28º SEMINÁRIO
NACIONAL DE CRIADORES E PESQUISADORES

ANCP

DA PRENHEZ AO PARTO

José Luiz Moraes Vasconcelos
FMVZ – UNESP, Botucatu, SP

16 DE AGOSTO DE 2024 • UBERABA/MG

Genética é importante?

SIM.

Estou preocupado com a expressão da genética?

DEVERIA.

Integrando o conhecimento (1+1+1 = 4)

Genética + Reprodução + Nutrição.

Nosso objetivo = Quebrar paradigmas.

Você conhece o responsável pelo manejo nutricional do rebanho ?

E o responsável pelo manejo reprodutivo ?

Vocês se encontram?

Qual a herdabilidade das caraterísticas relacionadas a desempenho?

E a reprodução?

Tempo para incorporação da genética no

DIPP – Idade ao Primeiro Parto (IPP)
D3P – Probabilidade de Parto Precoce (3P)
MTP120 – Habilidade Maternal Total para peso aos 120 dias (M
MTP210 – Habilidade Maternal Total para peso aos 210 dias (M
DSTAY – Probabilidade de Permanência no Rebanho (Stayability
DPAC - Produtividade Acumulada (PAC)
DP120 – DP210 – DP365 – DP450

Central					Reprodução Programada				
Select Sires do Brasil									
Sexo		Situação		Dt. Nasc.			MGTe	TOP	
Macho		Ativo		03/09/2022			36.31 @55	® 0.1%	
DIPPG	D3PG	DIPMG	MP120G	MP210G	MTP120G	MTP210G	DSTAYG	DPACG	DPGG
-1.53	92.70	-2.053	4.42	6.00	11.25	16.91	88.25	14.56	-1.79
@ 42	@ 54	@ 44	@ 44	@ 44	@ 48	@ 49	@ 46	@ 18	@ 59
® 0.5%	® 0.5%	® 1%	® 2%	® 2%	® 0.1%	® 0.1%	® 3%	® 0.5%	® 3%
DPNG	DP120G	DP210G	DP365G	DP450G	DPAVG	DCARG*	DIMSG*	DPE365G	DPE450G
1.84	13.66	21.82	39.60	37.01	26.80	0.066	0.327	2.65	2.85
@ 62	@ 57	@ 59	@ 62	@ 63	@ 26	@ 46	@ 51	@ 58	@ 61
® 98%	® 0.1%	® 0.1%	® 0.1%	® 0.5%	® 79%	® 78%	® 97%	® 0.1%	® 0.1%
DAOLG*	DACABG*	DMARG*	DMACG	DPCQG	DPPCG	DEDG	DPDG	DMDG	DESG
5.94	1.26	0.05	-0.018	26.11	10.63	74.97	74.93	74.91	74.99
@ 63	@ 62	@ 59	@ 9	@ 67	@ 67	@ 50	@ 50	@ 42	@ 58
® 0.5%	® 0.5%	® 15%	® 41%	® 0.5%	® 0.5%	® 2%	® 3%	® 4%	® 0.5%
DPSG	DMSG	DALTG	DFRAMEG	MGTe_CR	MGTe_RE	MGTe_CO	MGTe_F1		
74.94	74.99	1.50	0.017	34.87	39.66	12.96	13.12		
@ 54	@ 54	@ 56	@ 49	@ 52	@ 63	@ 59	@ 59		
® 2%	® 0.5%	® 80%	® 34%	® 0.1%	® 0.1%	® 0.1%	® 0.1%		

Qual nossa capacidade de mudar o meio para expressar o potencial genético disponível?

