



# The effect of treatment compliance on pregnancy rates per artificial insemination in lactating dairy cows

A. George<sup>1</sup>, A. Rangel<sup>1</sup>, S. Narvaez-Sanchez<sup>1</sup>, E. Bohnen<sup>1</sup>, K. Schulte<sup>1</sup>, M. McCracken<sup>1</sup>, K. Langhofer<sup>1</sup>, S. Ramos<sup>1</sup>, R. Rezende<sup>2</sup>, D. Duhatschek<sup>2</sup>, T. Cuncha<sup>2</sup>, P. Fricke<sup>3</sup>, G. Bethard<sup>4</sup>, V. Gomez-Leon<sup>5</sup>, JP. Andrade<sup>1</sup>

<sup>1</sup>Department of Agricultural Sciences, West Texas A&M University Canyon, TX, USA, <sup>2</sup>Parnell Pharmaceuticals Overland Park, KS, USA, <sup>3</sup>Department of Animal and Dairy Sciences, University of Wisconsin-Madison Madison, WI, USA, <sup>4</sup>High Plains Ponderosa Dairy Plains, KS, USA, <sup>5</sup>Department of Animal Sciences and Industry, Kansas State University Manhattan, KS, USA



## Objective

The objective of this study was to evaluate the effect of treatment compliance on pregnancy per artificial insemination (P/AI) in lactating dairy cows enrolled in a newly developed ovulation synchronization protocol, SimpleSynch.

## Materials and Methods

- Treatments were initiated between 44±3 days in milk (DIM)
- Gonadotropin-releasing hormone (GnRH) administered on day 0 (100 µg gonadorelin)
- Prostaglandin F<sub>2α</sub> (PGF) on day 7 (0.5 mg cloprostenol)
- GnRH on day 9
- Second GnRH injection on day 14 (200 µg)
- Final PGF injection on day 21 (1 mg)
- The expected distribution of AI was hypothesized to be 90% from LUT2 until GnRH4 and 10% at TAI
- Cows that failed to exhibit estrus by day 26 received a GnRH injection and were inseminated by timed artificial insemination (TAI) on day 27.

Figure 1: SimpleSynch protocol

DIM	SUN	MON	TUE	WED	THUR	FRI	SAT
44±3	*GnRH1						
51±3	*LUT1		*GnRH2				
58±3	GnRH3						
65±3	LUT2	Estrus + AI				GnRH4	TAI

\*Presynch treatments  
Synch treatments

## Results

Figure 2: Pregnancy per AI for Estrus AI vs. TAI (no estrus)

