

Effect of Dry Period Length on Reproductive Measures During the Subsequent Lactation in Holstein Cows

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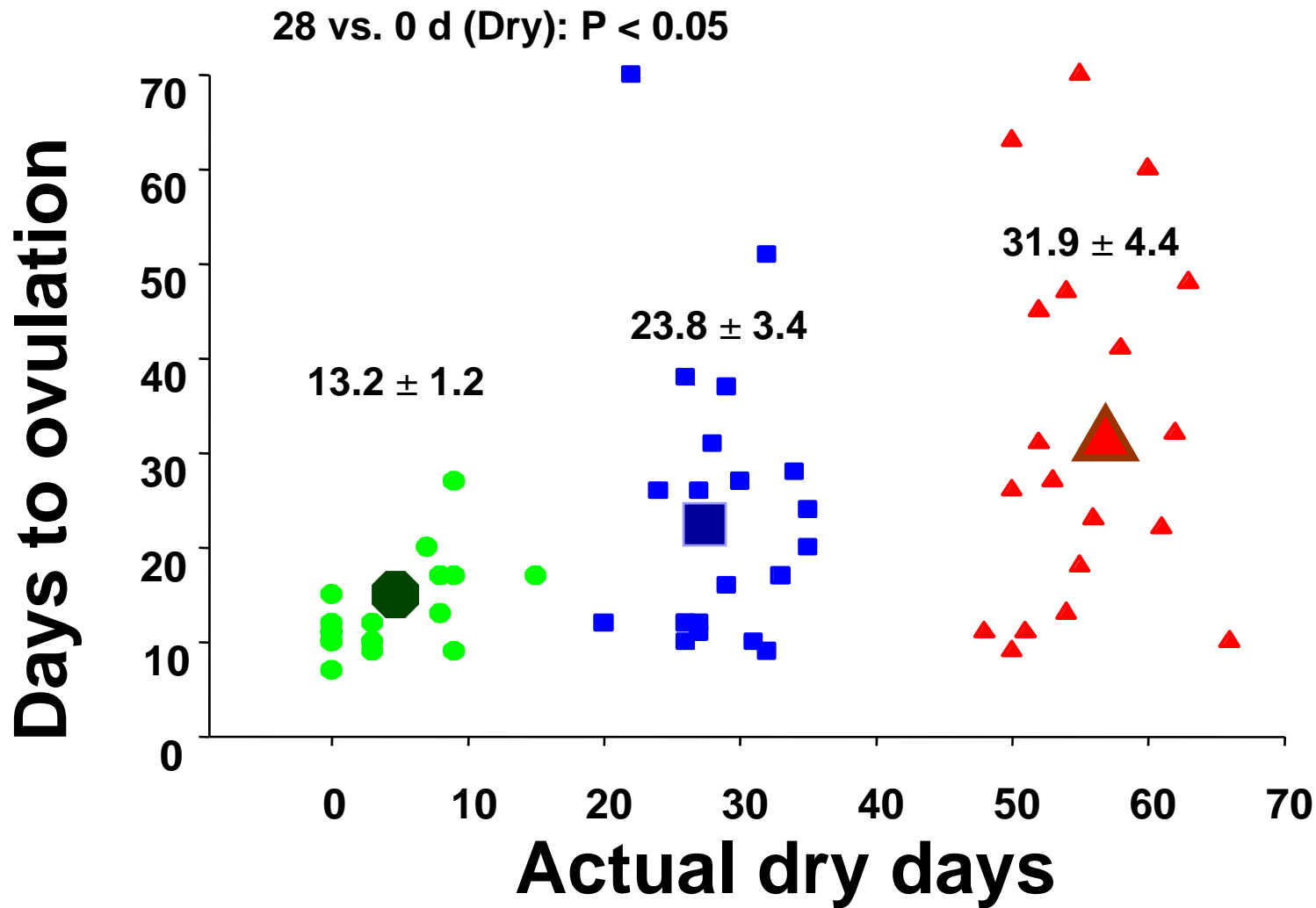
Introduction

- Conception rates may be related to:
 - More ovulations prior to first service
 - Ovulation may be related to energy balance
 - EB nadir
 - Time of nadir
 - Butler *et al.*, 1981

Introduction

- Previous research from our lab (Gumen *et al.* 2005)
- First Service Conception Rate
 - No dry = 55% (n=23)
 - Short dry = 26% (n=23)
 - Traditional dry = 20% (n=20)
 - No dry and traditional are significantly different ($P < 0.05$)
- Days Open
 - No dry = 94
 - Short dry = 121
 - Traditional dry = 145
 - No dry and traditional are significantly different ($P < 0.05$)

First Postpartum Ovulation





Interpretation

- Previous data needs to be interpreted with caution due to low cow numbers
- We wanted to replicate a similar trial with greater animal numbers



