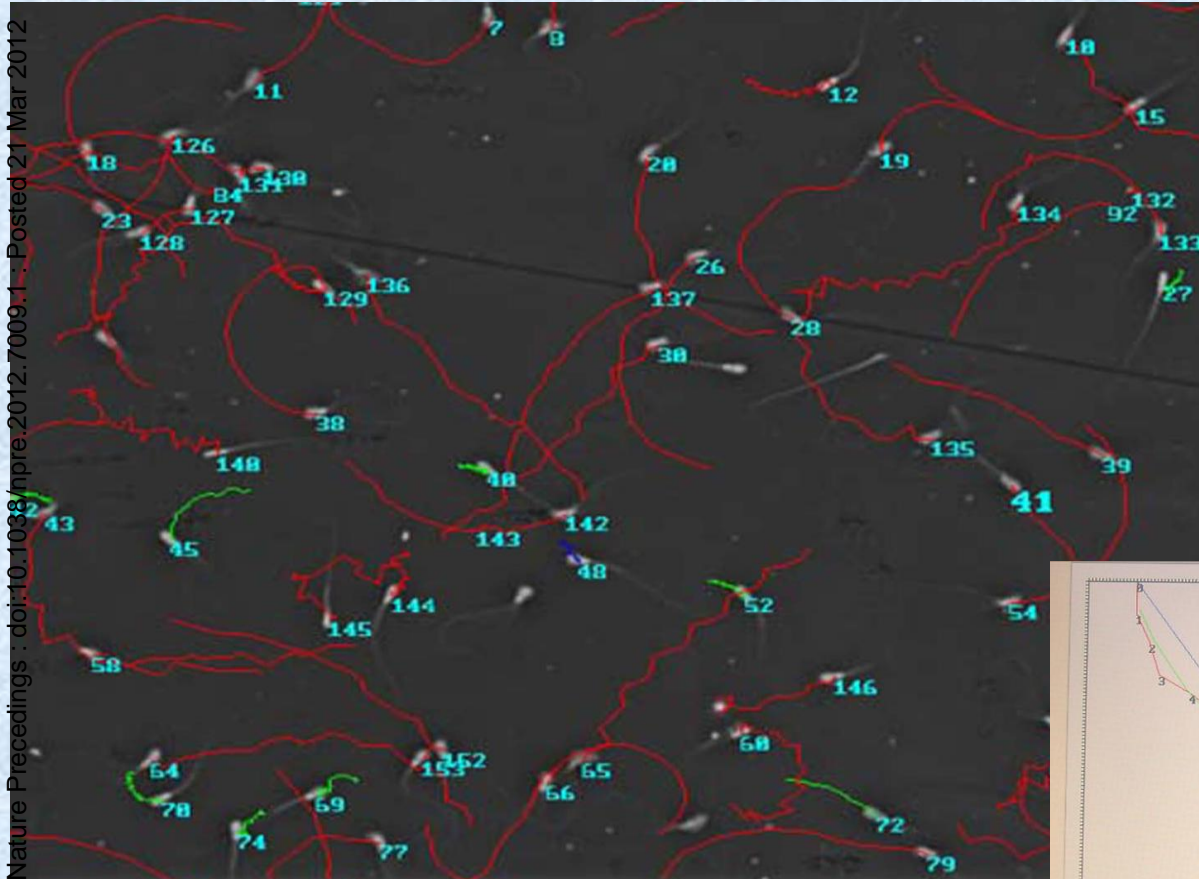
- Group I: Egg Yolk Tris Glycerol (EYTG) -control
- Group II: EYTG + Cysteine @ 5mM
- Group III: EYTG +Glutathione @ 5mM
- Dose was selected based on published literature

# POST FREEZING EXAMINATION

1. Individual motility-Computer Assisted Sperm Analyzer
2. Live sperm (%) and total sperm abnormality (%)
3. Incubation test
4. Acrosomal Integrity (%)
5. Functional membrane integrity (%)
6. Lipid peroxidation levels
7. Mitochondrial Membrane Potential (%)
8. DNA fragmentation (%)
9. Cervical Mucus Penetration Test
10. Conception rate (%)

# COMPUTER ASSISTED SPERM ANALYSIS (CASA)

Nature Precedings : doi:10.1038/npre.2012.7009.1 : Posted 21 Mar 2012





# COMPUTER ASSISTED SPERM ANALYSIS (CASA)



Fig Computer Assisted Sperm Analyser

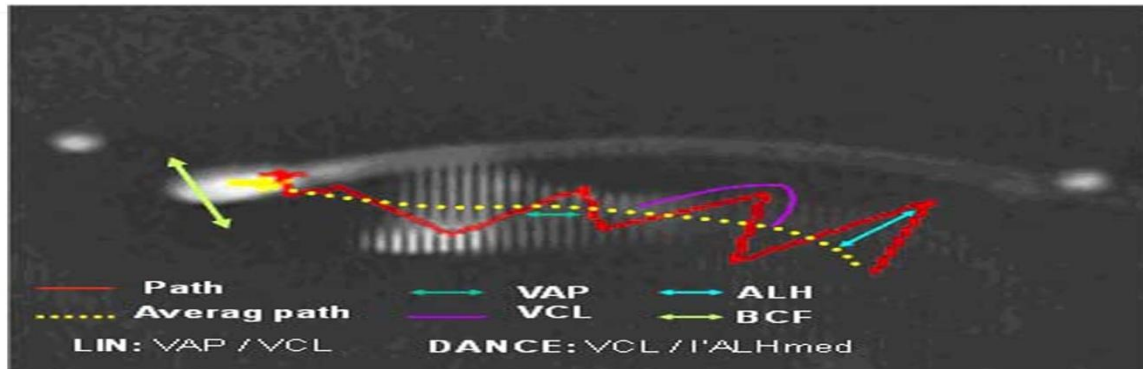
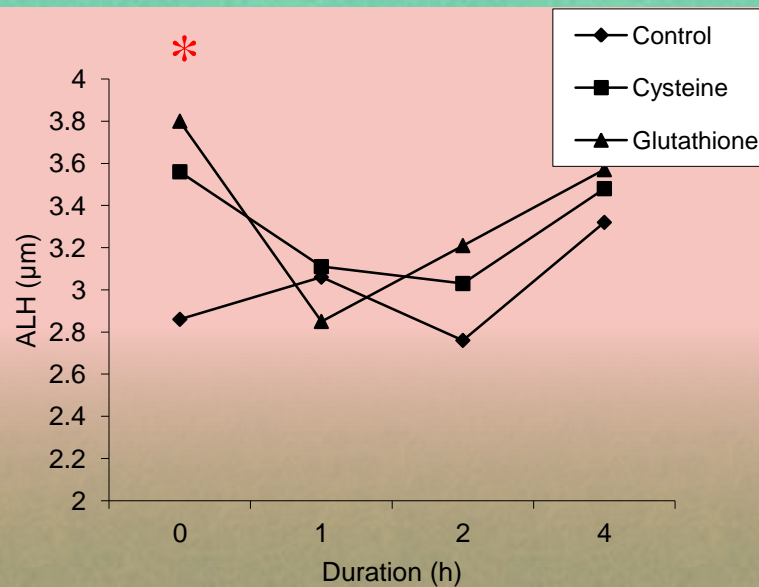
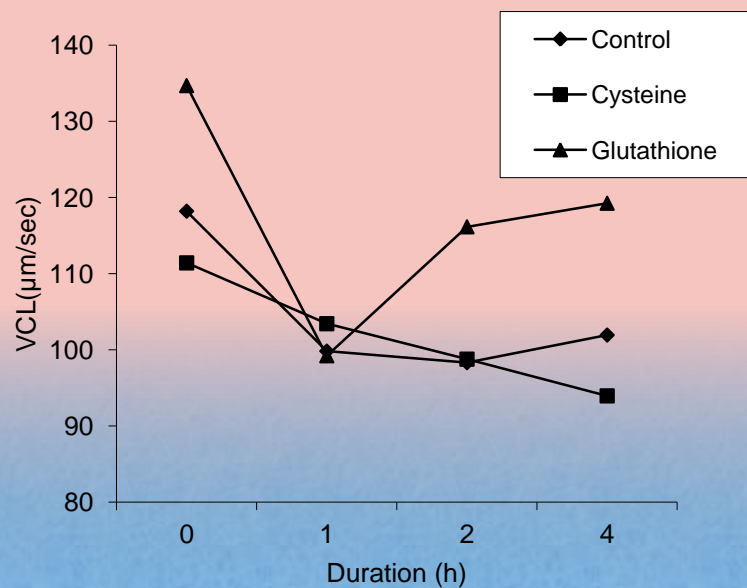
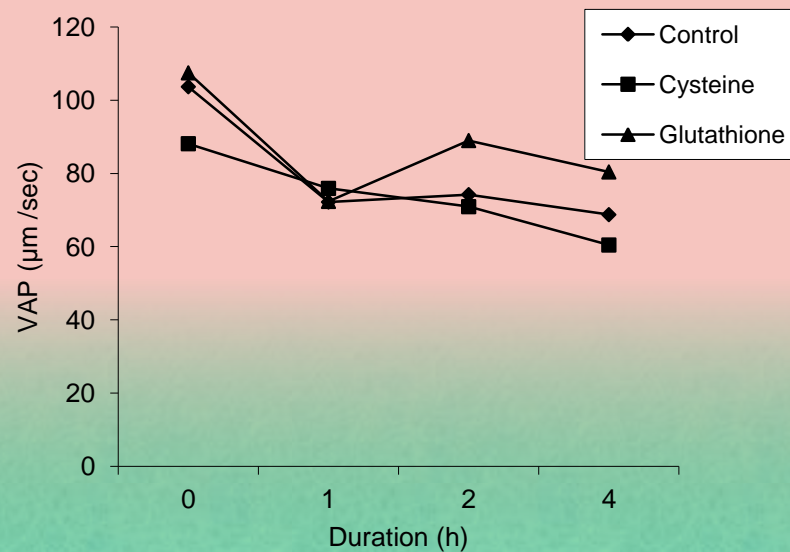
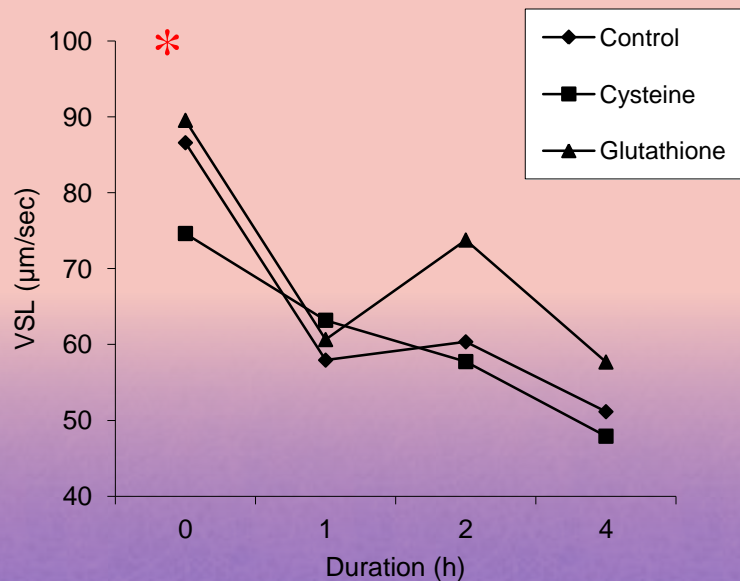


