Managing Reproduction In High Producing Dairy Herds

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Euroopa Maaelu Arengu Põllumajandusfond: Euroopa investeeringud maapiirkondadesse

How to get cows pregnant?

Rule 1: Put semen in the cow.

Rule 2: If she is not pregnant….
refer to rule one

How to achieve high 21d pregnancy rate

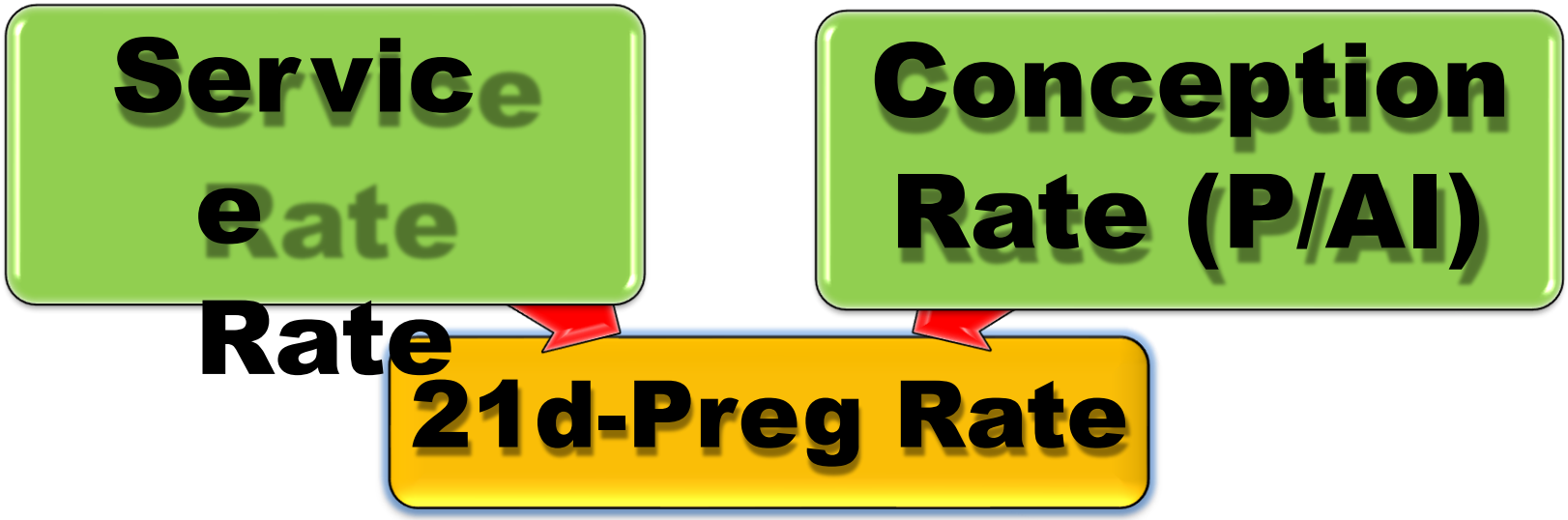
Aggressively inseminate cows at the end of the voluntary waiting period

Increase fertility to first AI

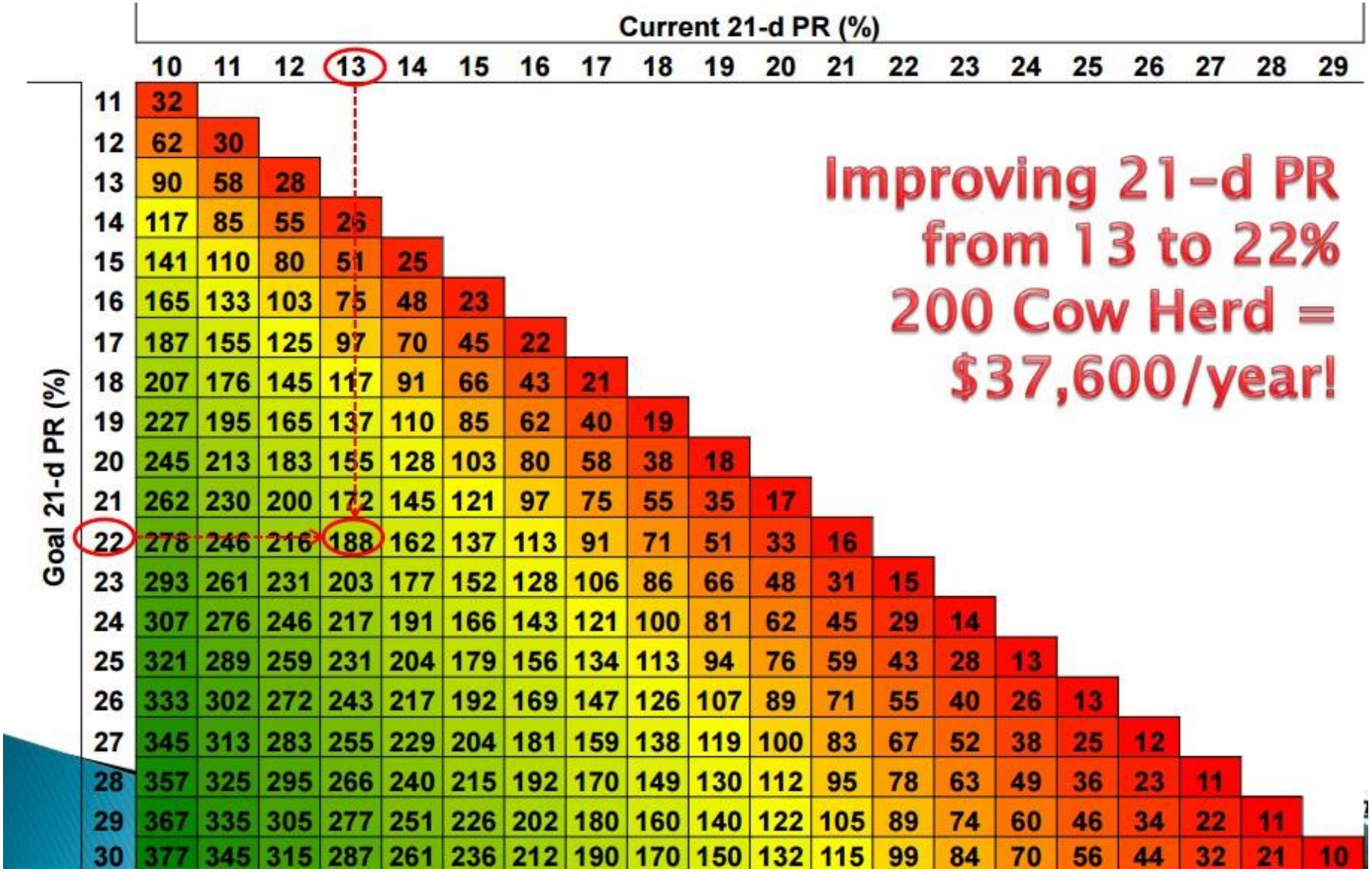
Identify nonpregnant cows and aggressively reinseminate them

Increase fertility to 2nd and greater AI

21-Day Pregnancy Rate

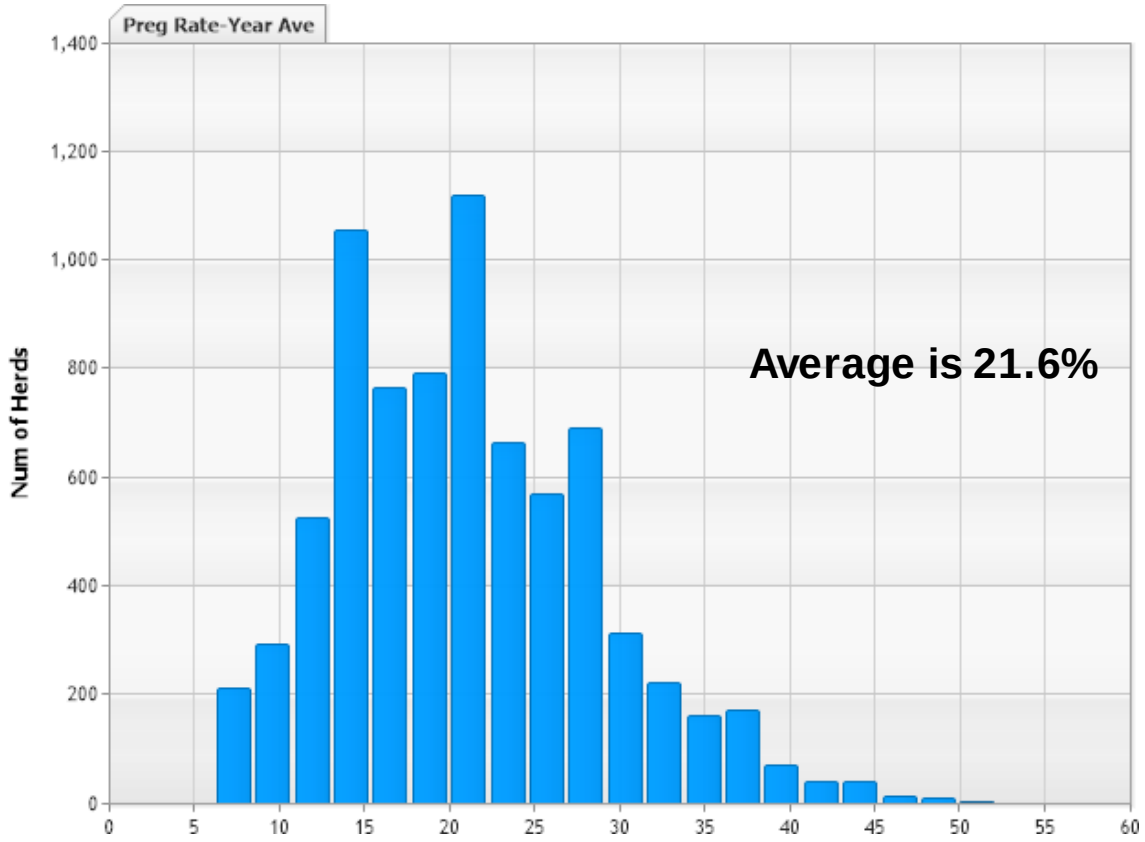


What to Expect Then?... $/cow/year



Cabrera, 2012

Current Preg Rate Distribution - 2019



Dataset: DRMS, USA, Holstein, 50 cows or more, Preg Rate=5-50%. Dataset is 7051 herds, 1,798,000 cows with DRMS.
(this excludes herds that use bulls and/or only enter a breeding when pregnant but not all breedings)