Objectives

- To determine if reducing the dry period will have an effect on:
 - Days to first ovulation
 - Days to first AI
 - Conception rate
 - Days open
 - Percent of cows pregnant at 300 DIM

Materials and Methods

■ 2 dry period lengths

- Conventional dry period = 55 days (n=382)
- Short dry period = 34 days (n=390)
- Treatments based on what producer would allow
- Cows milked 4X during 1st 30 DIM
- Rest of trial milked 3X

Materials and Methods

■ Qualification for trial

- Second lactation or greater
- Cows chosen from 3,000 cow commercial dairy
 - Co-mingled within herd
- Assigned to treatments at 170 days carried calf (DCC)
- 2 criteria observed at 170 DCC
 - >18 kg milk/day
 - <400 DIM
- Randomized by ear tag

Materials and Methods

- Voluntary Waiting Period
 - 45 days
- Tail chalk
- Split straws for breeding
- 70 DIM Ovsynch starts (bred 80-86 d)
 - Cows are bred to heat or timed AI during Ovsynch
 - Bred 72 hrs after PGF injection
 - GnRH given at time of breeding

Resumption of ovarian activity

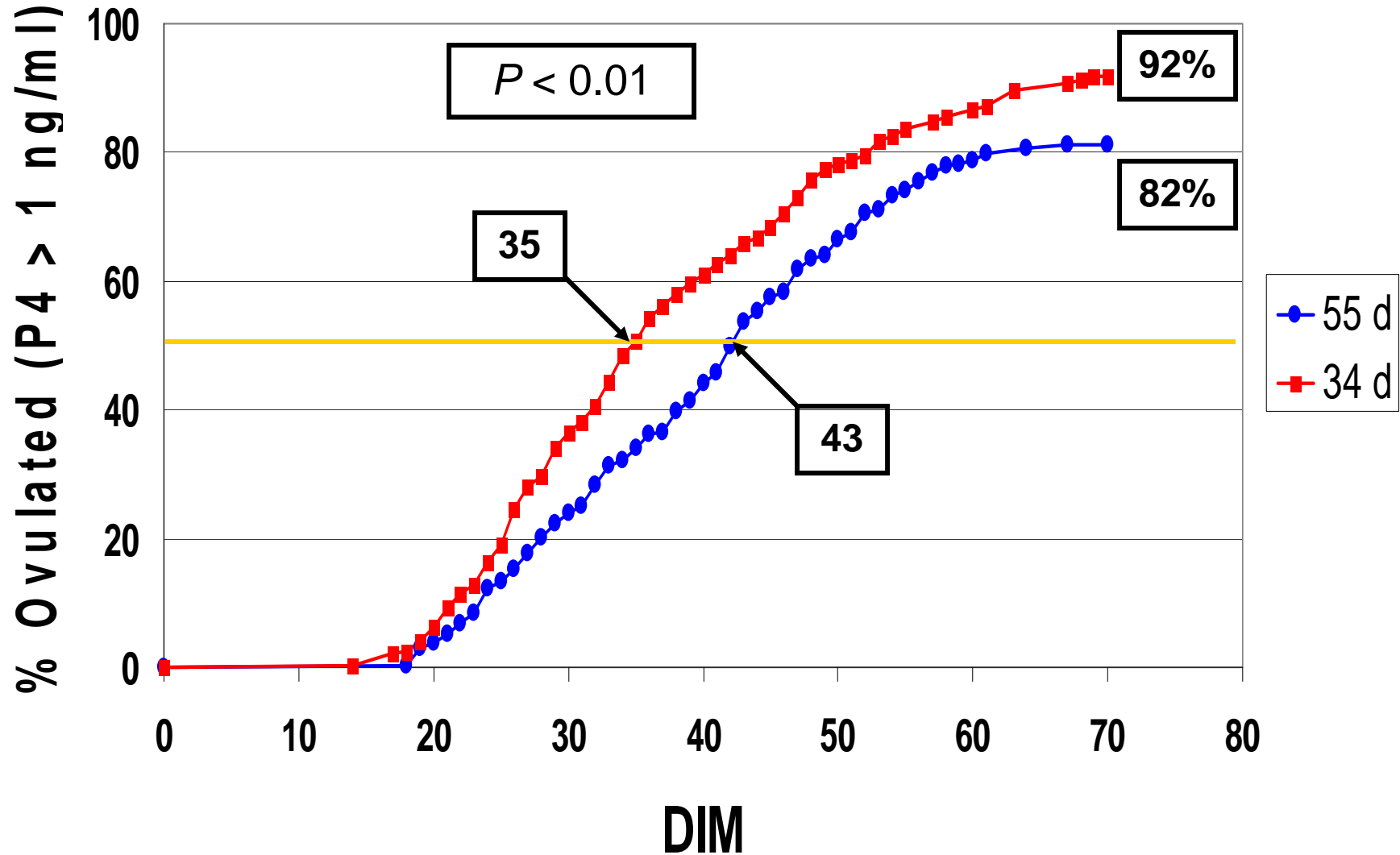
- 14 DIM begin blood sampling
 - Weekly blood samples up to 70 DIM
 - Ovulation determined from plasma progesterone being present at $>1\text{ng/ml}$
 - If blood sample $>1\text{ng/ml}$, then sampling terminated
 - Cows are classified anovular:
 - No sample $>1\text{ng/ml}$ prior to 70 DIM