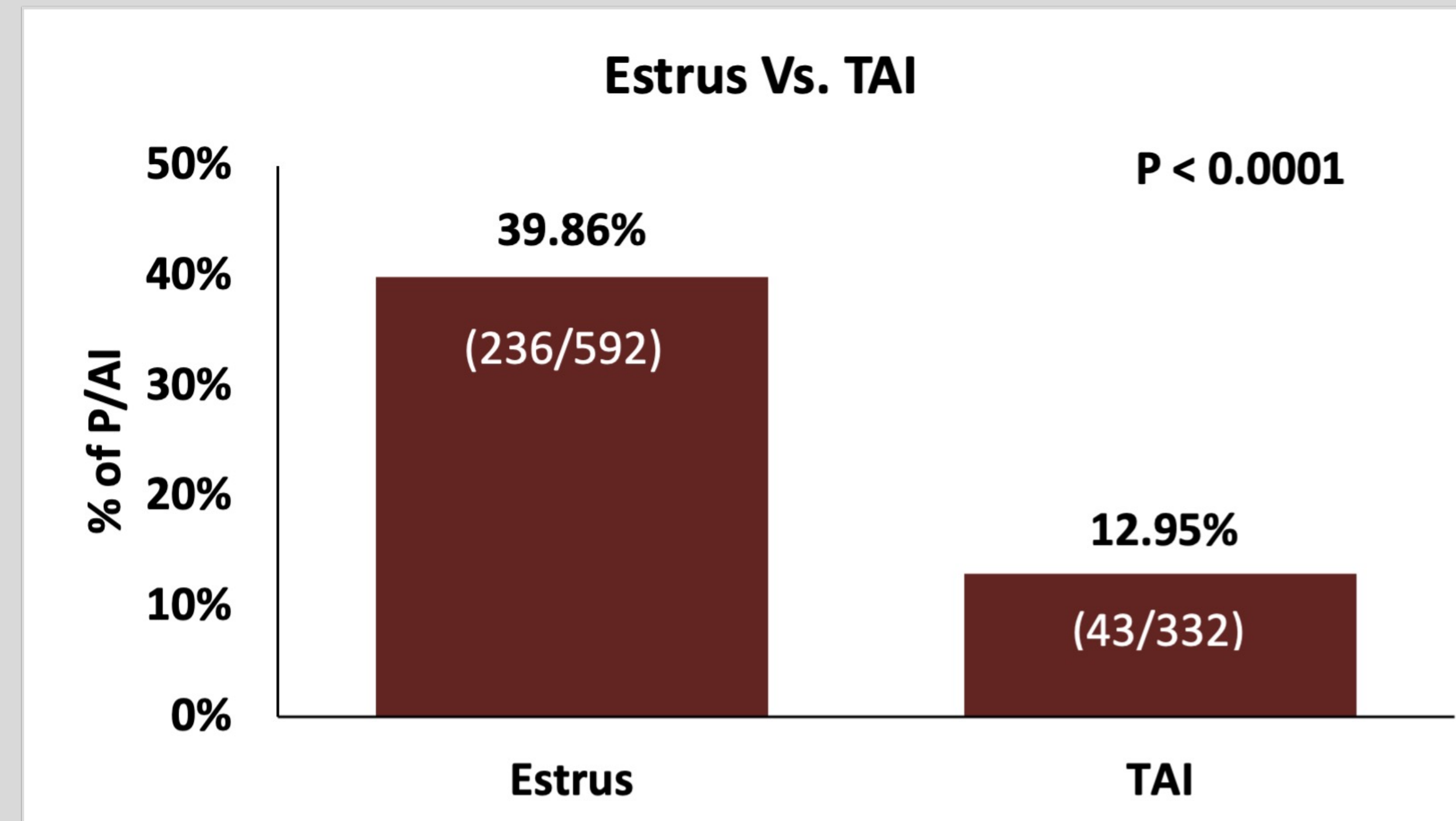


Figure 3: Pregnancy per AI according to Presynch treatment compliance for cows inseminated in Estrus