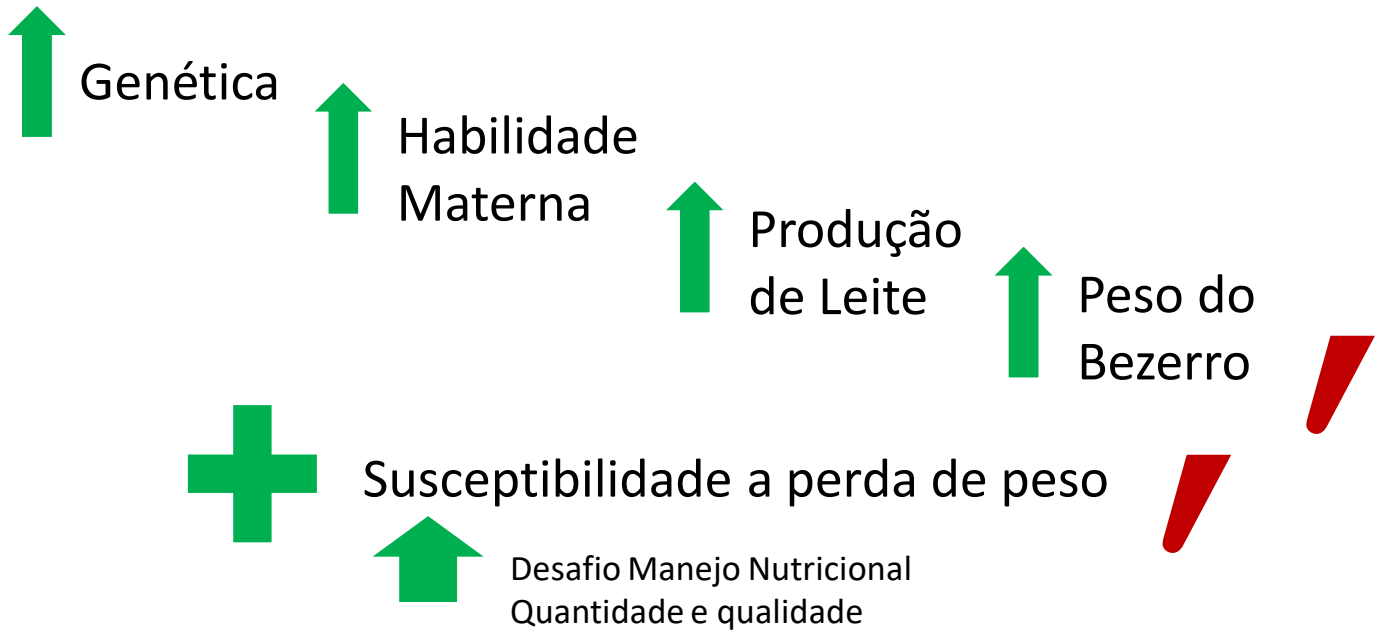
- Evolução genética e fenotípica do ganho de peso aos 120, 210, 365 e aos 450 dias? Está em linha com a evolução genética?
- Quais são os requisitos nutricionais para produzir um kg de leite e um kg de bezerro?
- Quantos litros de leite é necessário para ganhar um kg de peso vivo (Genética habilidade materna x produção de leite)?
- Qualidade de pastagens suporta qual produção de leite e qual ganho de peso?
- Qual o custo energético para ganhar 1kg através de leite, de ração ou de pasto?

Maior desafio da cria.

Como minimizar?

Seleção de Genética Materna

Interação Genótipo Ambiente



Estratégia de suplementação de vacas Nelore durante o período pós-parto e prenhez inicial, visando a manutenção do escore de condição corporal (**ECC**). Adaptado de NASEM (2016).
[1]Concentrado composto por 70% de farelo de soja e 30% de milho.

Dias pós-parto	Mês	Dias de prenhez	CMS total, kg/dia	Concentrado, kg/dia[1]	Concentrado, % do PV
1	Setembro	0	10,6	4,0	0,83
30	Outubro	0		4,5	0,94
60	Novembro	1		4,5	0,94
90	Dezembro	31		4,2	0,88

Cenário Primípara

	Exigência T	Disponibilidade Pastagem
Pré-parto Ganho 900g/d	16,4 Mcal/d 880g/d PB	25Kg MV/d +1,0 Kg Farelo de Soja
Produzindo 4 L de leite DPP = 30d	16,4 Mcal/d 880g/d PB	22Kg MV/d + 1,0 Kg Farelo de Soja + 1,0 Kg de Milho
Produzindo 8 L de leite DPP = 30d	19,5 Mcal/d 1130g/d PB	22Kg MV/d + 1,4 Kg Farelo de Soja + 1,4 Kg de Milho
Produzindo 4 L de leite DPP = 60d	17,8 Mcal/d 960g/d PB	22Kg MV/d + 1,1 Kg Farelo de Soja + 1,1 Kg de Milho