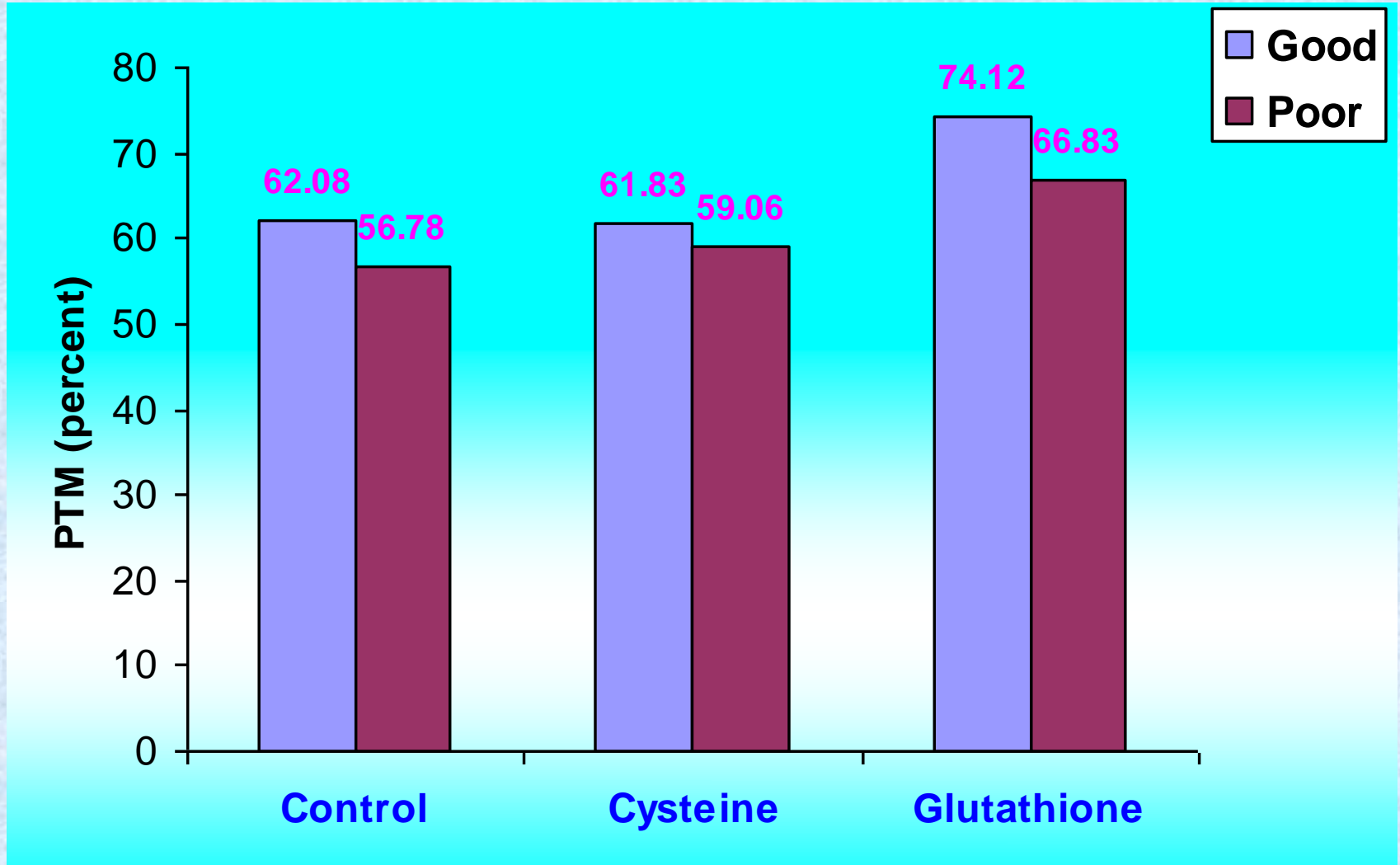
Fig Computer Assisted Semen Analysis of post-thaw seminal velocity parameters