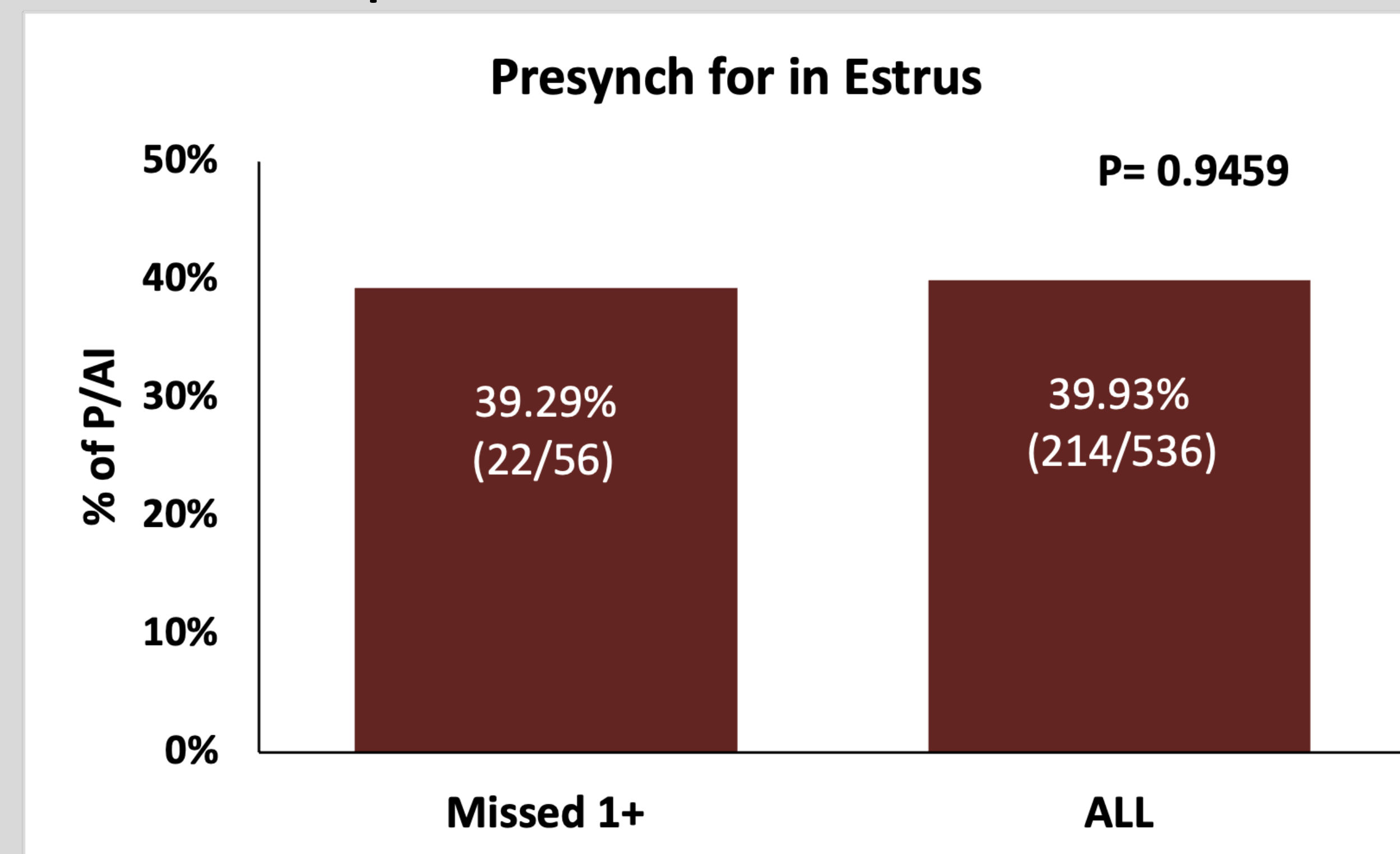


Figure 4: Pregnancy per AI according to Synch treatment compliance for cows inseminated in Estrus