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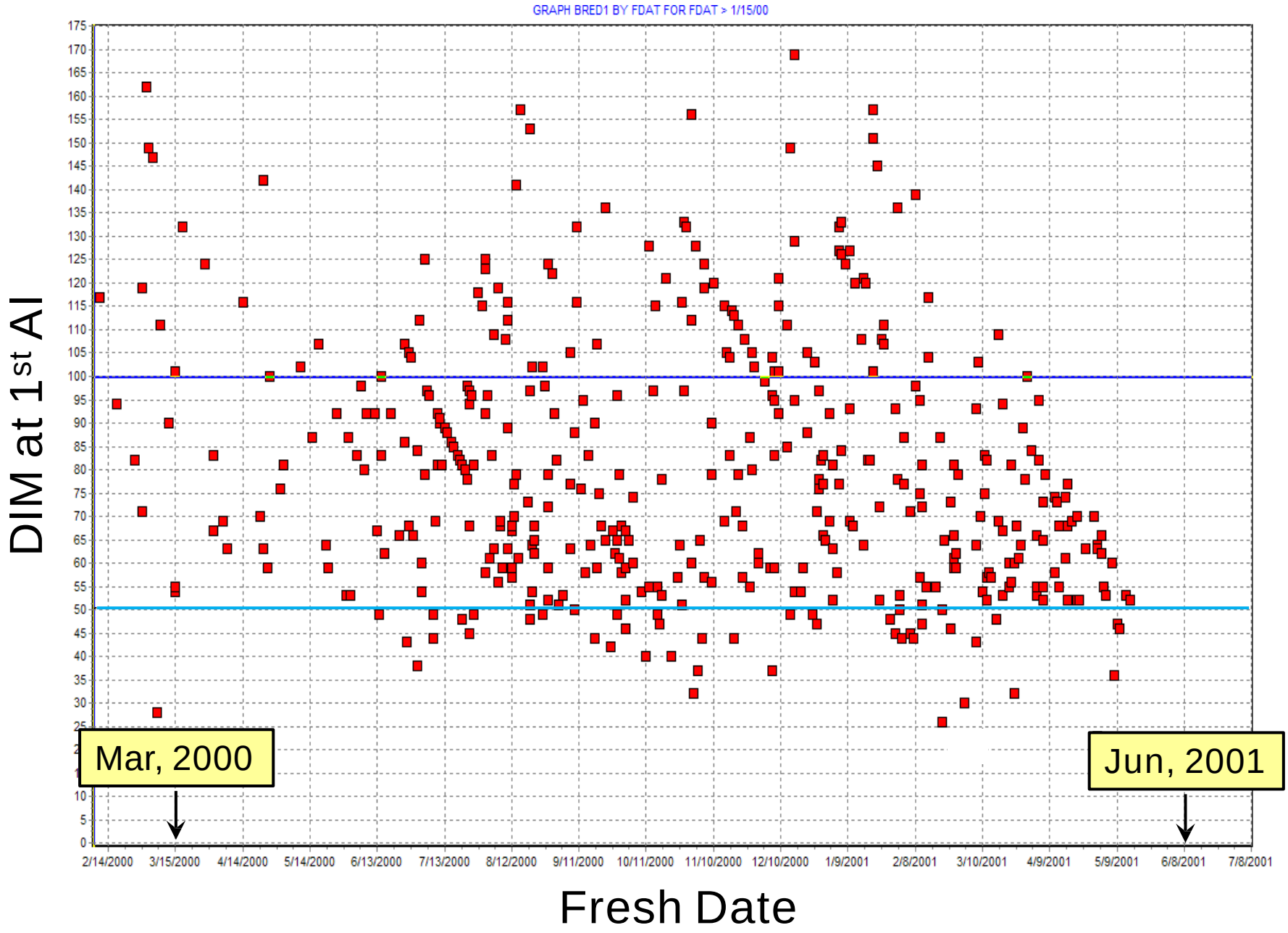
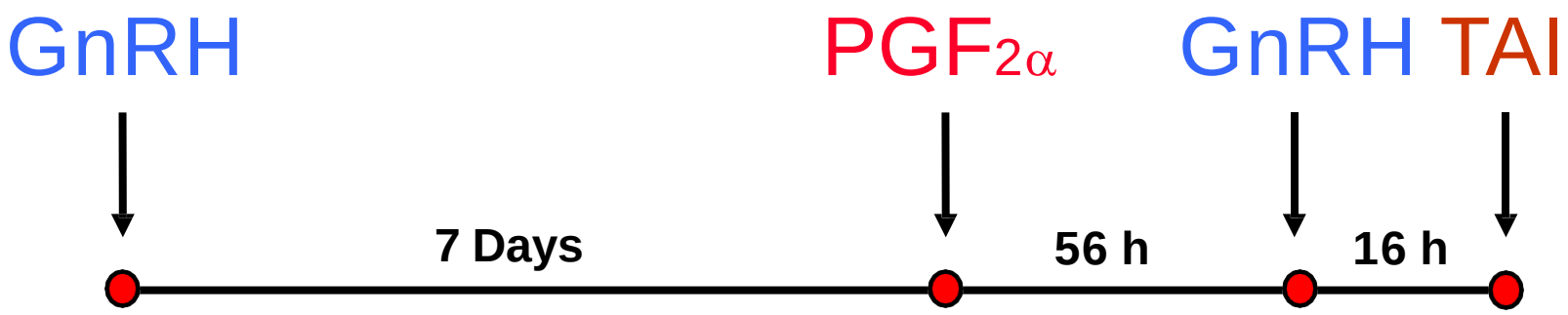
Distribution of DIM at 1st AI



Ovsynch

Pursley, Mee, & Wiltbank, 1995
Theriogenology 44:915



Reproductive Management of Lactating Dairy Cows Using Synchronization of Ovulation

1997 J Dairy Sci 80:301–306

J. R. PURSLEY, MICHAEL R. KOSOROK,[1] and MILO C. WILTBANK[2]
Department of Dairy Science, University of Wisconsin, Madison 53706