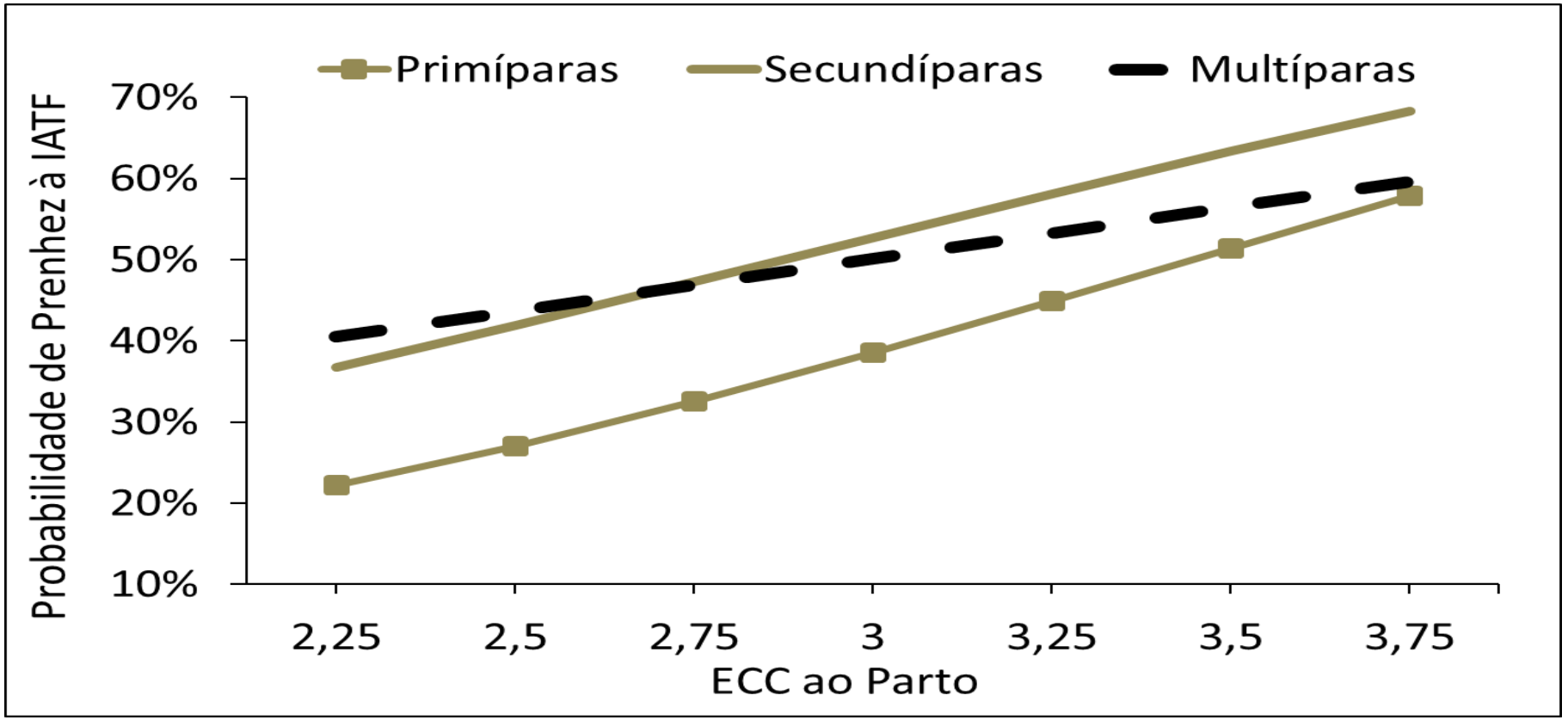
Ganho genético = mais primíparas

Bezerros mais pesados = maior produção de leite

Condição Corporal

Condição Corporal

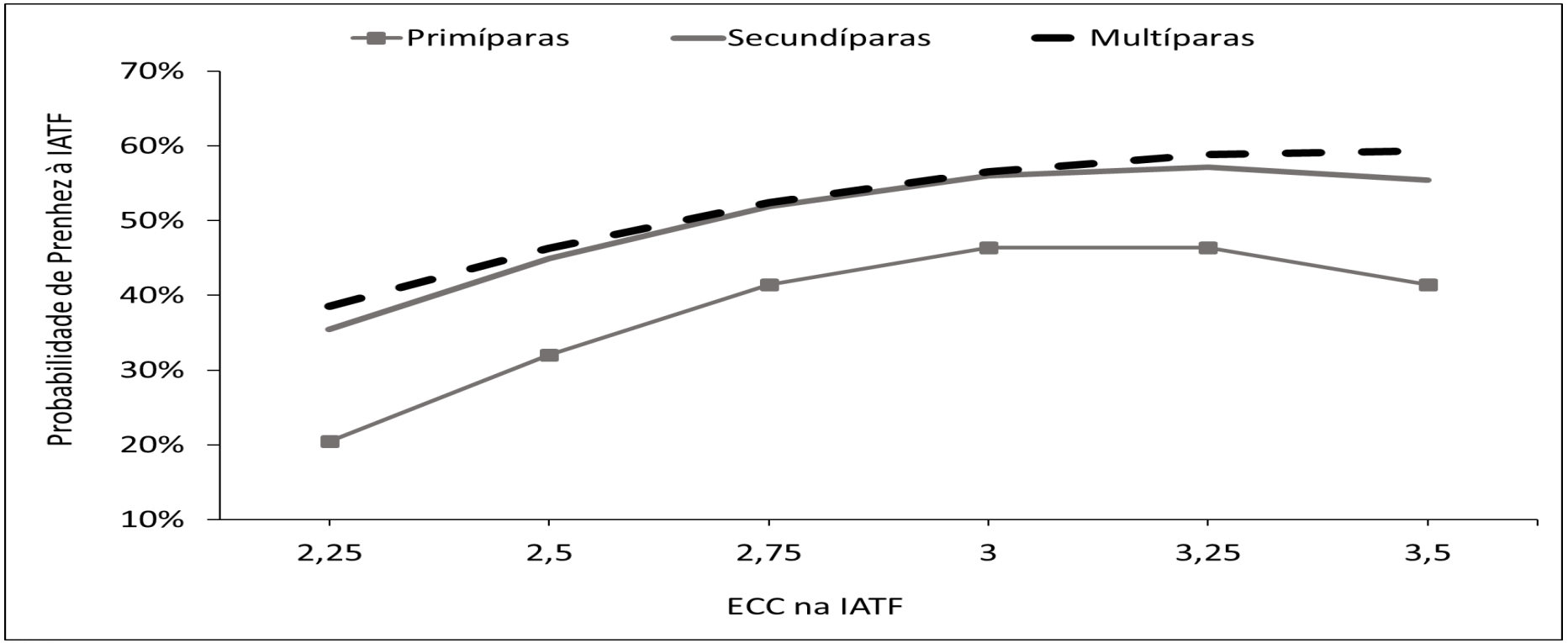
ECC AO PARTO



Representação gráfica da probabilidade de prenhez à primeira IATF de acordo com ECC ao parto em primíparas (P=0,0006; linear), em secundíparas (P=0,0009; linear) e em multíparas (P=0,0012; linear) Nelore lactantes.

Dissertação de Mestrado:
Rafael Carvalho, 2018

ECC NA IATF



Representação gráfica da probabilidade de prenhez à primeira IATF de acordo com ECC no momento da IATF em primíparas (P = 0,027; quadrática), em secundíparas (P = 0,07; quadrática) e em multíparas (P = 0,05; quadrática) Nelore lactantes.