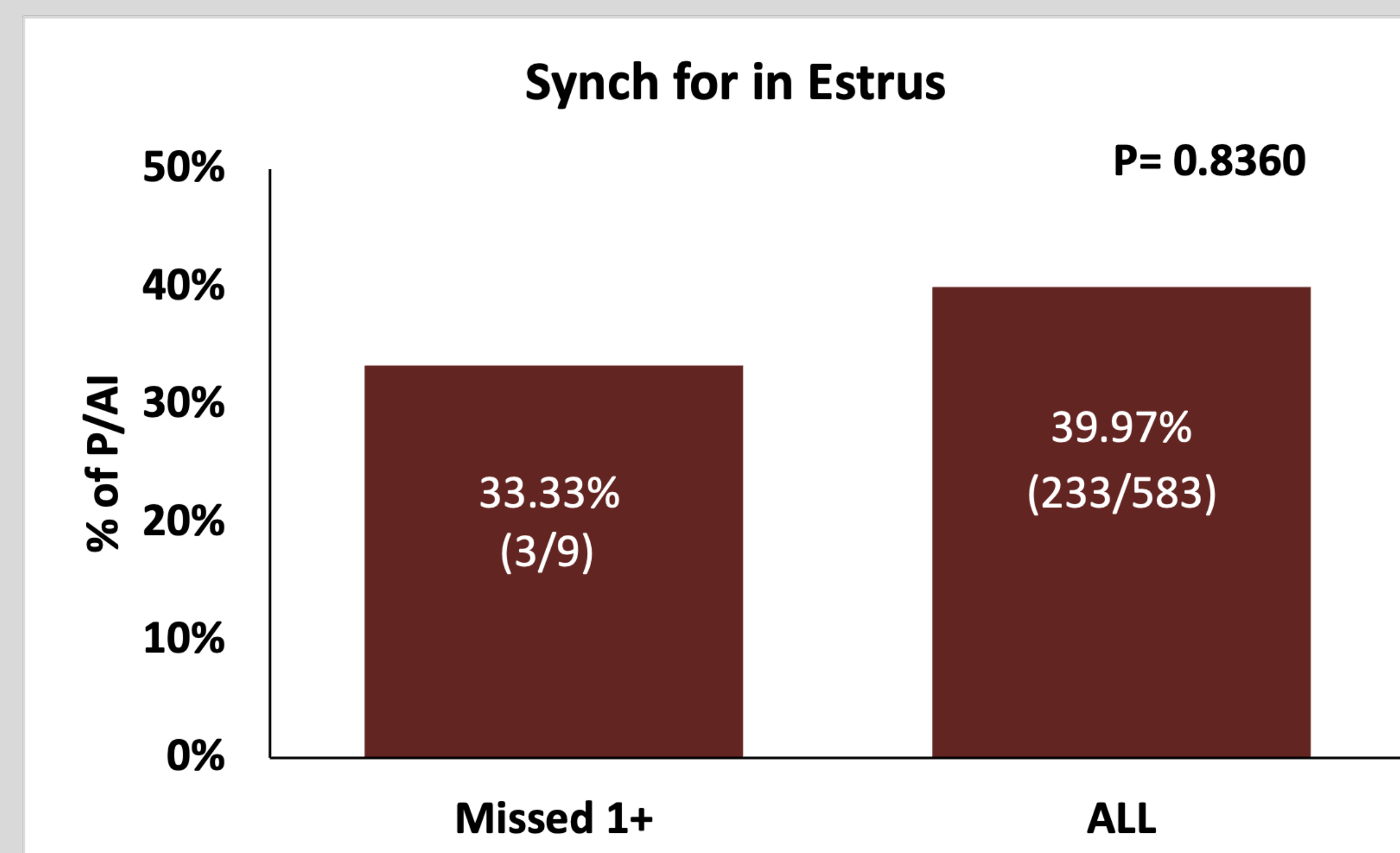


Figure 5: Pregnancy per AI according to Presynch treatment compliance for cows inseminated with TAI