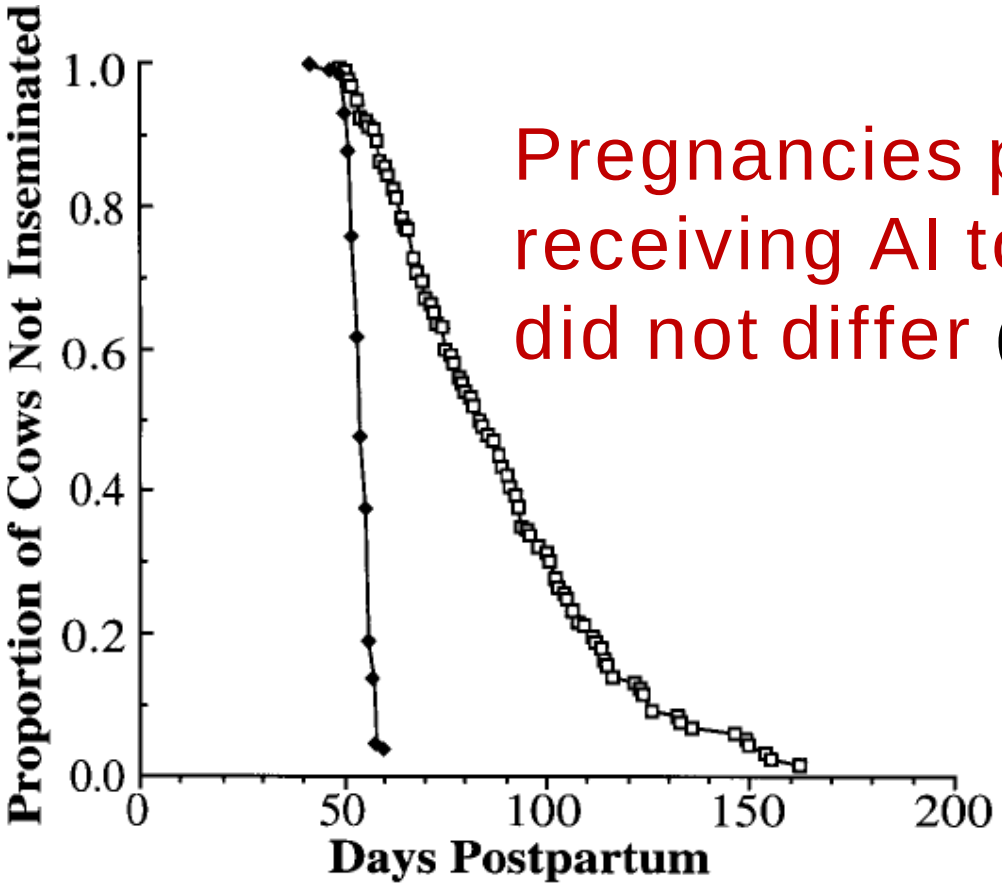
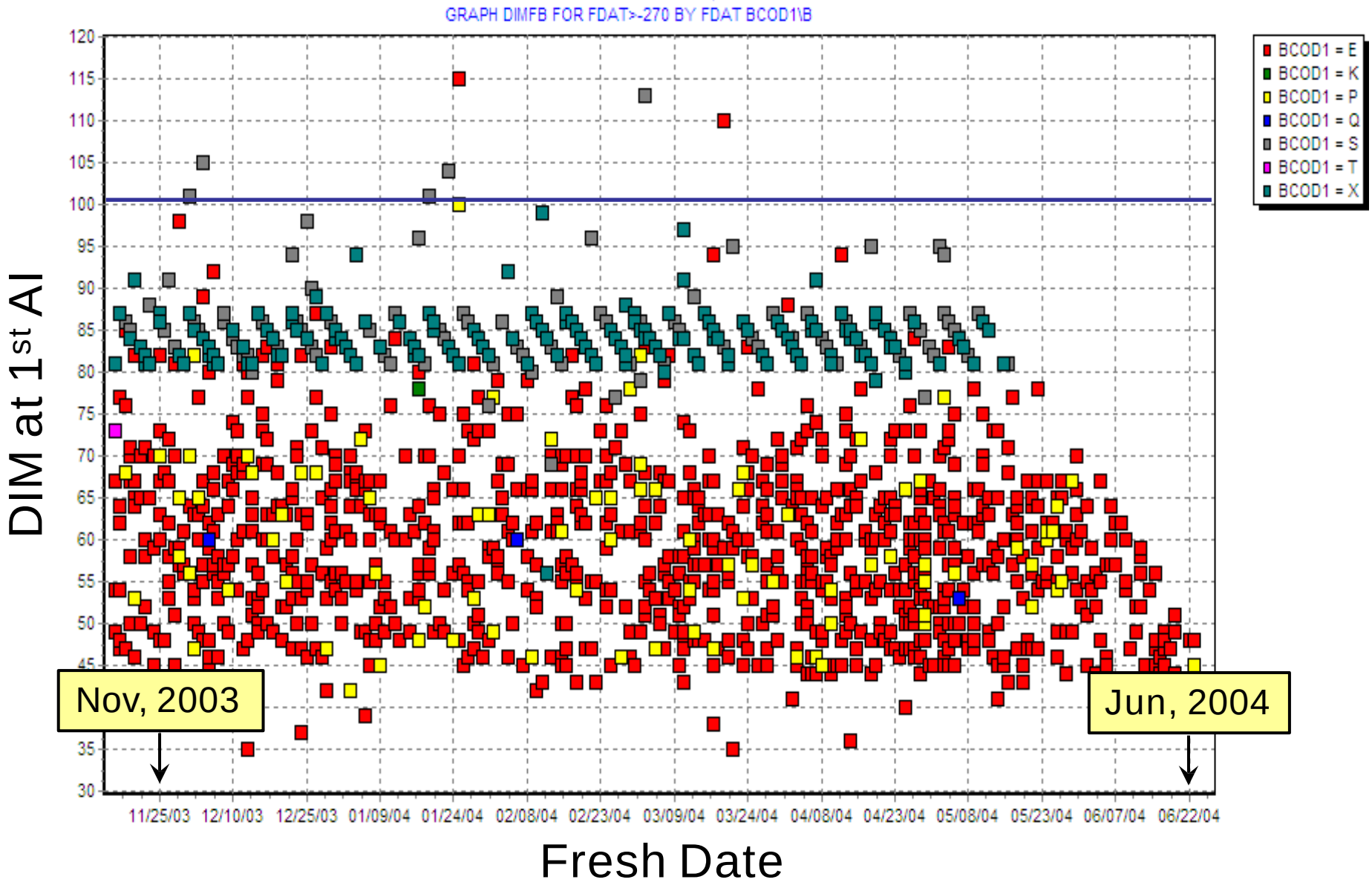


Figure 1. Survival curves for days to first AI in lactating Holstein cows managed with standard reproductive strategies (□) versus timed AI after synchronization of ovulation (♦).

Pregnancies per AI between cows receiving AI to estrus vs. Timed AI did not differ (39% vs. 37%)

“Back Door” Ovsynch



J. Dairy Sci. 84:1646–1659

Effects of Presynchronization and Bovine Somatotropin on Pregnancy Rates to a Timed Artificial Insemination Protocol in Lactating Dairy Cows

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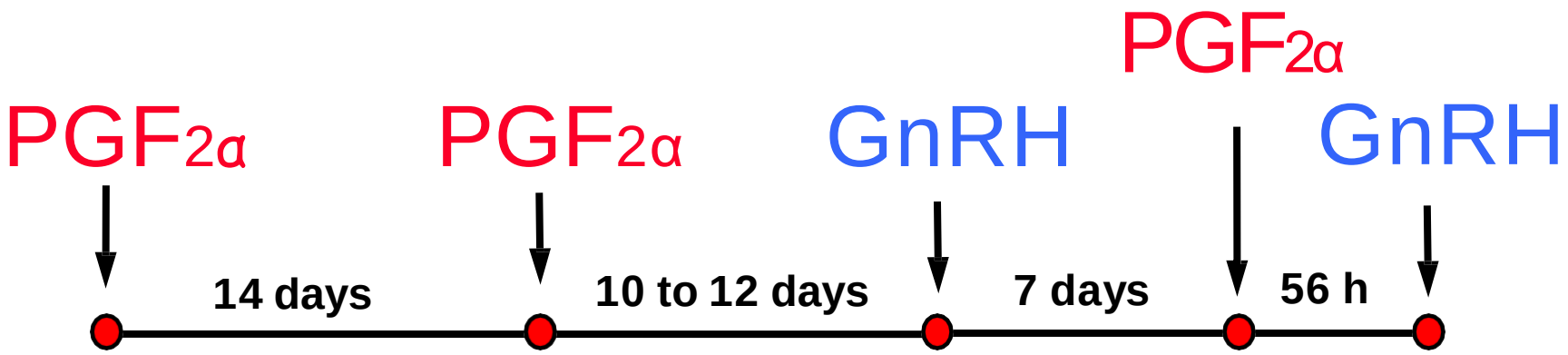
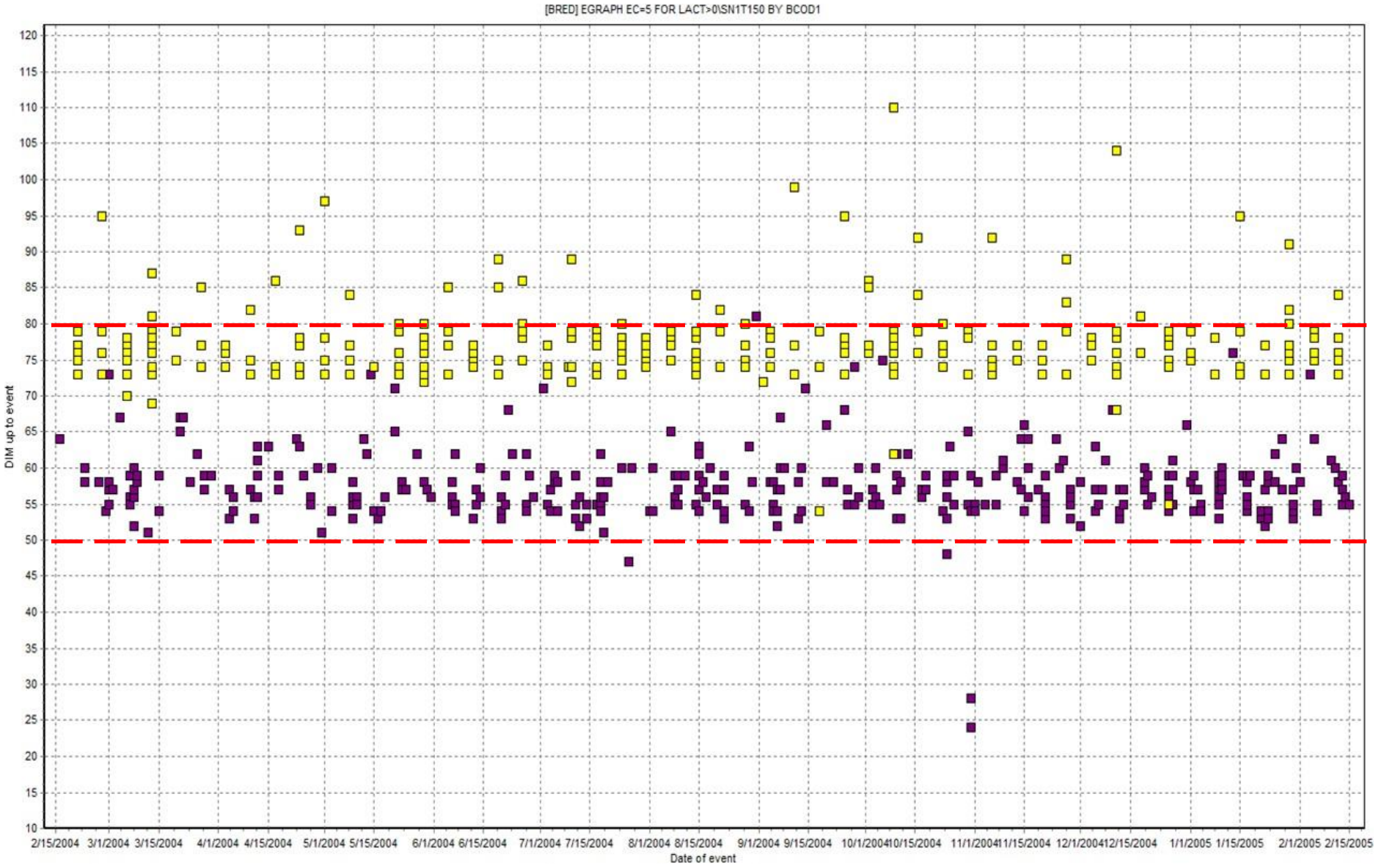


Presynch-Ovsynch 14/11

Galvao et al., 2007; J. Dairy Sci. 90:4212–4218

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				← PGF →		
				← PGF →		
	GnRH					
	PGF		GnRH	TAI		