Dissertação de Mestrado:
Rafael Carvalho, 2018

PESO DOS BEZERROS

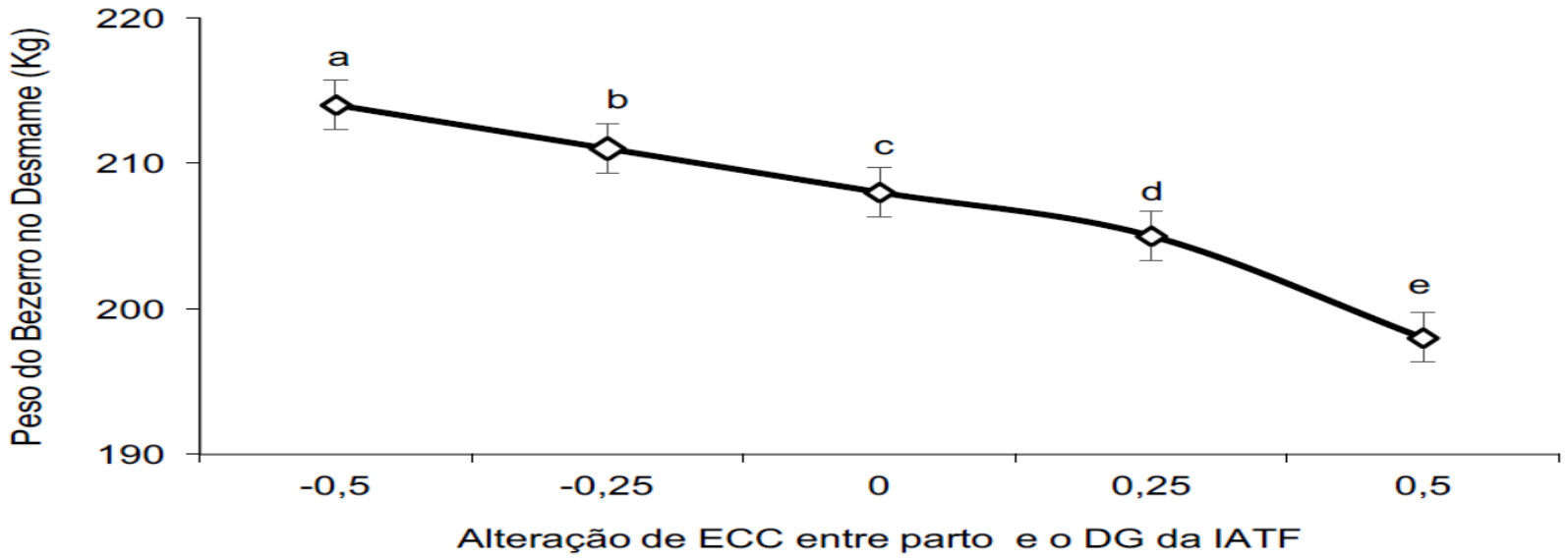


Figura 12 – Peso médio dos bezerros das vacas do experimento, no momento do desmame e ajustado para 210 dias de idade, de acordo com alteração de ECC entre o parto e o DG da primeira IATF (80,6 ± 0,3 DPP; P < 0,0001). Araguaiana – MT, 2017.

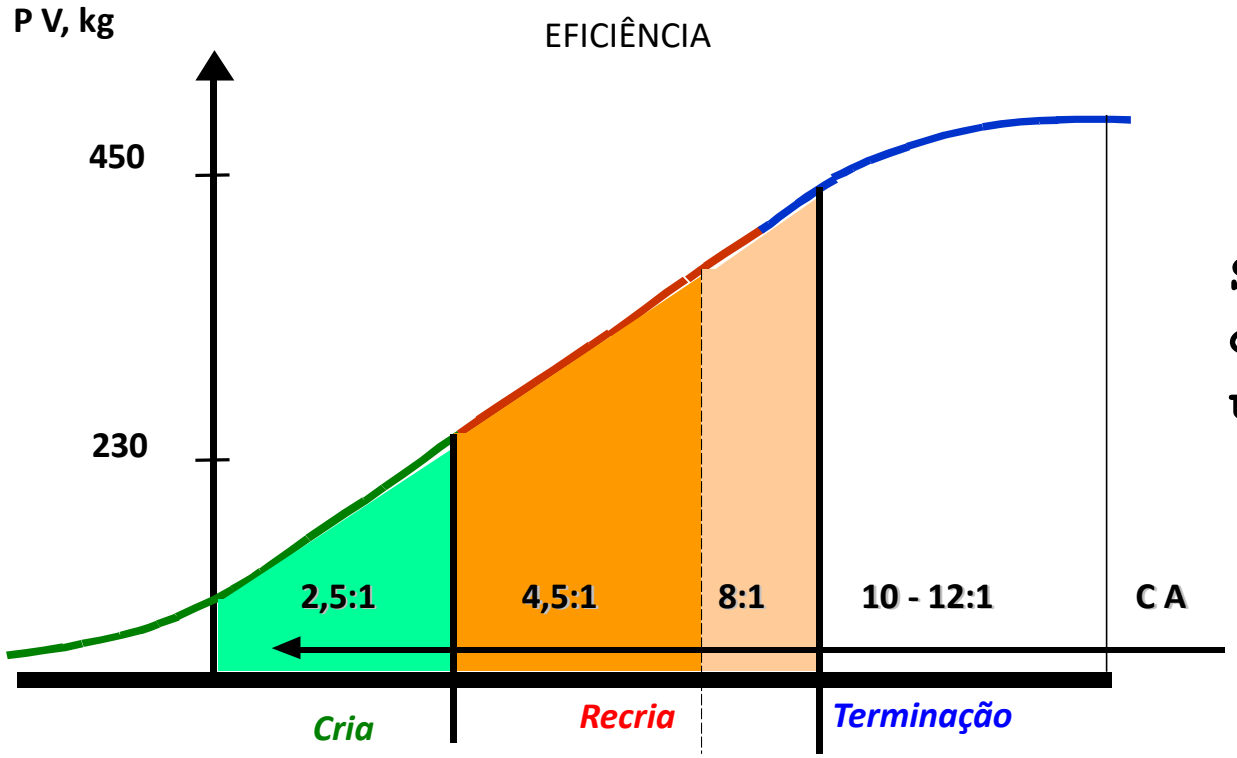
Tenho descartado mães de bezerros mais pesados???

