

Effect of attenuated PRRS vaccine Ingelvac® PRRS MLV on semen quality of boar



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INTRODUCTION

Porcine Reproductive and Respiratory Syndrome Virus (PRRSV) may be vertically transmitted in utero as well horizontally transmitted in colostrum, in aerosols, by close contact and by intrauterine exposure to contaminated semen. Boars may not show any clinical symptoms after PRRSV infection, but still shed virus to sows through contaminated semen, resulting in sow abortions and high mortality in suckling piglets. Vaccination is an effective method to control PRRSV infection, however, many people are hesitant to immunize their boars out of concern vaccine may impair semen quality. The aim of this study was to evaluate the effects of an attenuated PRRS live vaccine (Ingelvac® PRRS MLV) on boar semen quality so as to provide a reference for PRRS vaccination of boars.

MATERIALS AND METHODS

The trial was conducted in a 2,100-sow farrow-to-finish (one site) production system in China. It was PRRSV positive and stable. Sows were massively injected three times per year with Ingelvac® PRRS MLV while piglets were vaccinated at 14 days old. But boars were not vaccinated but positive from field virus. Thirteen boars were bled and randomly divided assigned to experimental (vaccinated) or control group, 7 and 6 boars respectively. Each boar was individually housed in a common house / airspace with ad lib water and twice daily feeding. Cleaning, disinfection and immunization with other vaccines were implemented according to routine procedures to all study boars. Four weeks prior to the start of semen collection, a serum sample was collected from each boar for rt-PCR for detection of PRRS; experimental treatment boars were vaccinated the same day.

Semen was collected per the normal production schedule, approximately once per week. The semen index (sperm quantity, sperm density, sperm motility and malformation rate) was recorded for each boar for two months, and compared to both the before and after period, and between experimental and control group. Graphpad Prism 6 was used to draw the graphs and T-test for P value within this software.

RESULTS

There were no significant differences from before to after PRRSV vaccination in the vaccinated boars for sperm volume ($p=0.87$), density ($p=0.13$) and motility ($p=0.87$); Figure 1. There was a significant improvement in malformation rate ($p=0.05$) following vaccination; example in Figure 2. There were no significant differences between groups following vaccination for any parameter. One boar in the control group tested positive on serum PCR for PRRSV prior to the start of the study; during the study, all serum were negative for PRRS.