Presynch-Ovsynch + Detection of Estrus



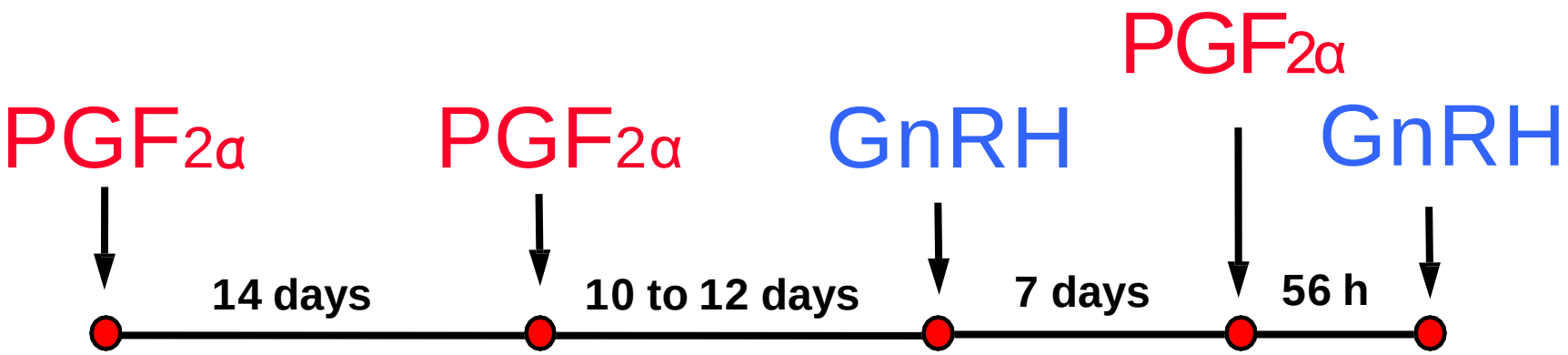
Presynch/Ovsynch Limitations

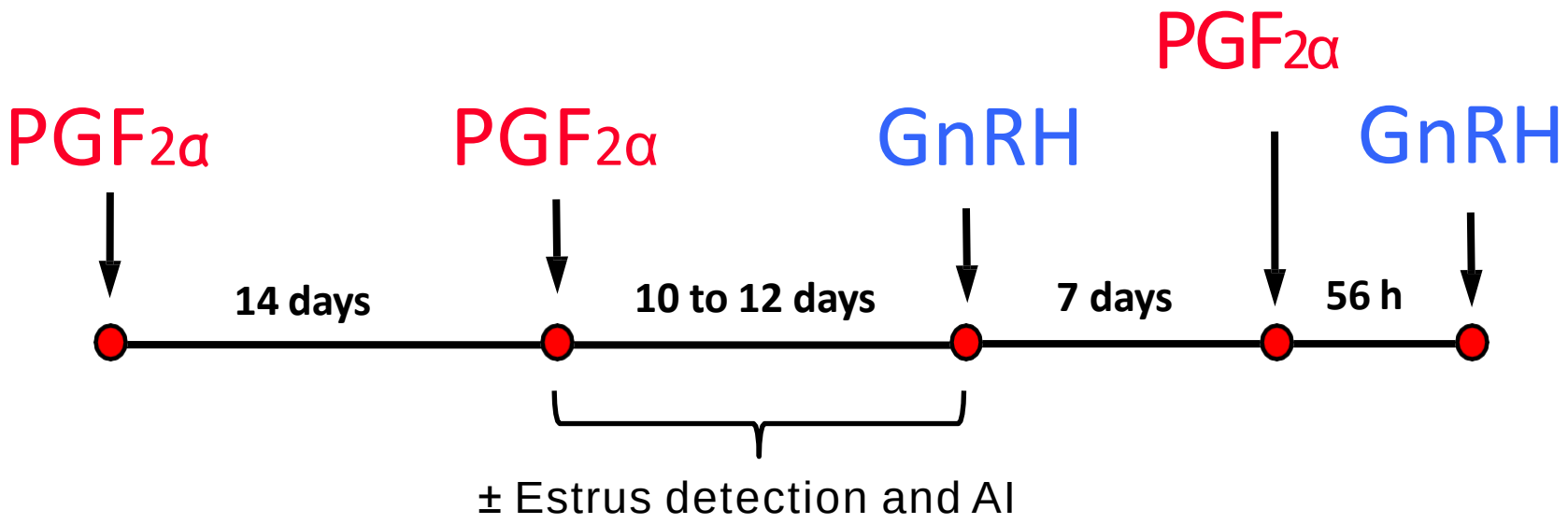
1) Anovular cows are not affected

   23% of the cows are not cycling

2) Cows are not tightly presynchronized

   50% in heat 3 to 4 days the PGF





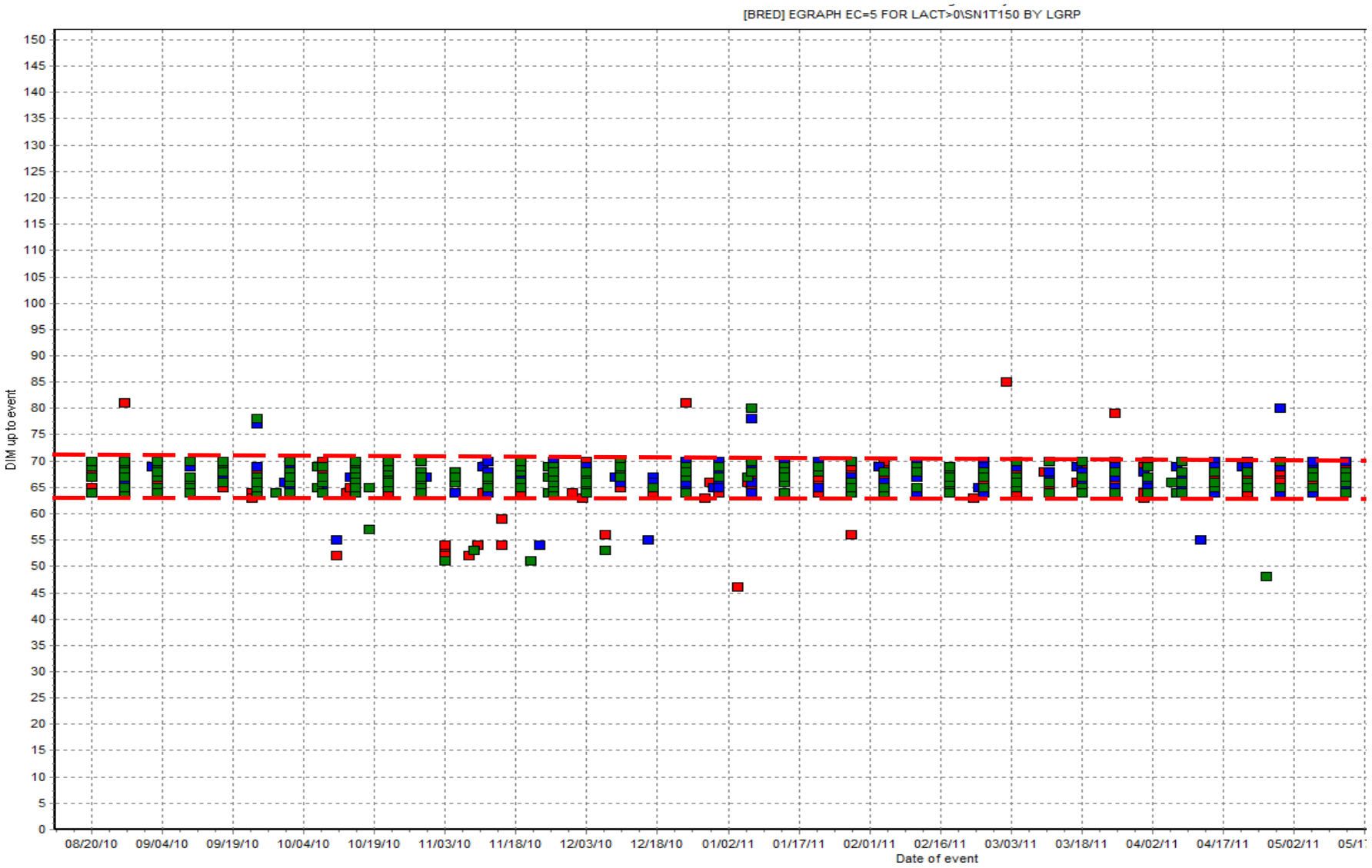
Pregnancies per AI were greater when 100% cows were inseminated in TAI after completion of the Presynch-Ovsynch protocol (42% vs. 33%)