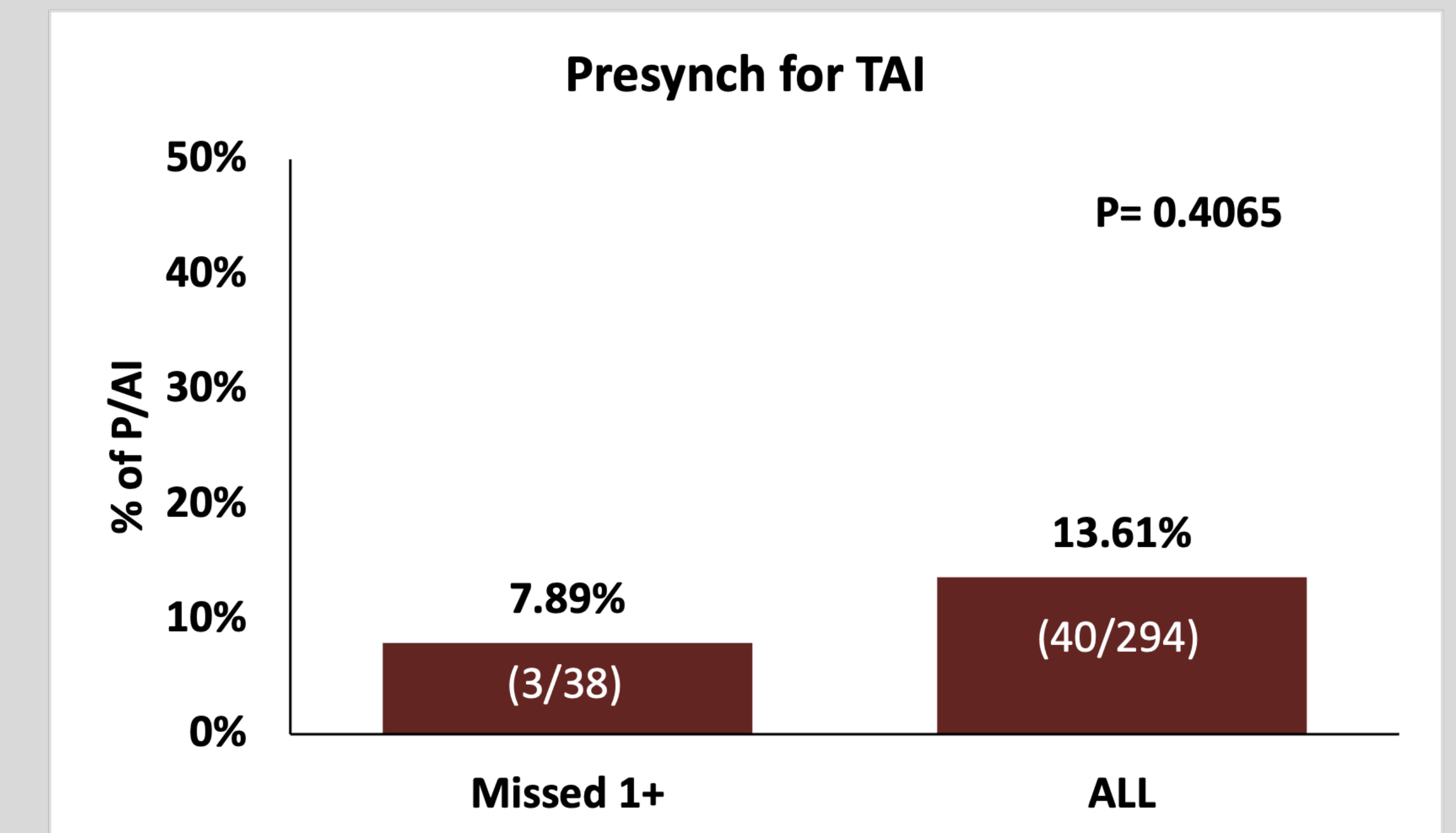
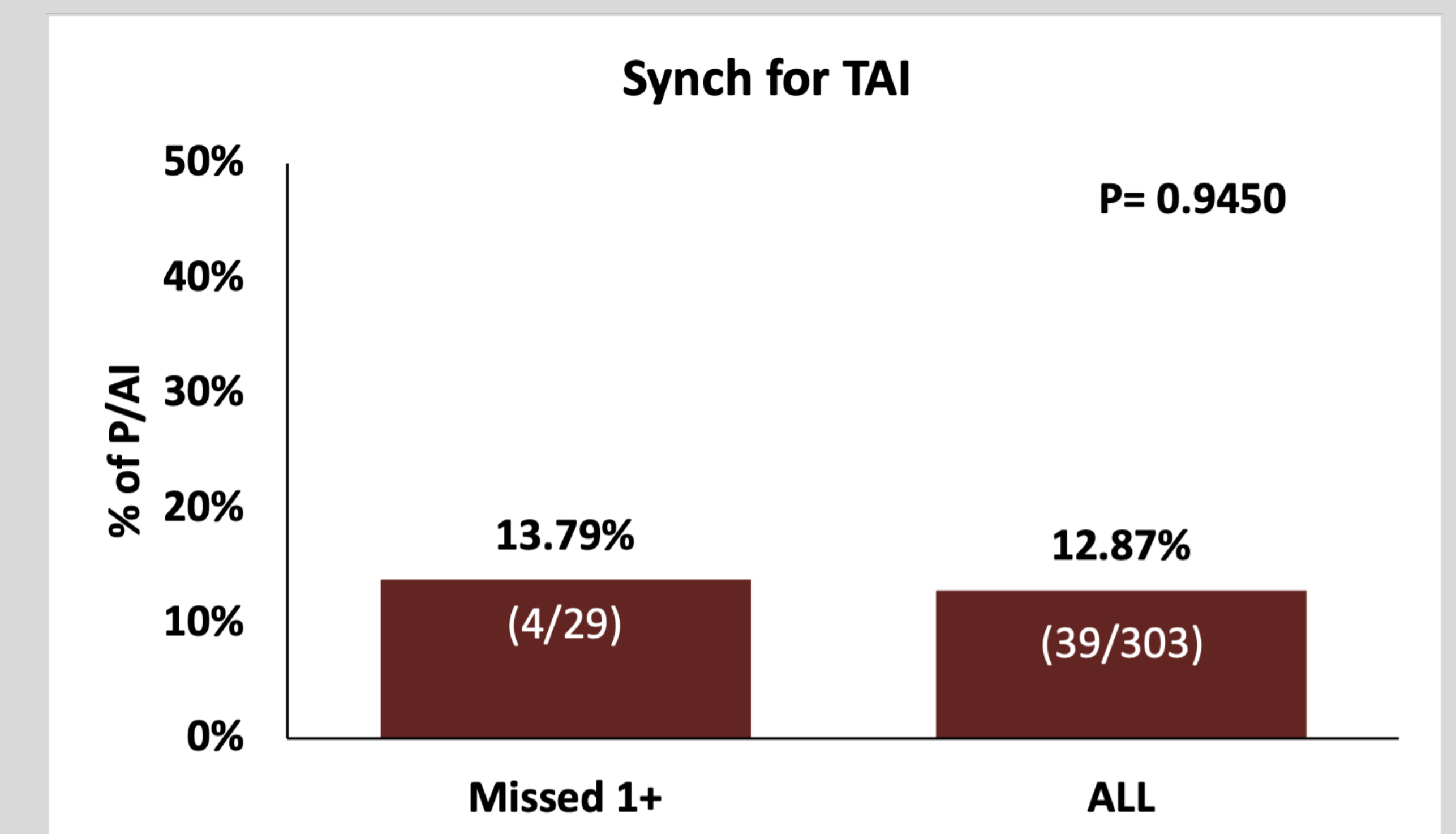


Figure 6: Pregnancy per AI according to Synch treatment compliance for cows inseminated with TAI



## Conclusion

In conclusion, using SimpleSynch partial noncompliance with Presynch or Synch protocol components had no negative impact on conception rates while insemination at detected estrus yielded higher pregnancy per AI than timed AI (TAI). Nevertheless, further modification are needed to increase the proportion of cows AI in estrus after LUT2.

## Contact Information

Austin D. George  
Research Assistant  
West Texas A&M University  
[ageorge@wtamu.edu](mailto:ageorge@wtamu.edu)

Dr. JP Andrade, DVM, PhD  
Professor of Animal Science  
West Texas A&M University  
[jandrade@wtam.rdu](mailto:jandrade@wtam.rdu)