# CYSTEINE AND GLUTATHIONE ON VELOCITY PARAMETERS

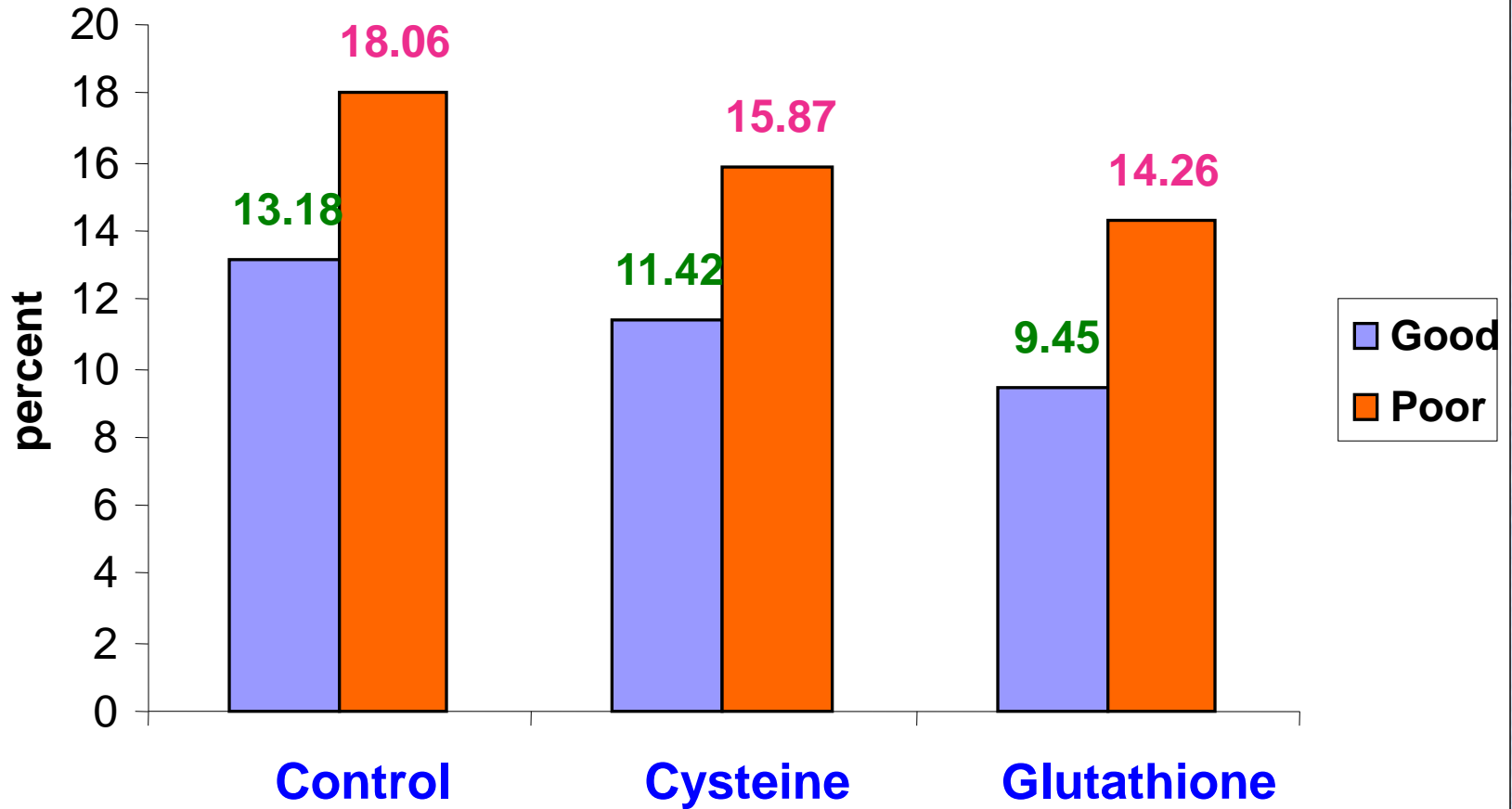
Nature Precedings : doi:10.1038/npre.2012.7009.1 : Posted 21 Mar 2012