Figure 1: Statistical results of 4 semen quality indexes

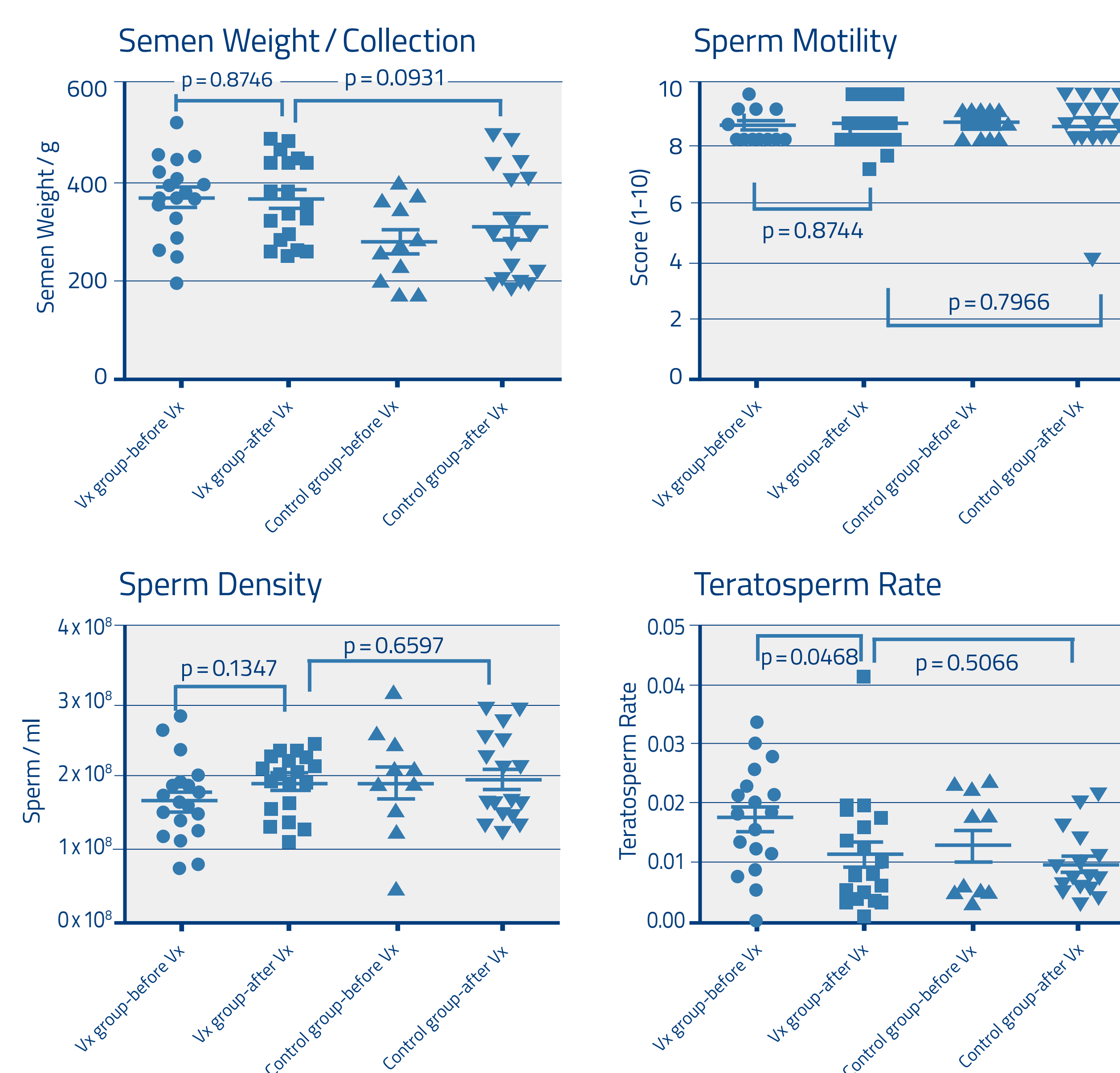
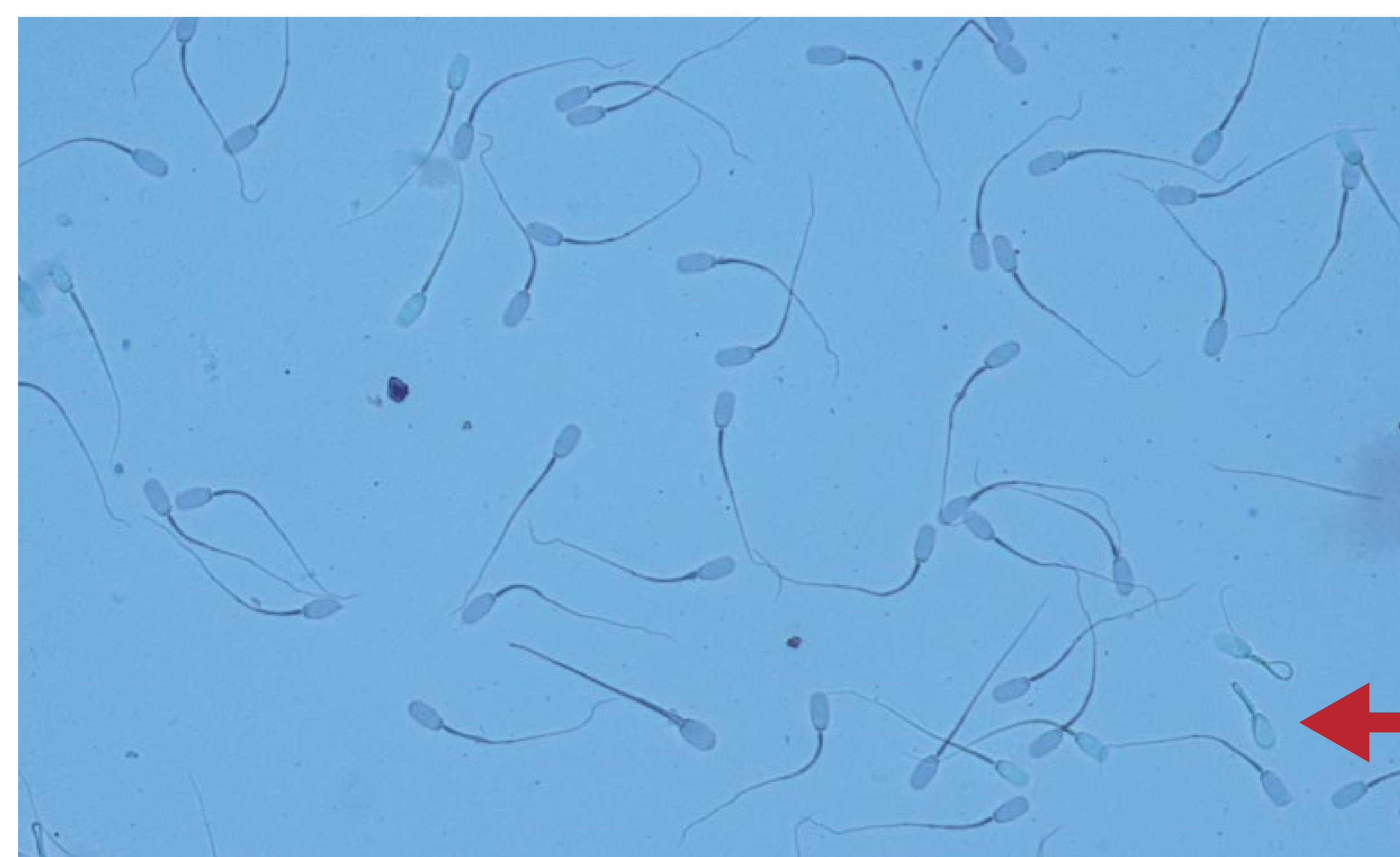


Figure 2: Sperm morphology stained by Giemsa. The arrow represents one malformed sperm with short tail.



DISCUSSION

This experiment demonstrated vaccination with Ingelvac® PRRS MLV did not affect semen quality parameters in previously positive boars, compared to both a pre-vaccination period and control boars. It was interesting to note vaccinated boars had an improved (reduced) malformation rate following vaccination. Ingelvac® PRRS MLV was safely used in positive boars, and improved the semen index.