Double Ovsynch

Souza et al., 2008; Theriogenology 70:208-215

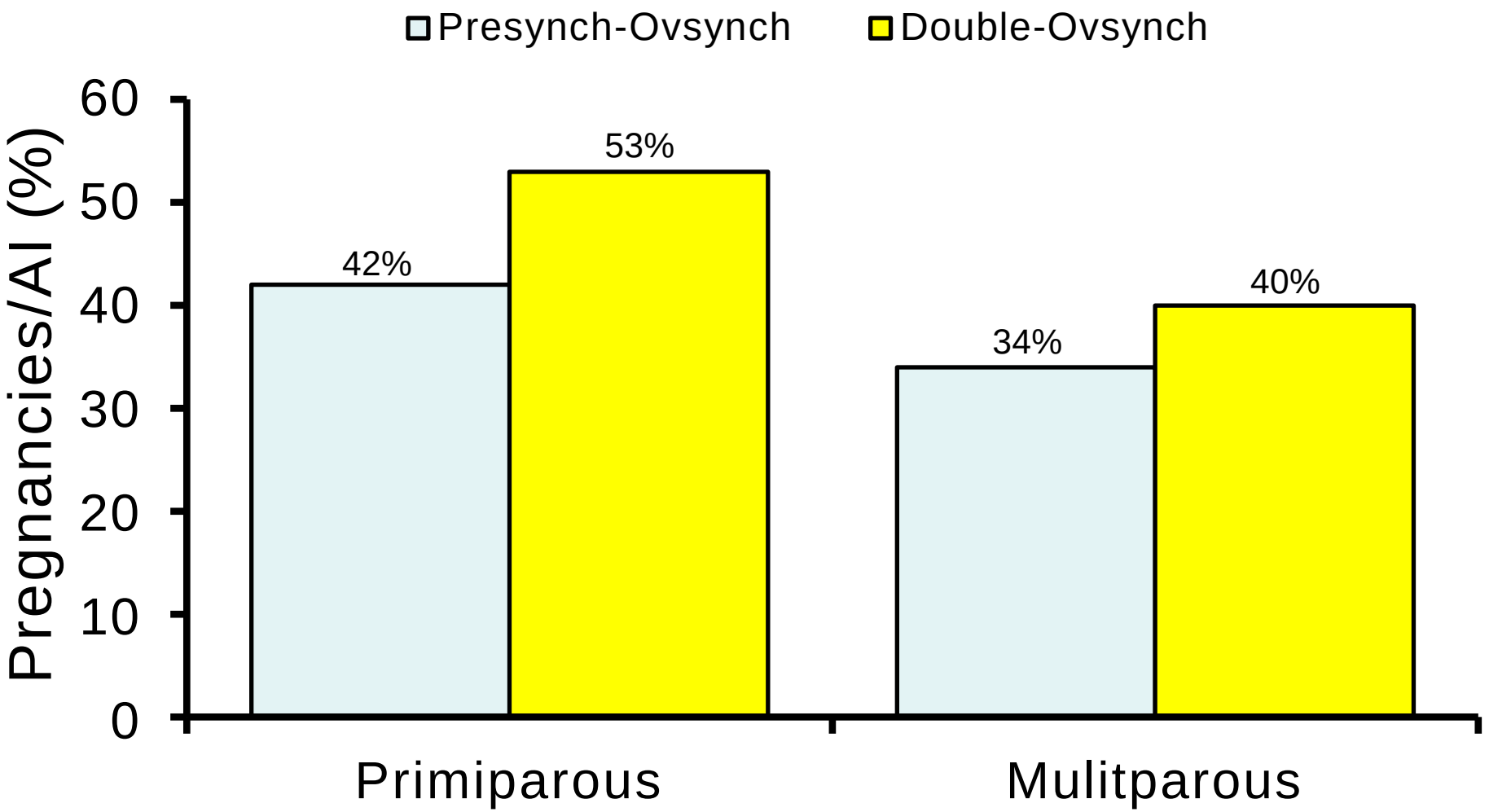
Sun	Mon	Tue	Wed	Thu	Fri	Sat
					GnRH	
					PGF	
	GnRH					
	GnRH					
	PGF		GnRH	TAI		

Double-Ovsynch for first timed AI

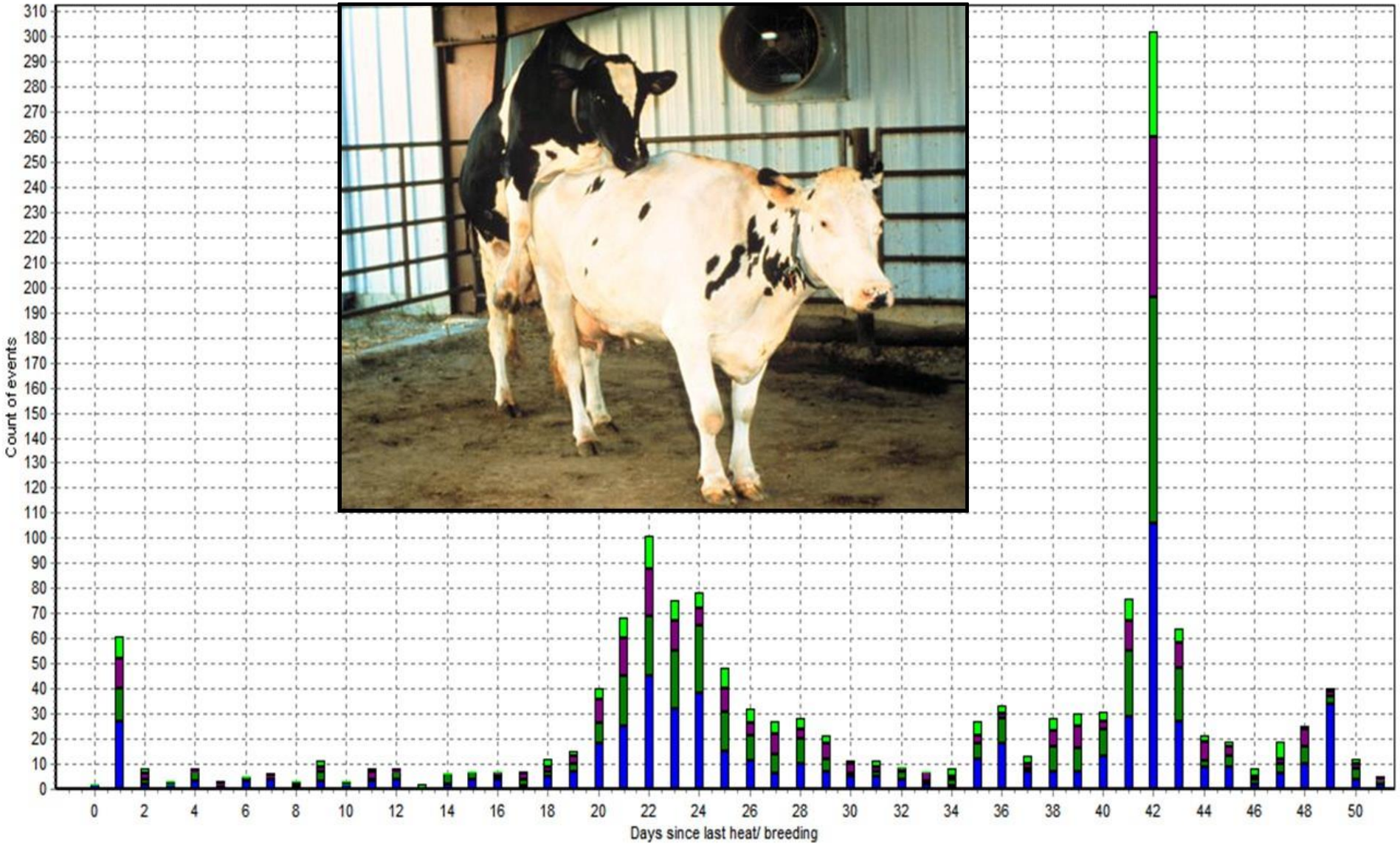


J. Dairy Sci. 95:7003–7014
http://dx.doi.org/10.3168/jds.2011-5260

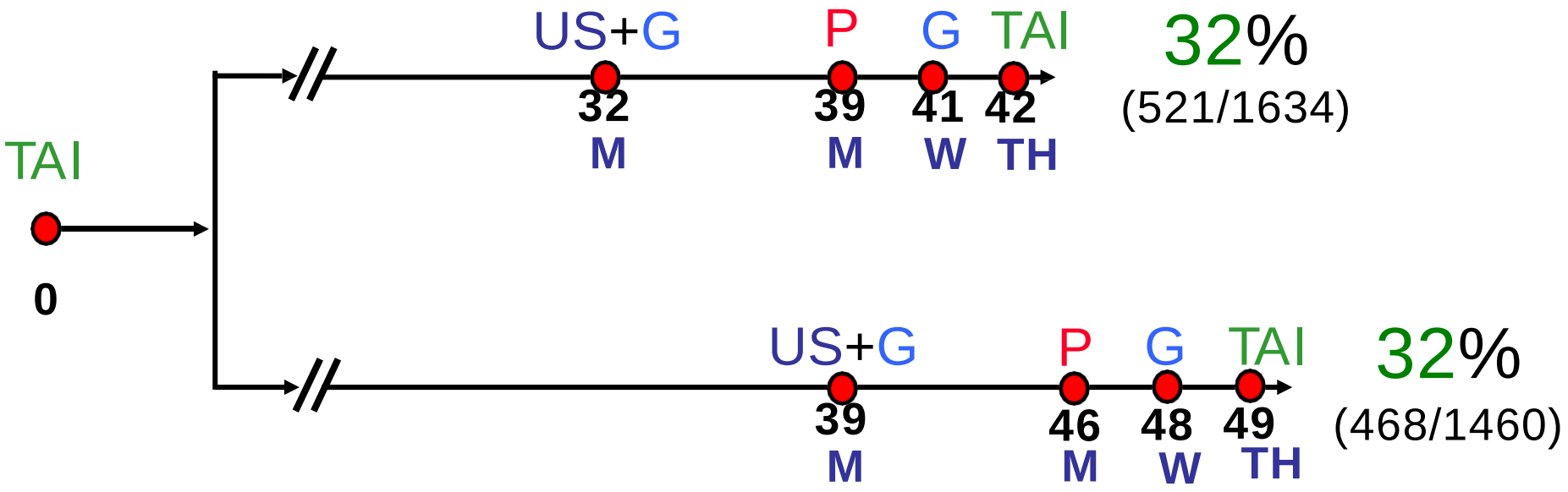
Presynchronization with Double-Ovsynch improves fertility at first postpartum artificial insemination in lactating dairy cows