# POST THAW SPERM MOTILITY OF GOOD AND POOR FREEZABLE BULLS

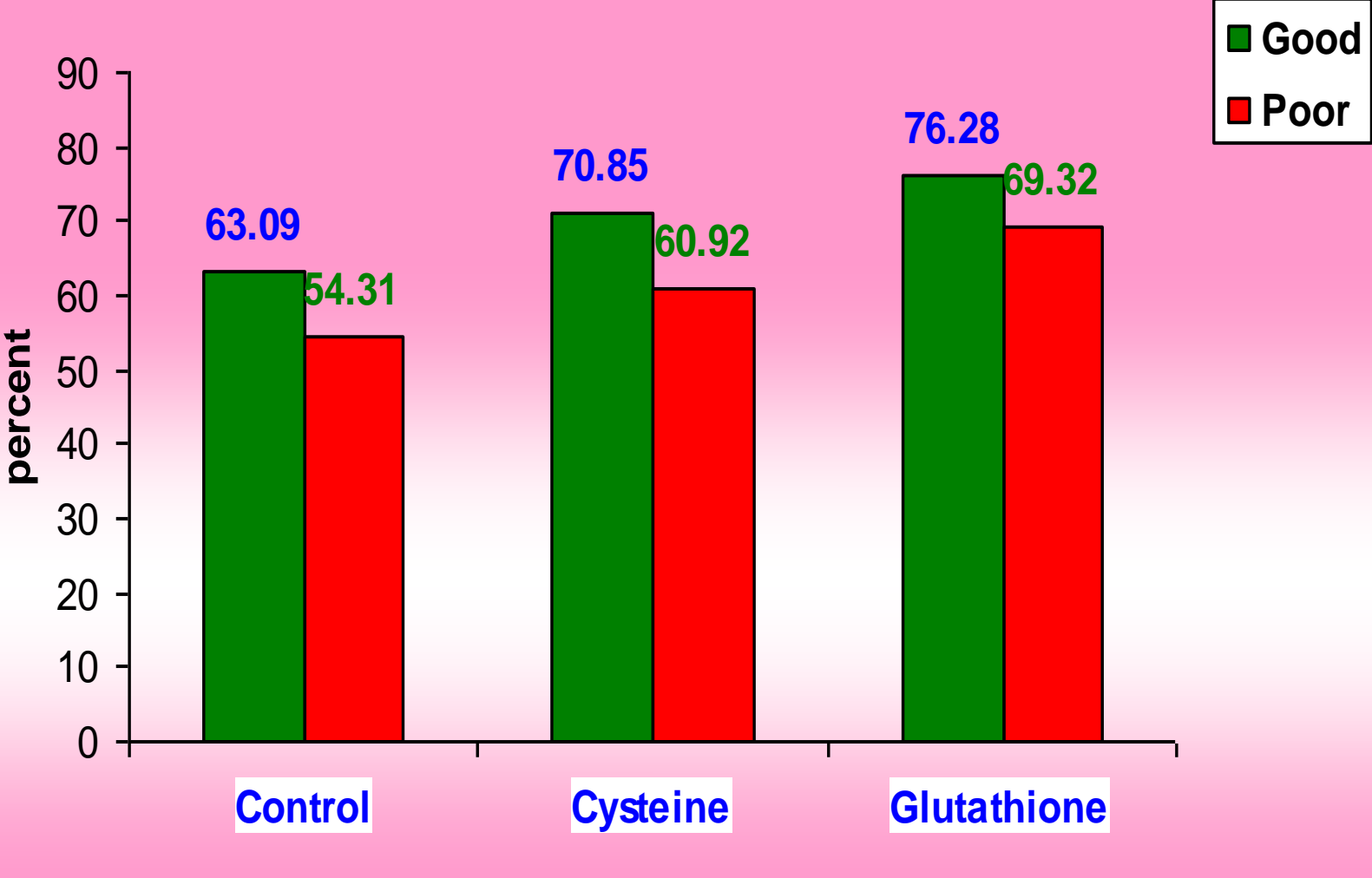


# POST THAW TOTAL SPERM ABNORMALITY OF GOOD AND POOR FREEZABLE BULLS

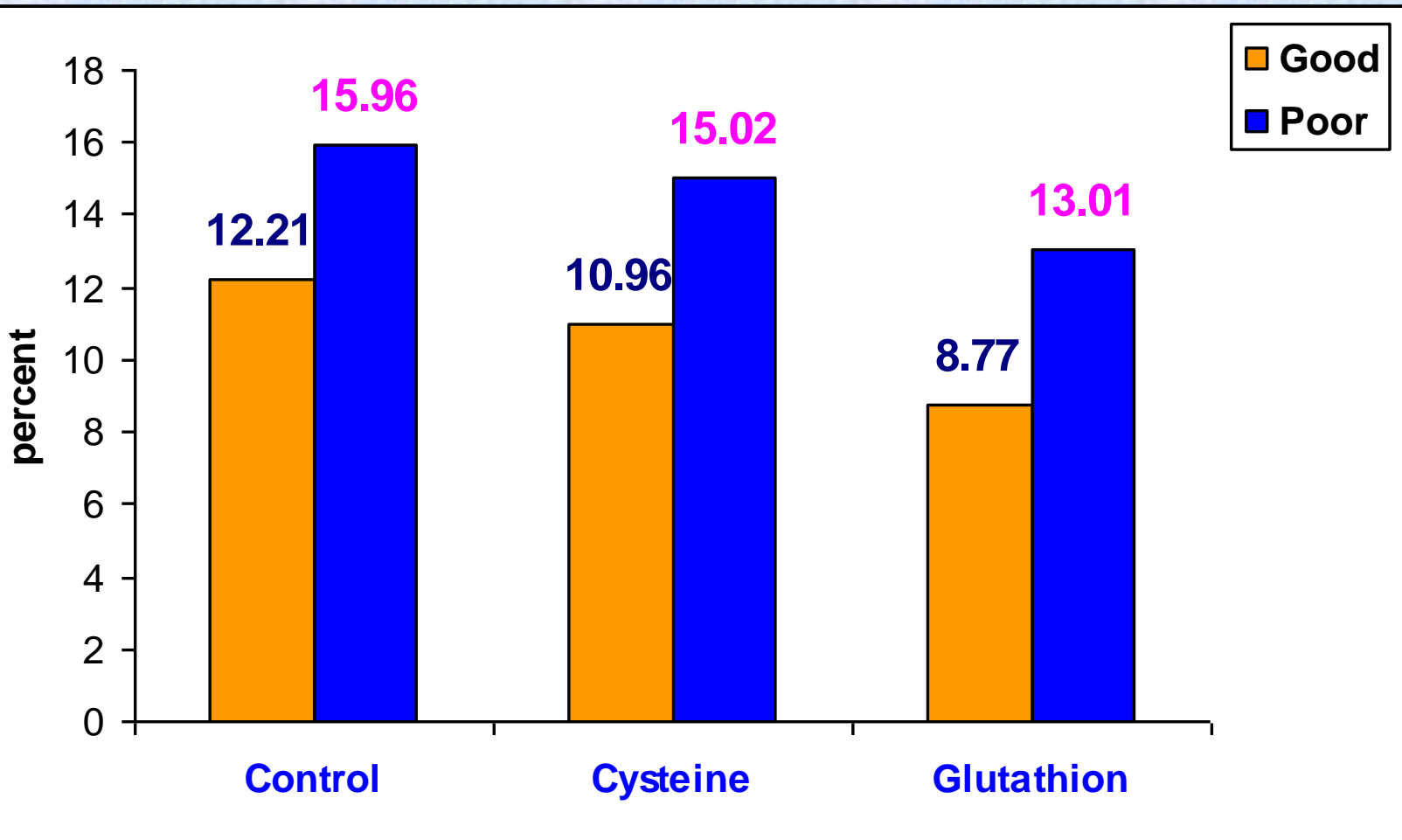




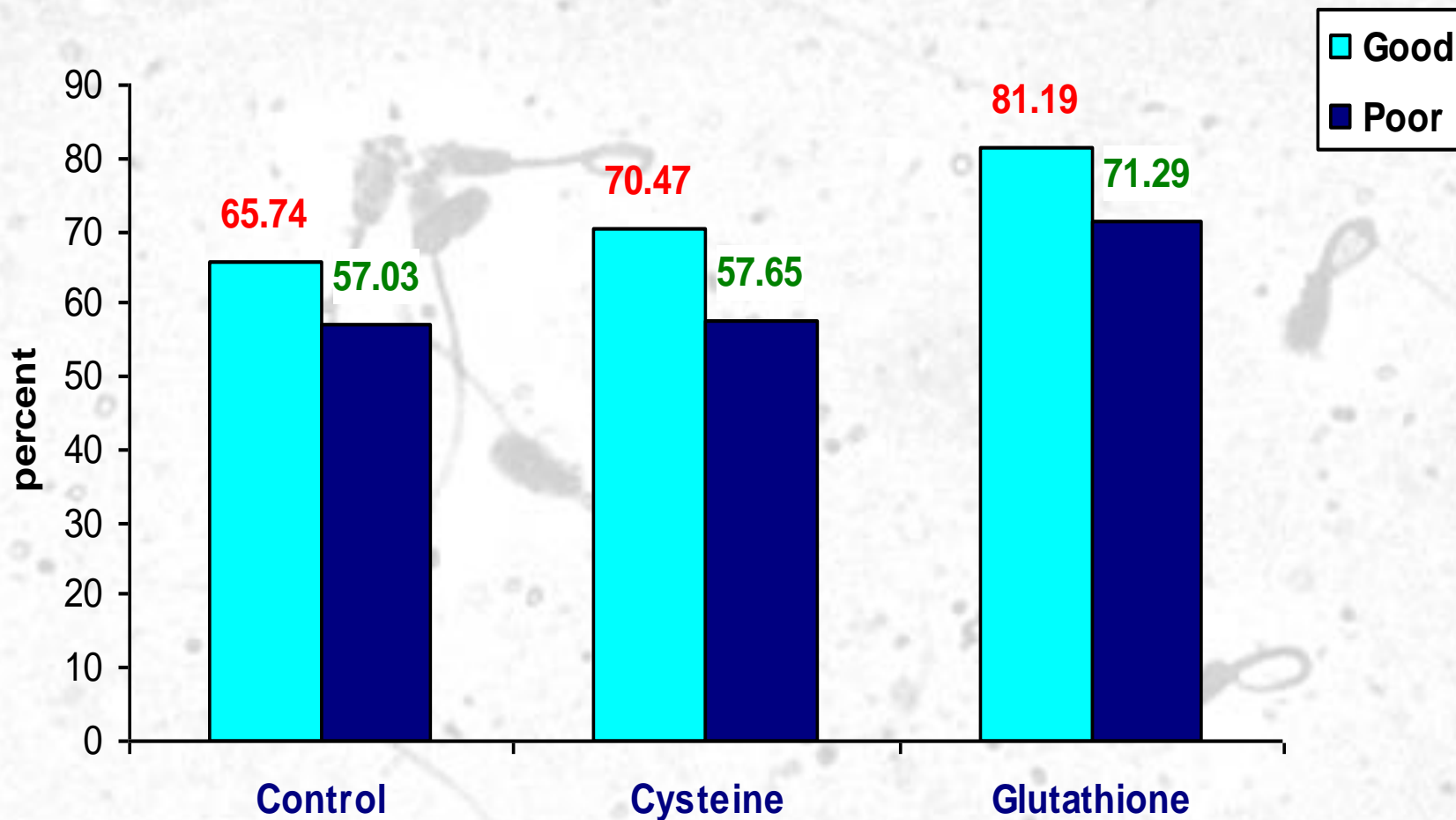