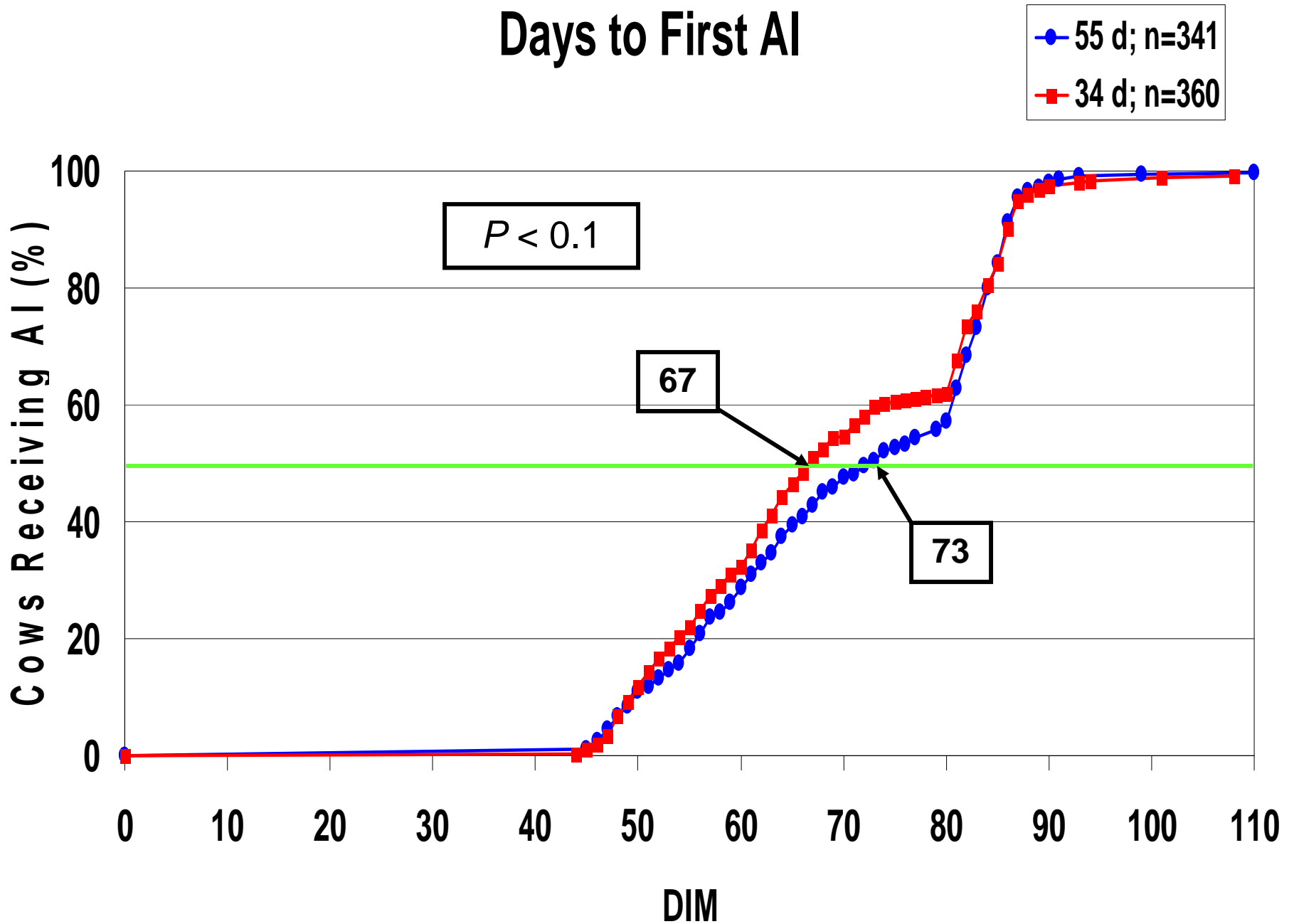
Statistical Analysis

- Randomized Design
 - Survival Analysis
 - Chi-Square

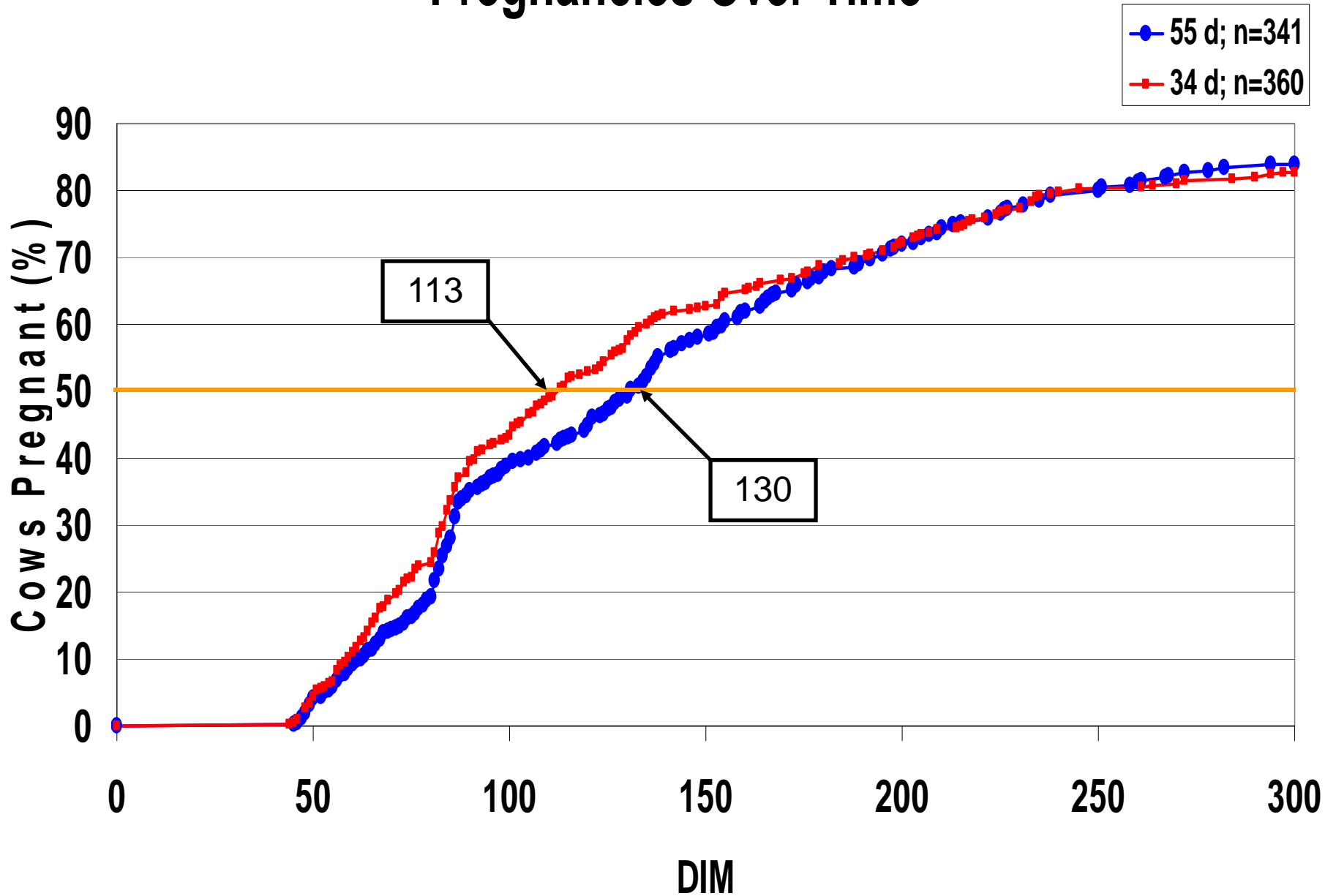
Days to First Ovulation



Days to First AI



Pregnancies Over Time



Dry Period Length & Fertility

	55 d	34 d	<i>P</i> -value
n	341	360	
Days to 1 st Ovulation ¹	43	35	<i>P</i> < 0.01
Days to 1 st AI ¹	73	67	<i>P</i> < 0.1
Days to 2 nd AI ¹	105	102.5	NS

¹ Based on survival analysis with median values

Dry Period Length & Fertility

	55 d	34 d	<i>P</i> -value
n	341	360	
1 st Service CR	31.1% (106/341)	31.1% (112/360)	NS
2 nd Service CR	33.9% (56/165)	41.7% (75/180)	NS
Overall CR	29.6% (262/883)	30.8% (284/921)	NS
Pregnant @ 150 DIM	58%	63%	$P < 0.1$
Pregnant @ 300 DIM	83%	83%	NS
Days Open ¹	130	113	NS

¹ Based on survival analysis with median values



Conclusions

- Results from a reduced dry period
 - Showed a sooner days to first ovulation
 - Supported previous data relating to conception rate and days open