Return to Estrus after AI



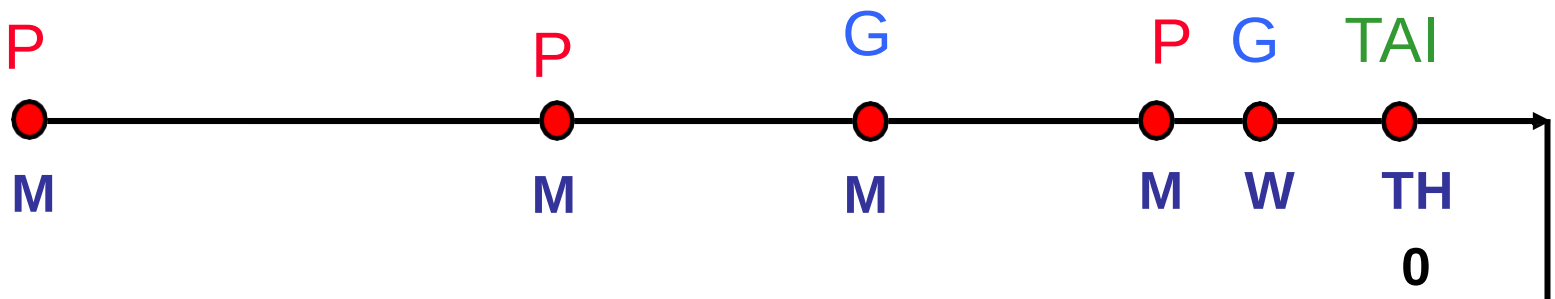
Effect of timing of initiation of a resynchronization protocol on fertility of lactating dairy cows



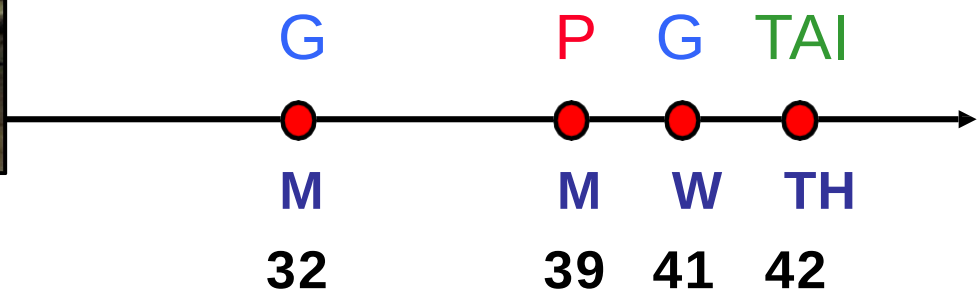
Bilby et al., JDS 3013
Lopes et al., JDS 2013

Synch and Resynch

First TAI



Resynch for nonpregnant cows



J. Dairy Sci. 99:1–11
http://dx.doi.org/10.3168/jds.2015-10557

Adding a second prostaglandin $F_{2\alpha}$ treatment to but not reducing the duration of a PRID-Synch protocol increases fertility after resynchronization of ovulation in lactating Holstein cows

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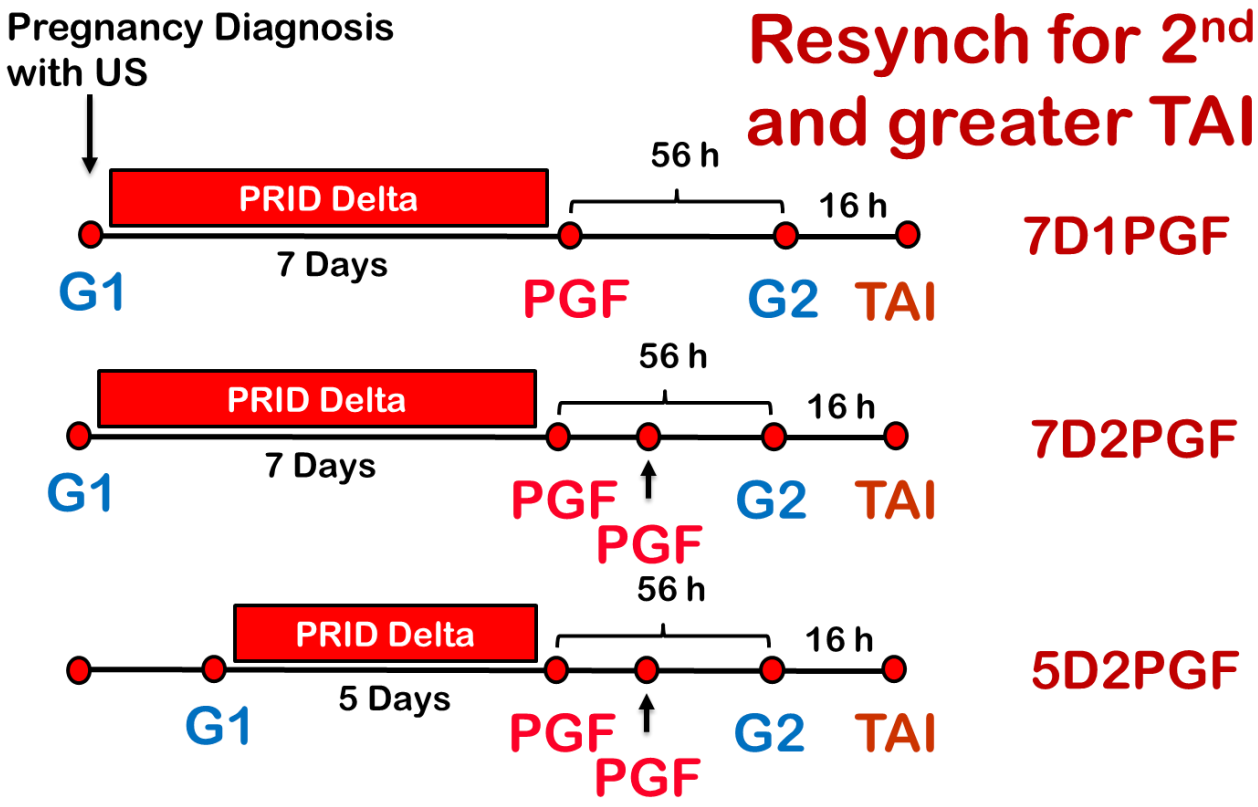
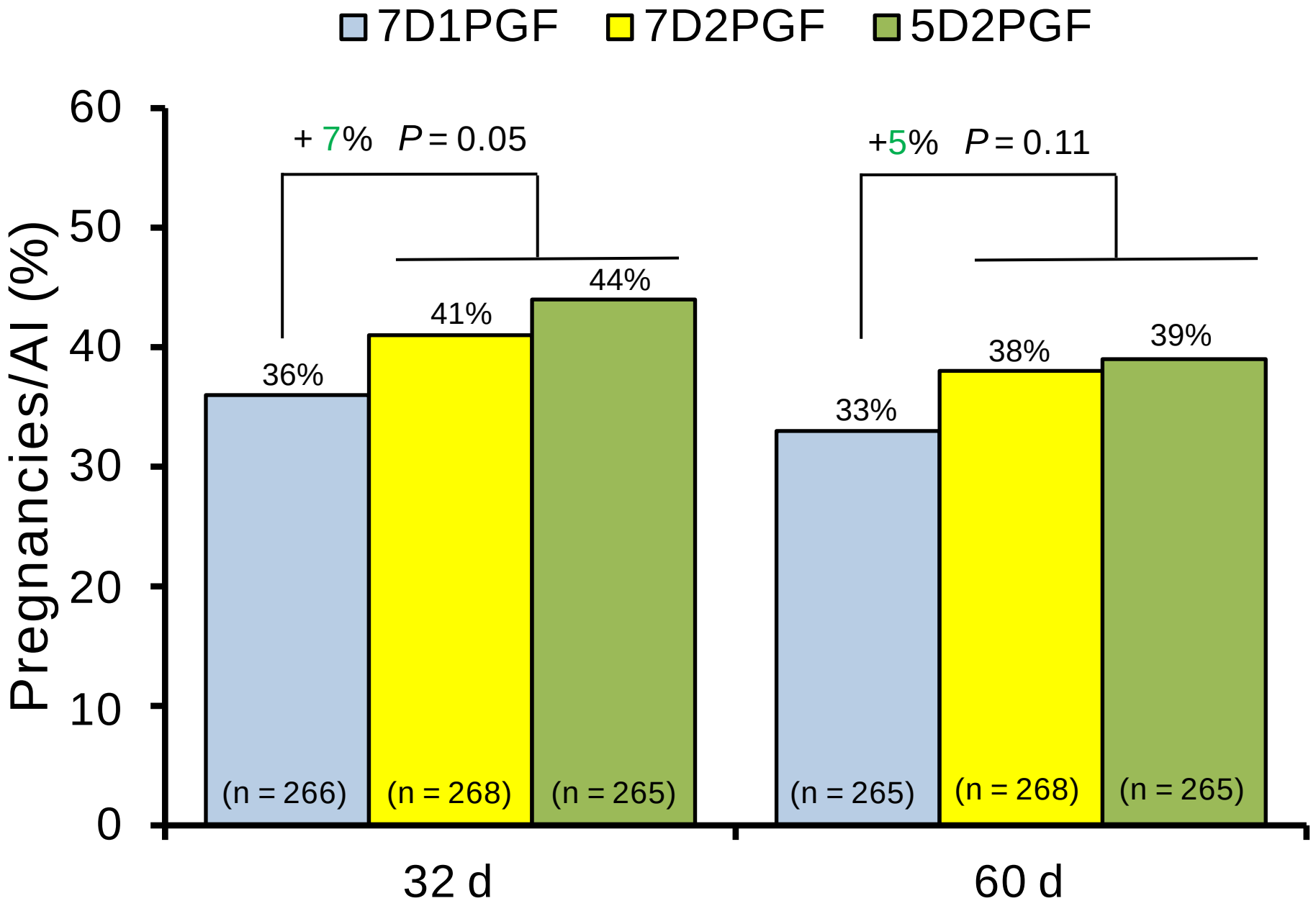
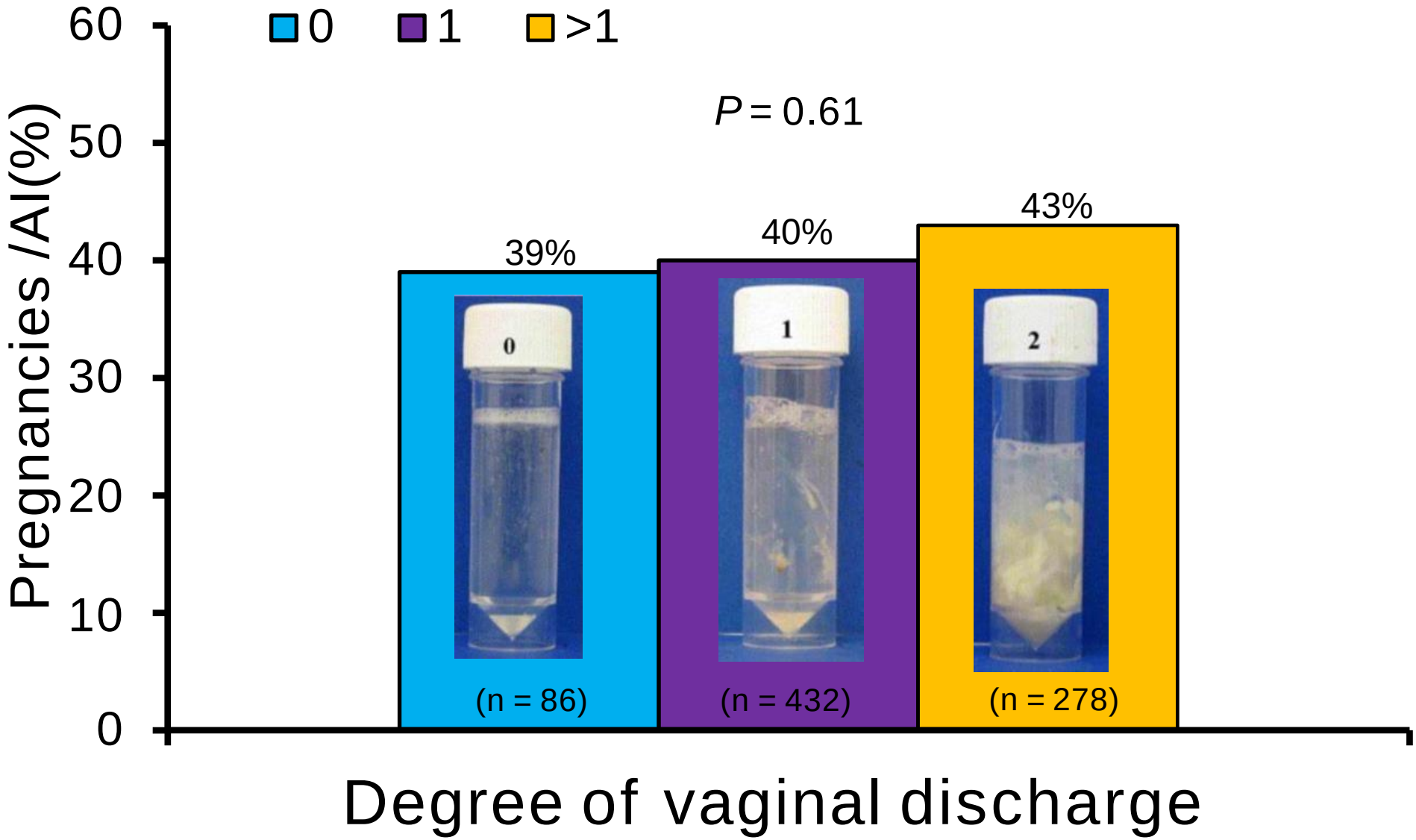