# POST THAW SPERM PLASMALEMMA INTEGRITY OF GOOD AND POOR FREEZABLE BULLS



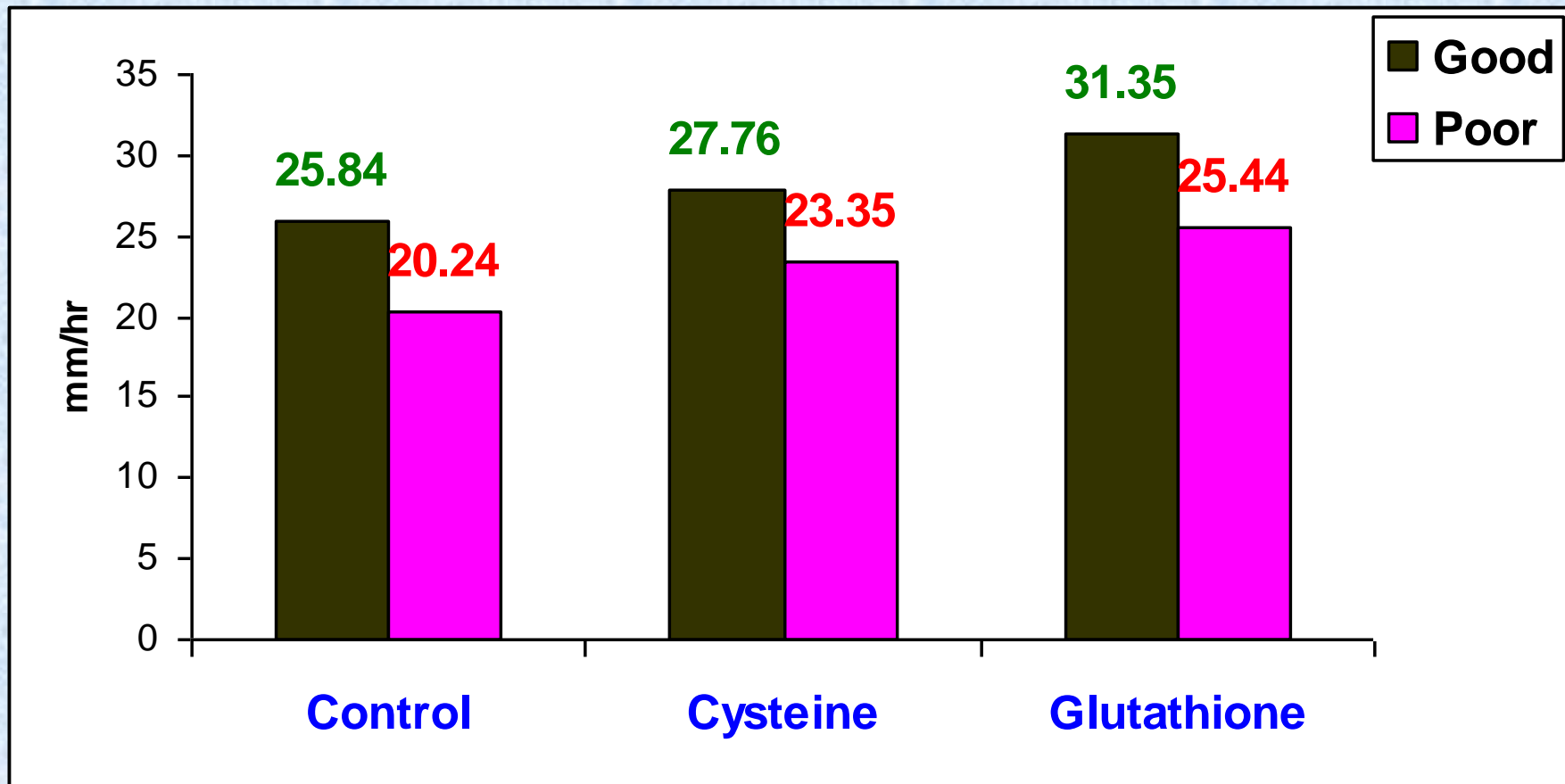
# POST THAW LOSS OF ACROSOMAL INTEGRITY OF GOOD AND POOR FREEZABLE BULLS



# POST THAW HOST OF GOOD AND POOR FREEZABLE BULLS



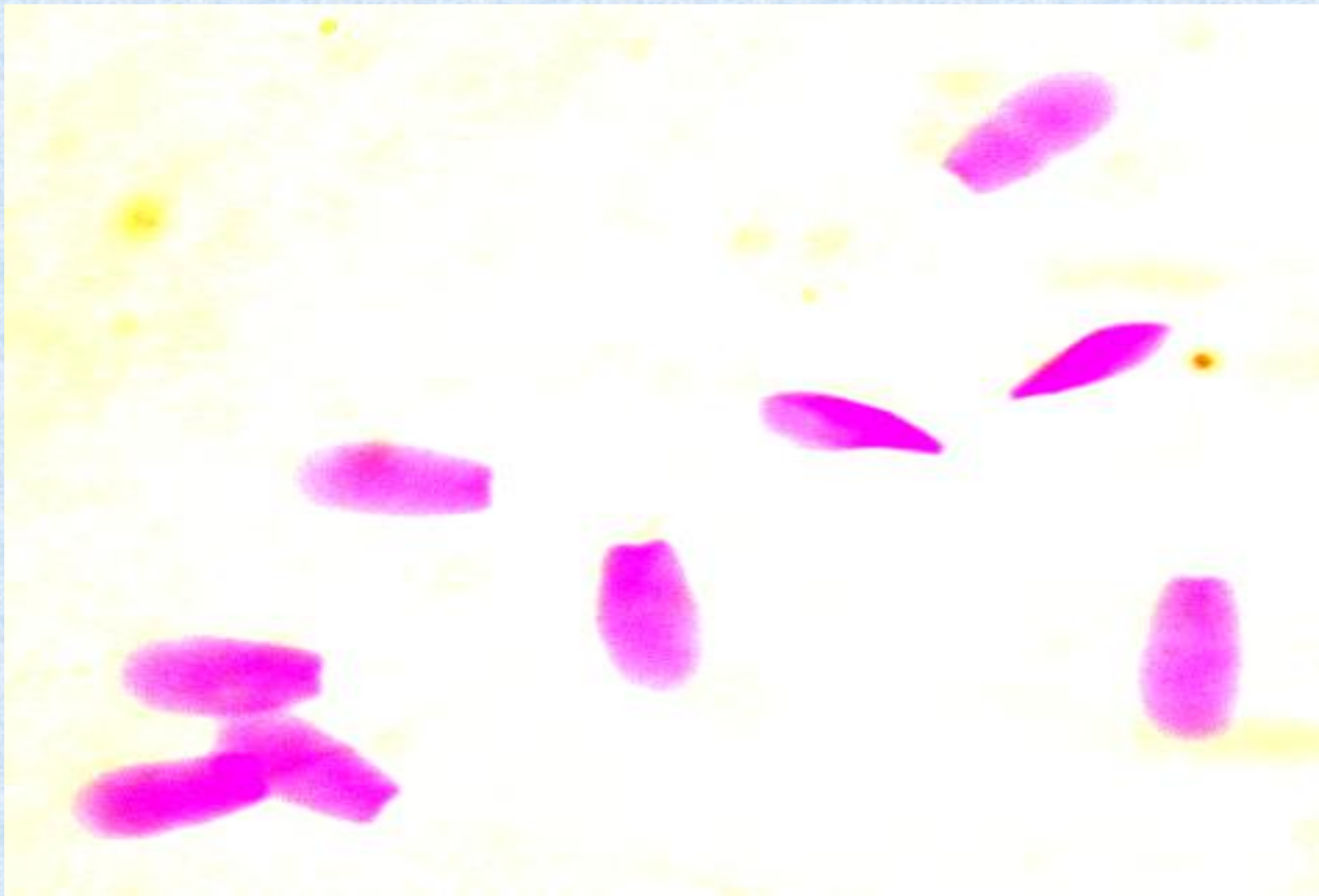
# POST THAW CMPT OF SPERM OF GOOD AND POOR FREEZABLE BULLS



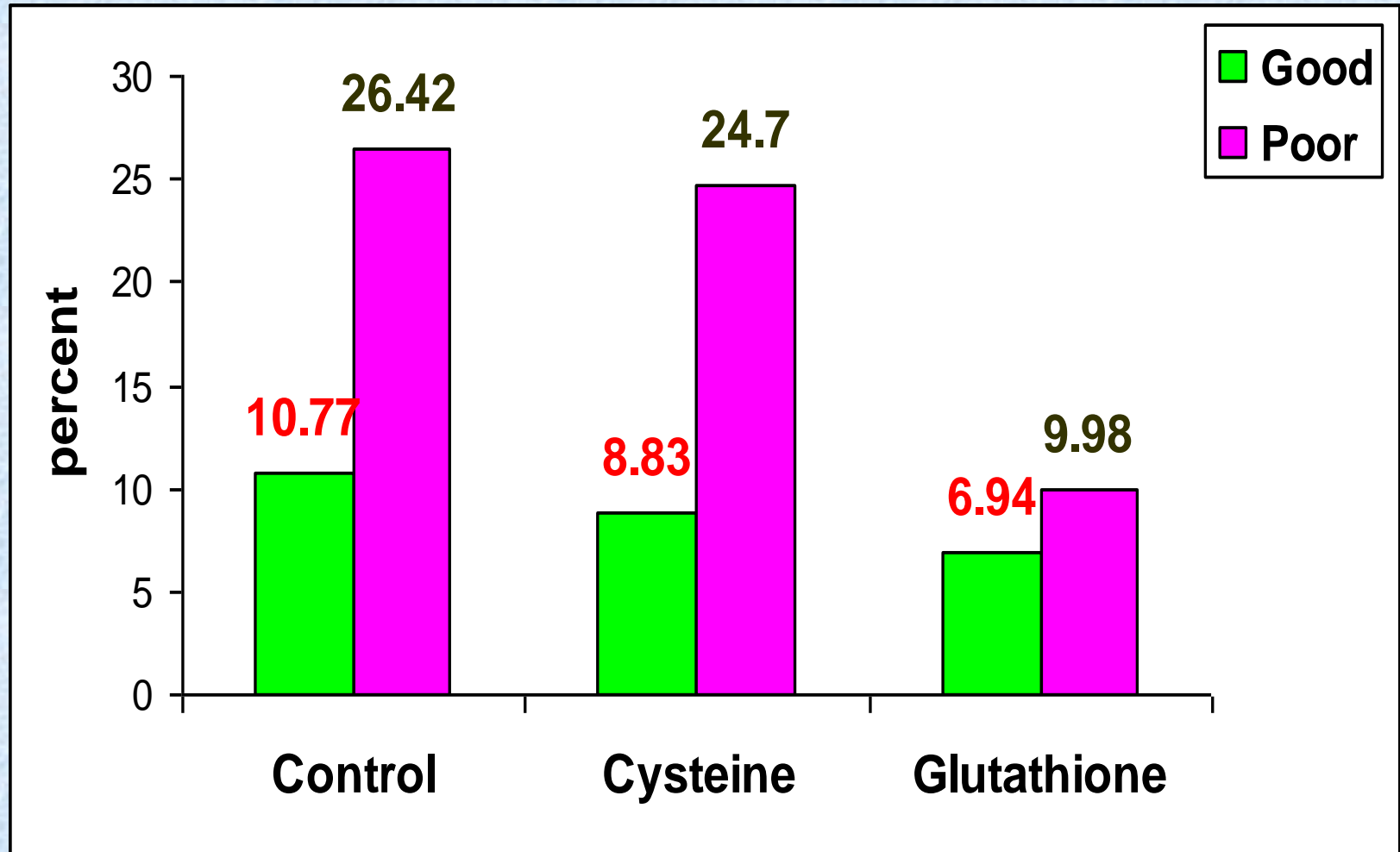


# DNA FRAGMENTATION OF SPERM (FEULGEN'S STAINING)

Nature Precedings : doi:10.1038/npre.2012.7009.1 : Posted 21 Mar 2012

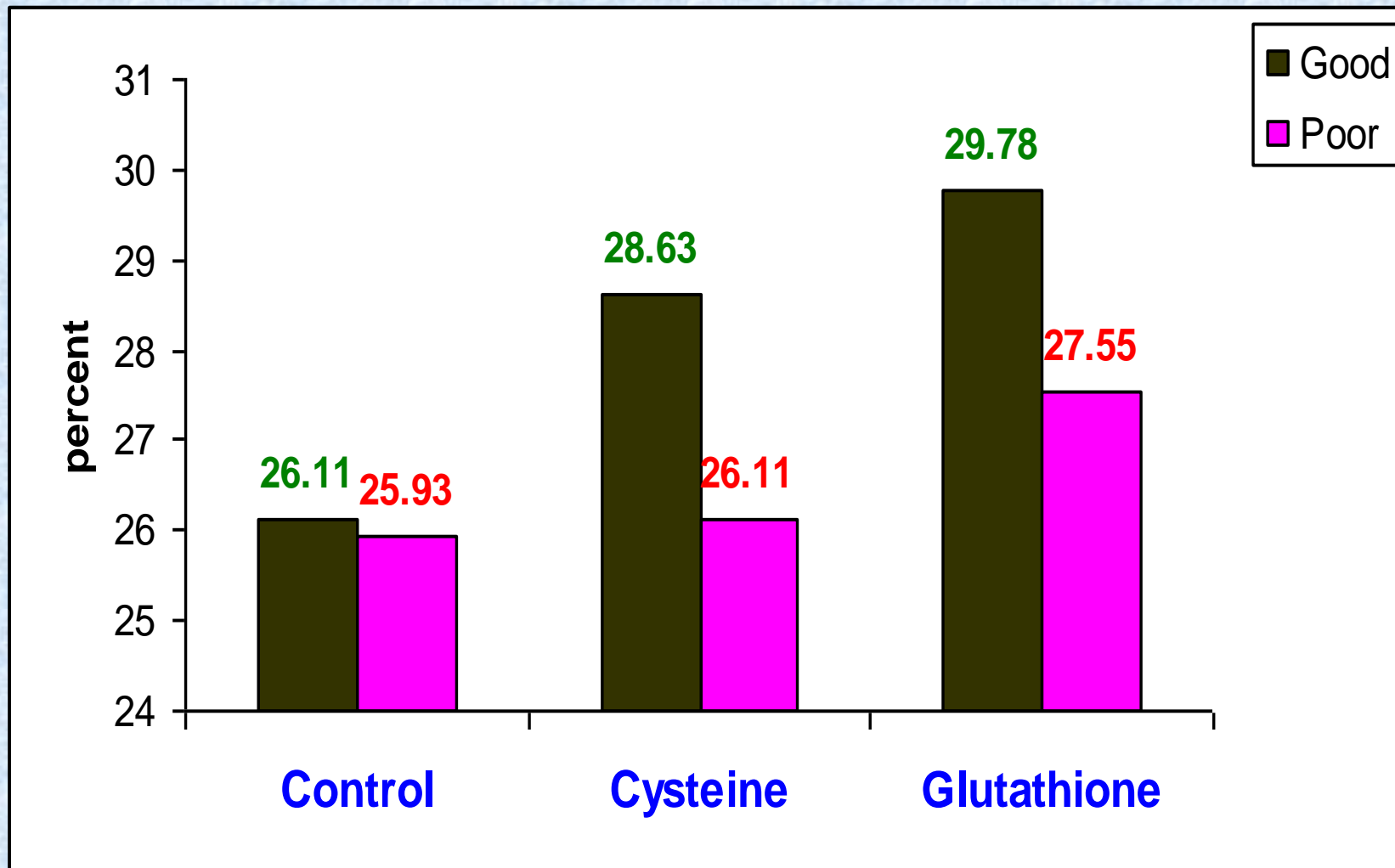


# POST THAW DNA FRAGMENTATION OF SPERM OF GOOD AND POOR FREEZABLE BULLS

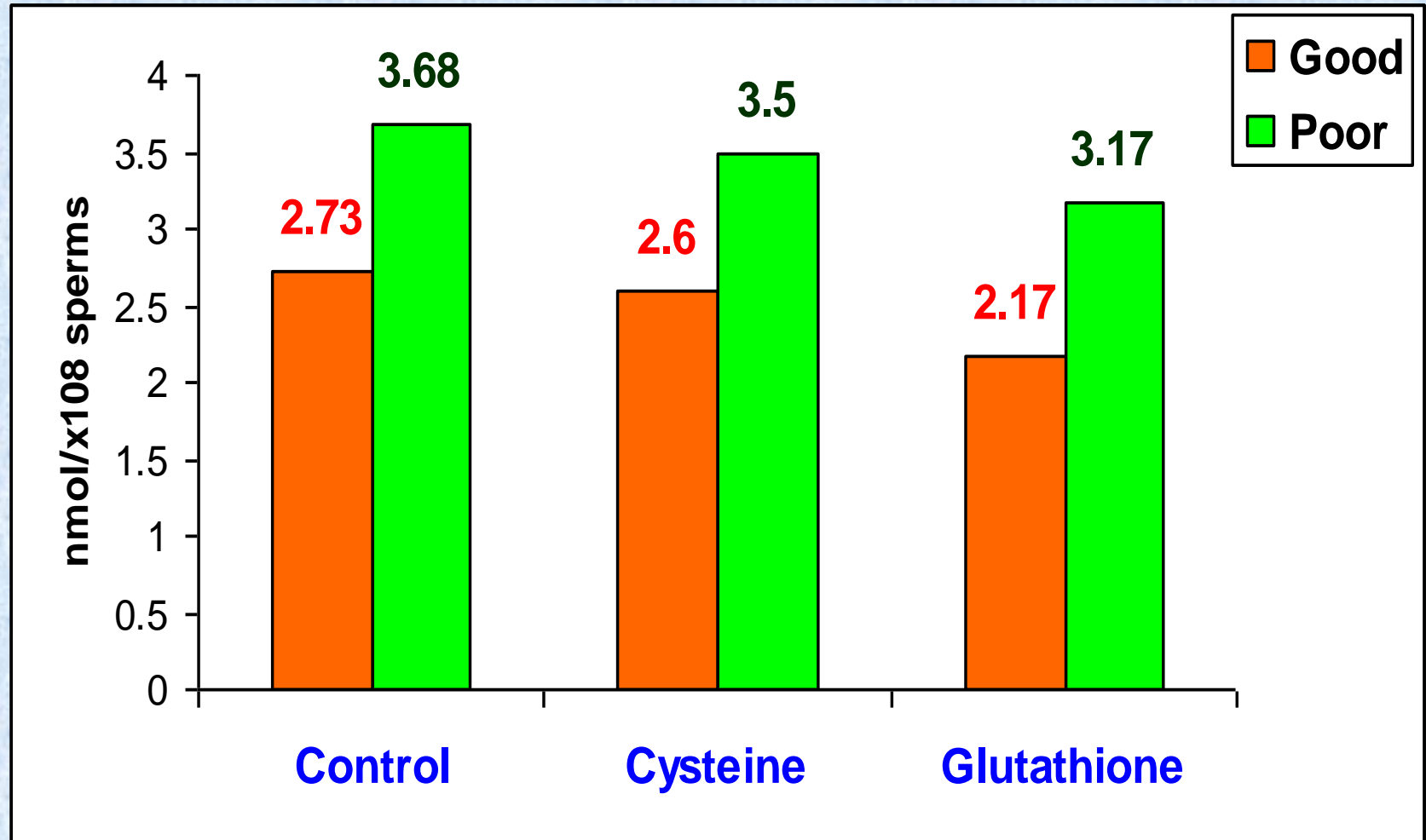