Effect of treatment on P/AI

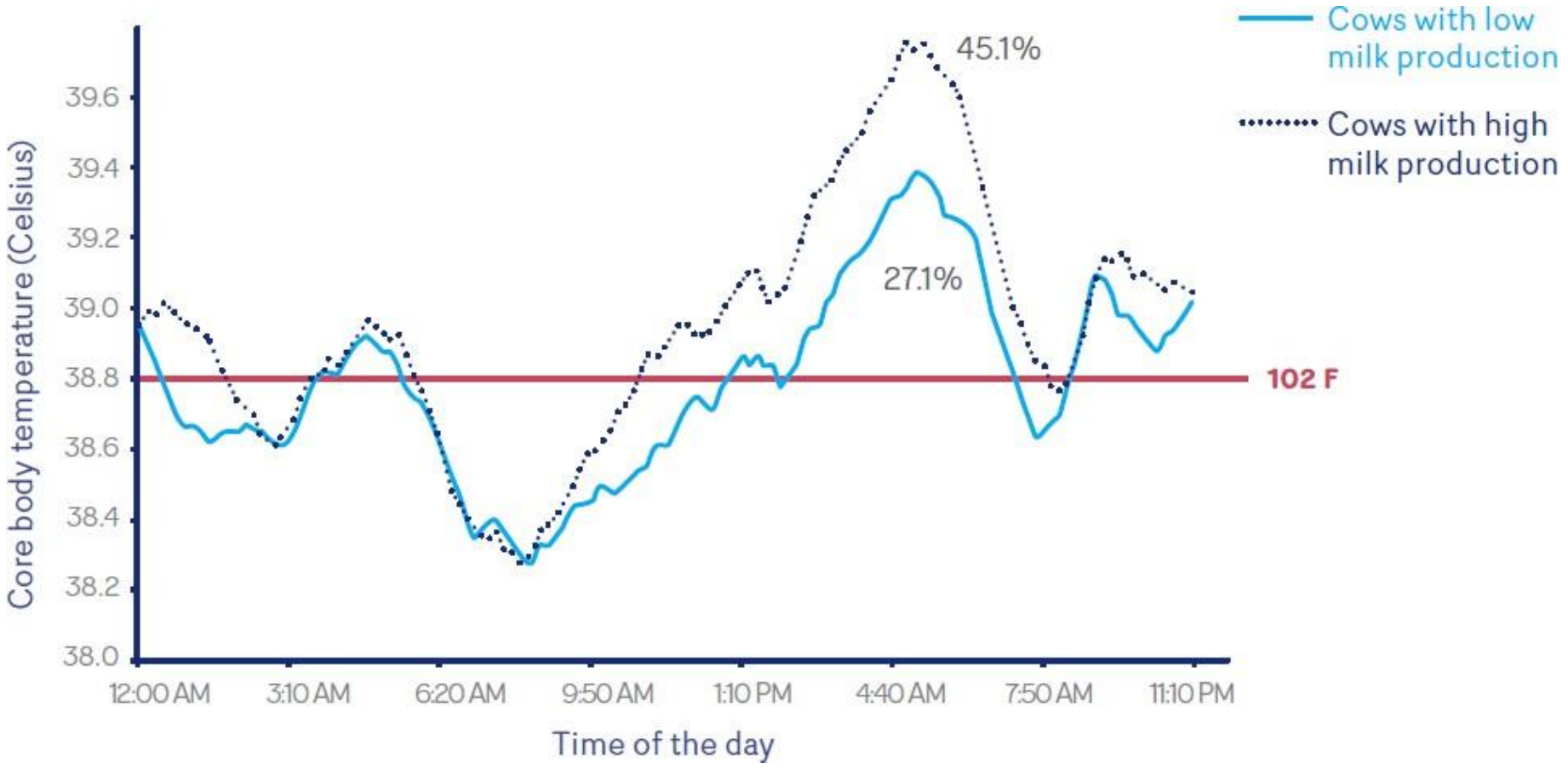


Effect of vaginal discharge at PRID removal on P/AI




Positive proof of global warming.
18th Century
1900
1950
1970
1980
1990
more awesome pictures at THEMETAPICTURE.COM

Effect milk production on core body temperature Batista et al., 2015

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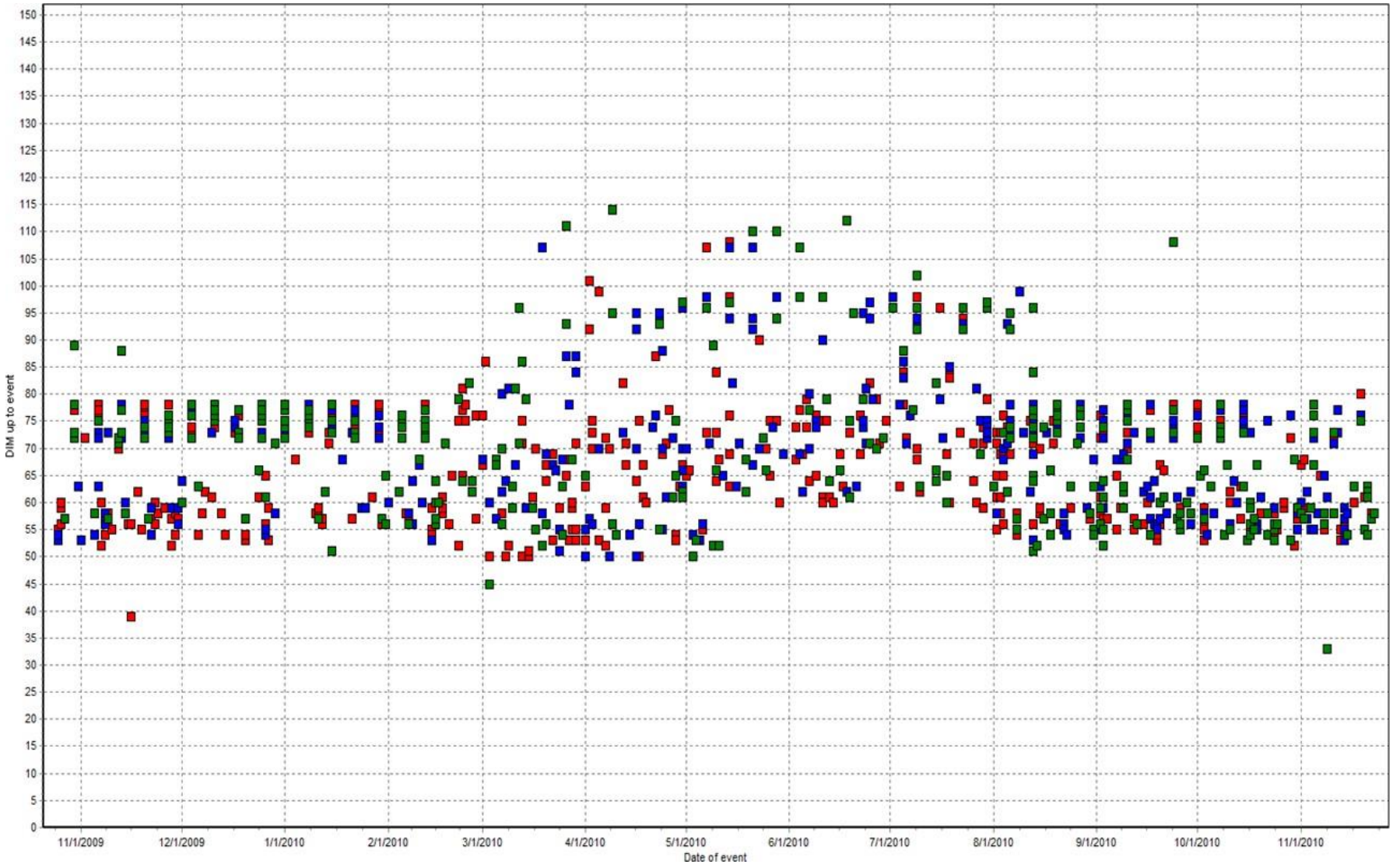
Storage

Monitor over time
“Whole-Farm Drug Rehab Program”



5S principles

Step	Name	Action
1	**Sort**	Remove unnecessary items from the workplace
2	**Straighten**	Locate everything at the correct spot
3	**Sweep**	Clean and eliminate the sources of waste
4	**Standardize**	Make routines and standard procedures
5	**Self-discipline**	Don’t need to re-check all the time

Why so many nutrition programs have failed to improve child nutrition??

Experts were pumped when they realized why Bangladeshi kids started growing taller.

www.upworthy.com

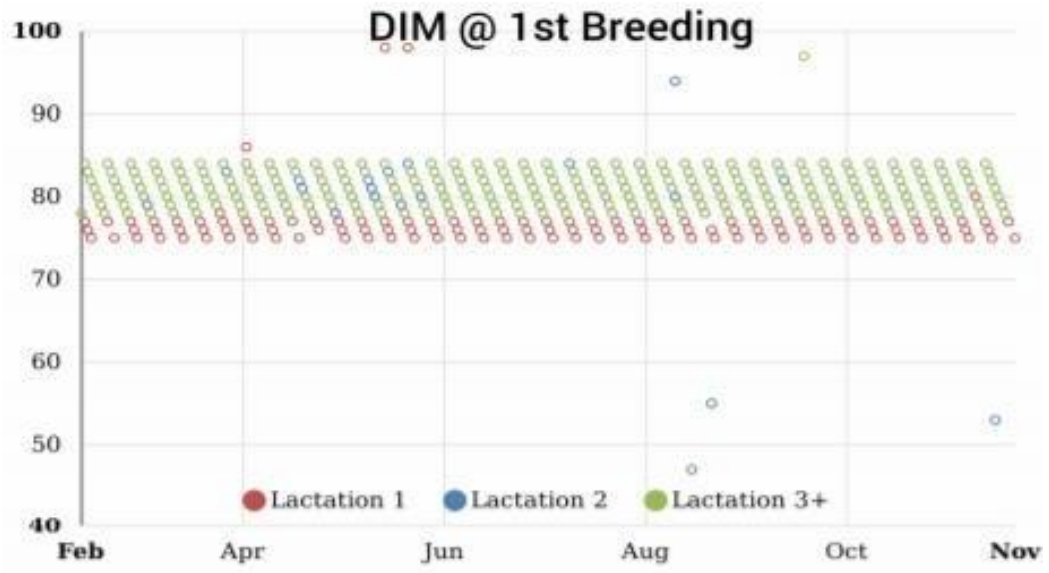
It's the best kind of domino effect.

In 2014, USAID programs in Bangladesh

- Trained more than 33,000 women farmers to use fertilizer deep placement technology, helping them reduce fertilizer use by as much as 30 percent while increasing crop yields up to 20 percent. WWW.USAID.COM

Red Rock Dairy - Texas

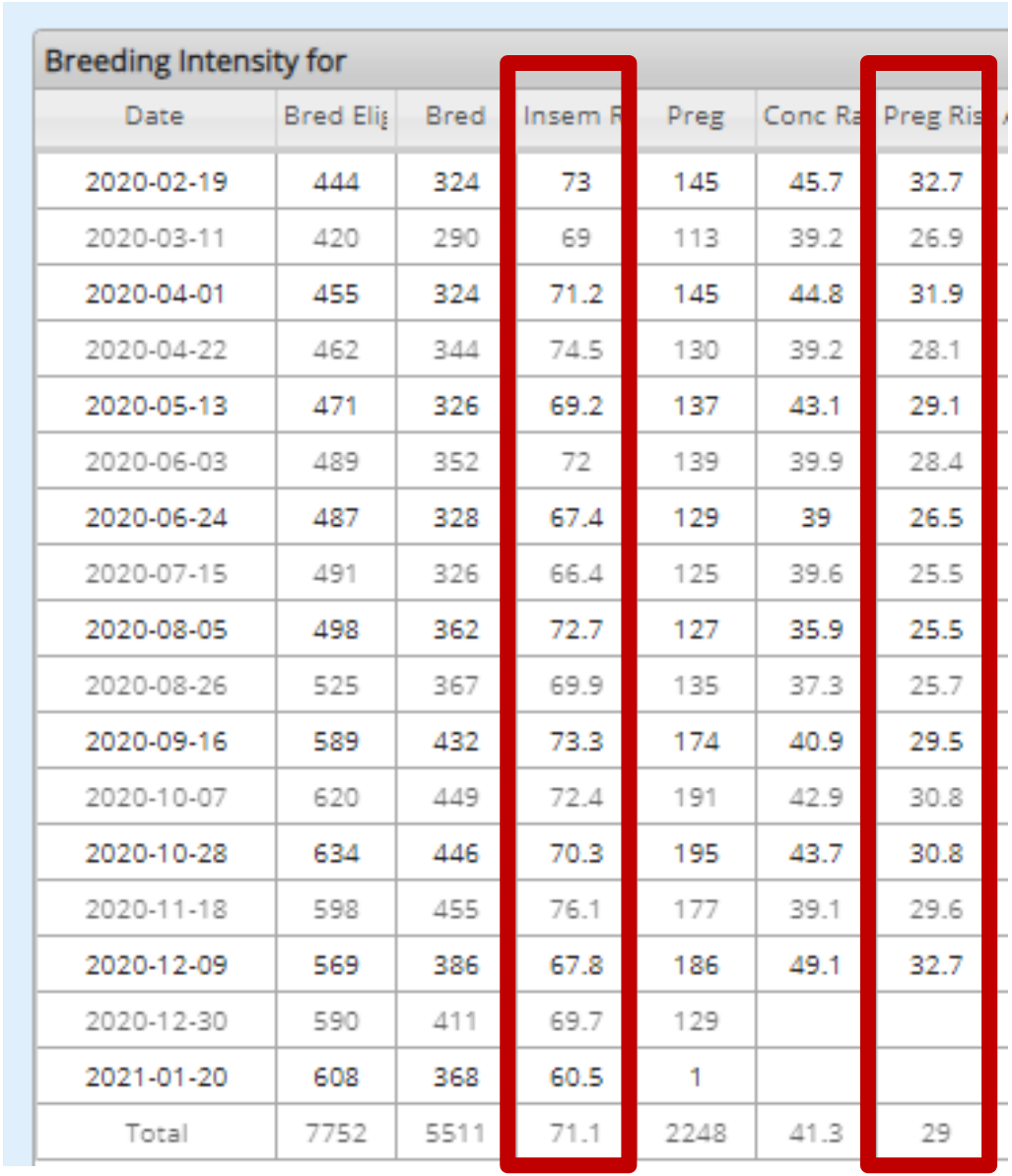
- 2500 milking cows and growing
- 100% TAI
- Double-Ovsynch at ~80 DIM
- Last breeding @ ~250 DIM
- Resynch@25 DSLB
- Preg Chek@32 DSLB



Red Rock Dairy - Texas

TBRD	Lact 0		Lact 1		Lact 2		Lact 3	
1	**60%** (867)	**Sex**	**49%** (635)	**Sex**	**40%** (405)	**Sex**	41% (543)	Beef
2	**51%** (344)	**Sex**	**45%** (337)	**Sex**	41% (259)	Beef	35% (292)	Beef
3	**59%** (154)	**Sex**	42% (196)	Beef	42% (150)	Beef	36% (195)	Beef
4	45% (65)	Beef	35% (164)	Beef	34% (118)	Beef	34% (206)	Beef
Total	57% (1430)	--	45% (1332)	--	40% (932)	--	38% (1236)	--

Service Rate and Preg Rate



Breeding Intensity for

Date	Bred Elig	Bred	Insem R	Preg	Conc Ra	Preg Ris
2020-02-19	444	324	73	145	45.7	32.7
2020-03-11	420	290	69	113	39.2	26.9
2020-04-01	455	324	71.2	145	44.8	31.9
2020-04-22	462	344	74.5	130	39.2	28.1
2020-05-13	471	326	69.2	137	43.1	29.1
2020-06-03	489	352	72	139	39.9	28.4
2020-06-24	487	328	67.4	129	39	26.5
2020-07-15	491	326	66.4	125	39.6	25.5
2020-08-05	498	362	72.7	127	35.9	25.5
2020-08-26	525	367	69.9	135	37.3	25.7
2020-09-16	589	432	73.3	174	40.9	29.5
2020-10-07	620	449	72.4	191	42.9	30.8
2020-10-28	634	446	70.3	195	43.7	30.8
2020-11-18	598	455	76.1	177	39.1	29.6
2020-12-09	569	386	67.8	186	49.1	32.7
2020-12-30	590	411	69.7	129		
2021-01-20	608	368	60.5	1		
Total	7752	5511	71.1	2248	41.3	29

ThAInks!!