# POST THAW MITOCHONDRIAL MEMBRANE POTENTIAL OF SPERM OF GOOD AND POOR FREEZABLE BULLS

Nature Precedings : doi:10.1038/npre.2012.7009.1 : Posted 21 Mar 2012



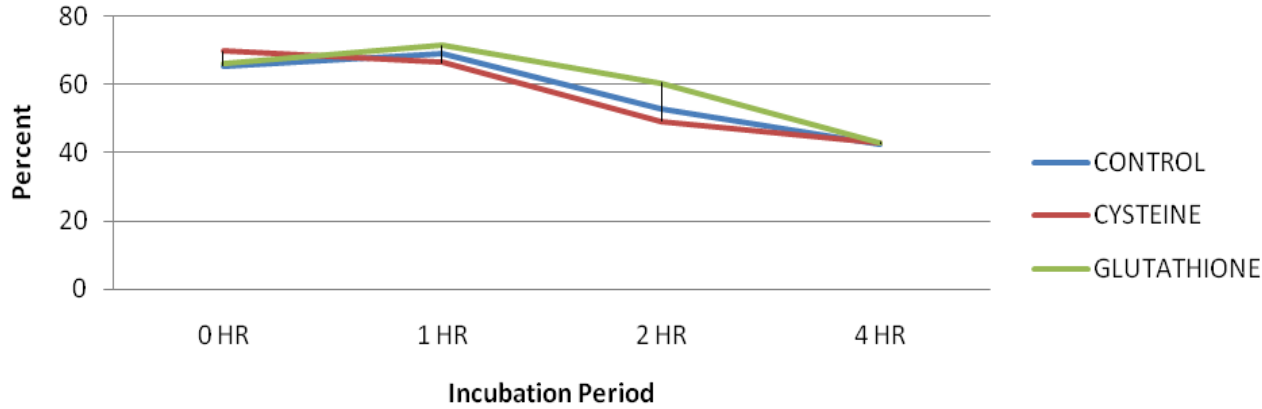
# POST THAW LIPID PEROXIDE OF GOOD AND POOR FREEZABLE BULLS



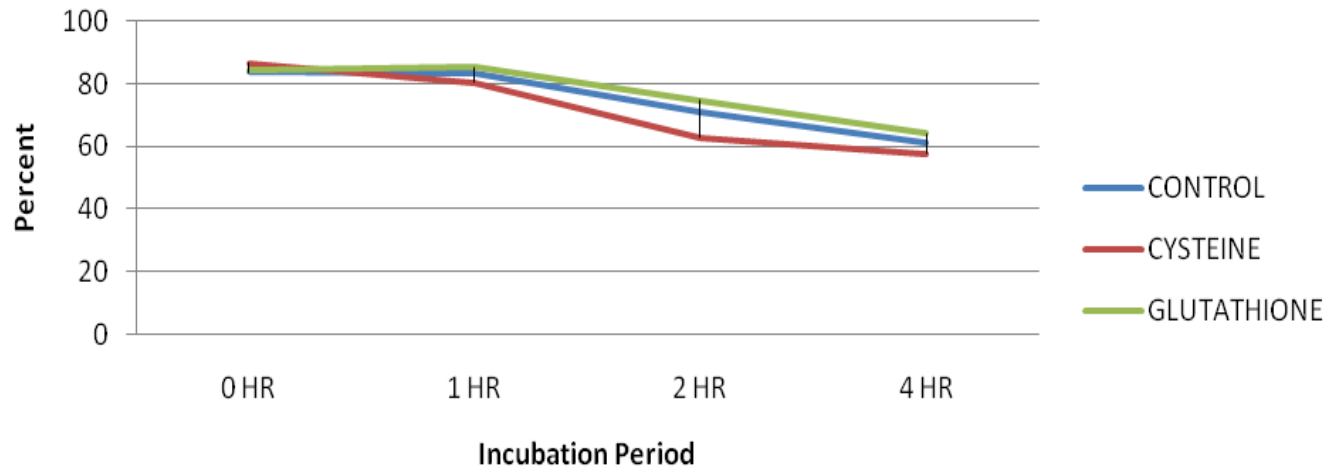


# MOTILITY PARAMETERS OF GOOD FREEZABLE BULLS

## Forward Progressive Motility

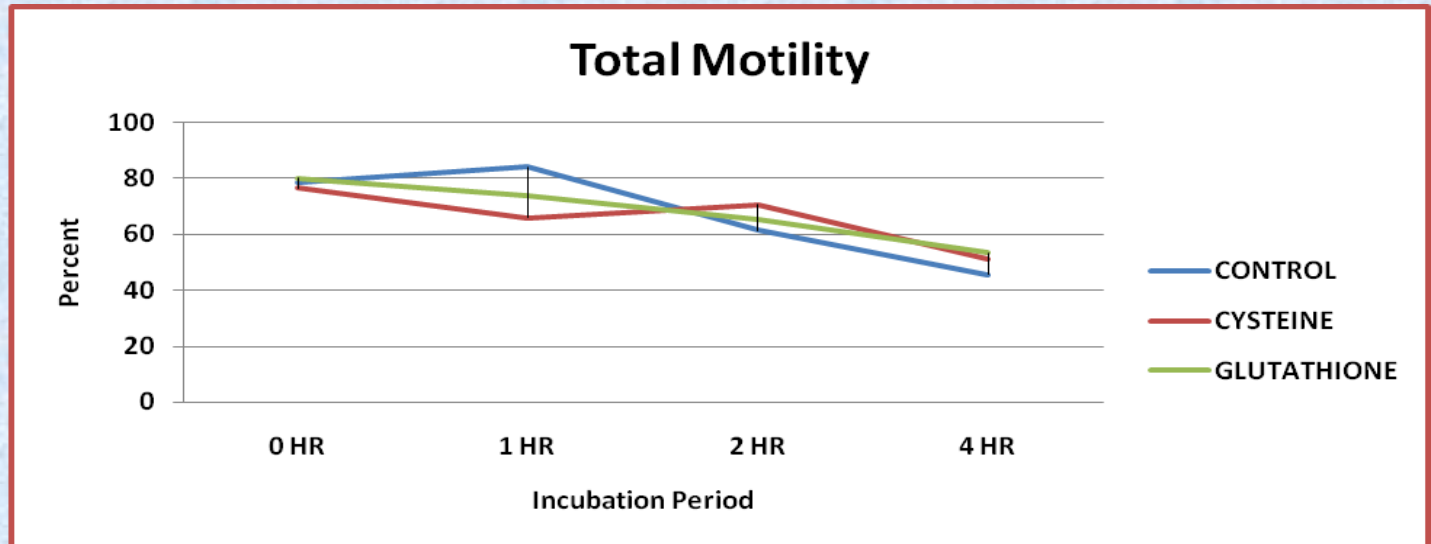
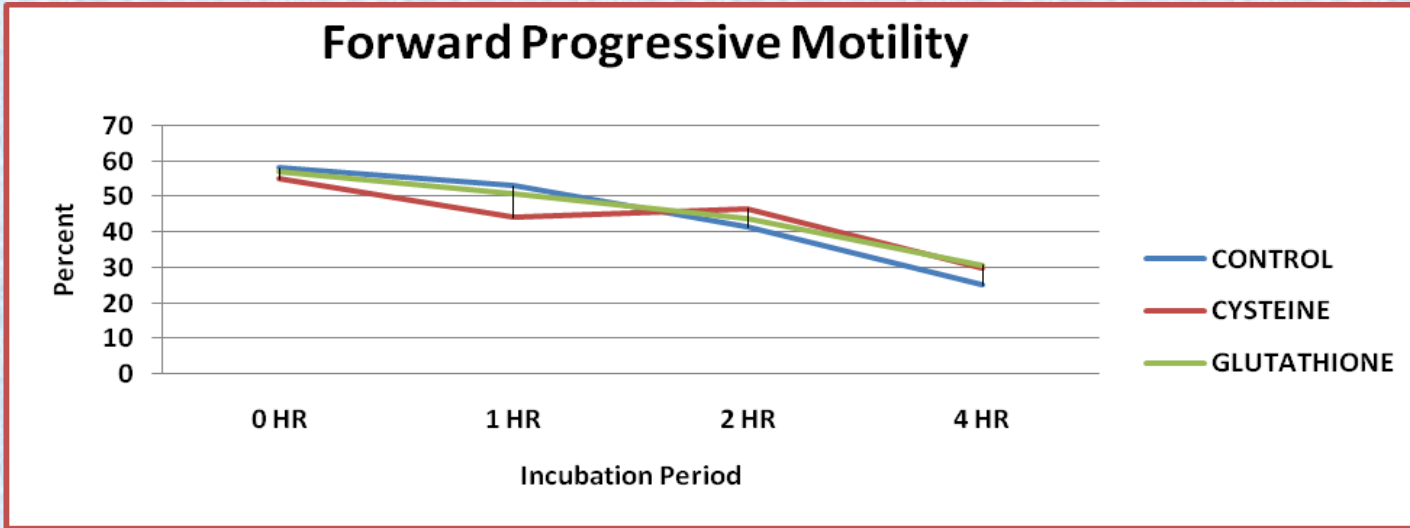


## Total Motility

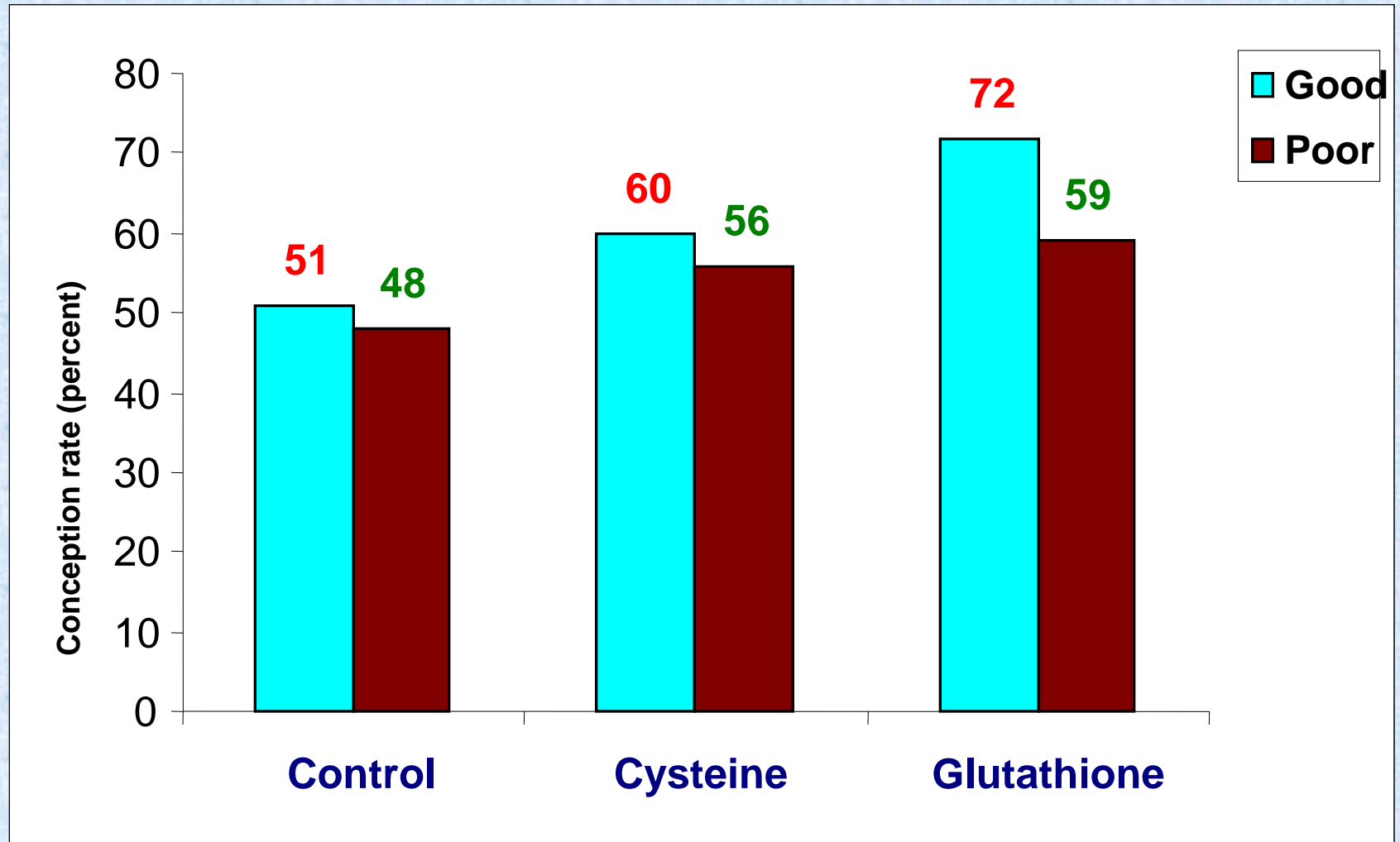


# MOTILITY PARAMETERS OF POOR FREEZABLE BULLS

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# POST INSEMINATION CONCEPTION RATE OF GOOD AND POOR FREEZABLE BULLS





THANK YOU