Dissertação de Mestrado:
Rafael Carvalho, 2018

Explorar a fase de melhor conversão alimentar dos bovinos

CREEP

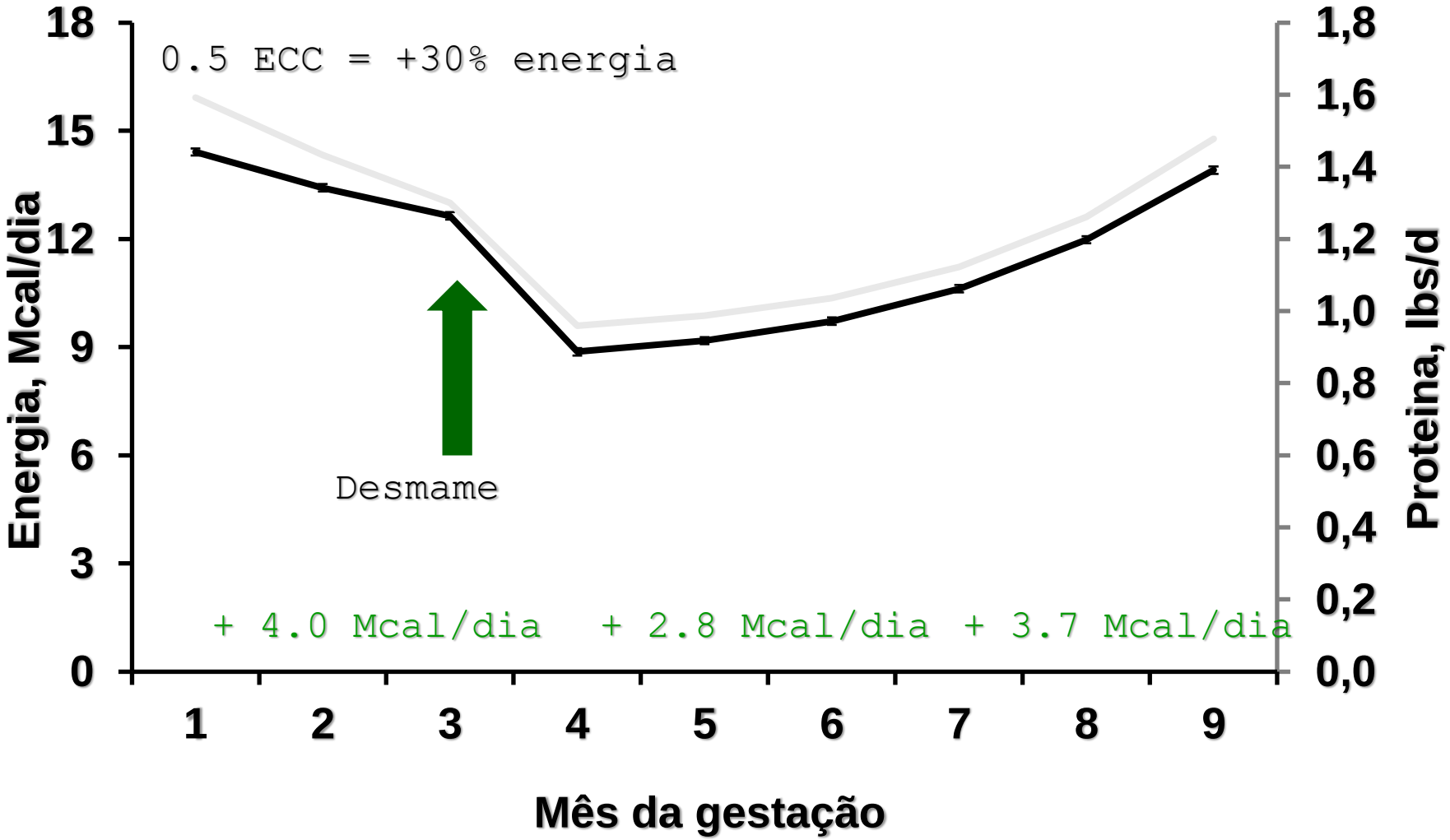
Conversão/eficiência Alimentar



Silveira et.al,2000

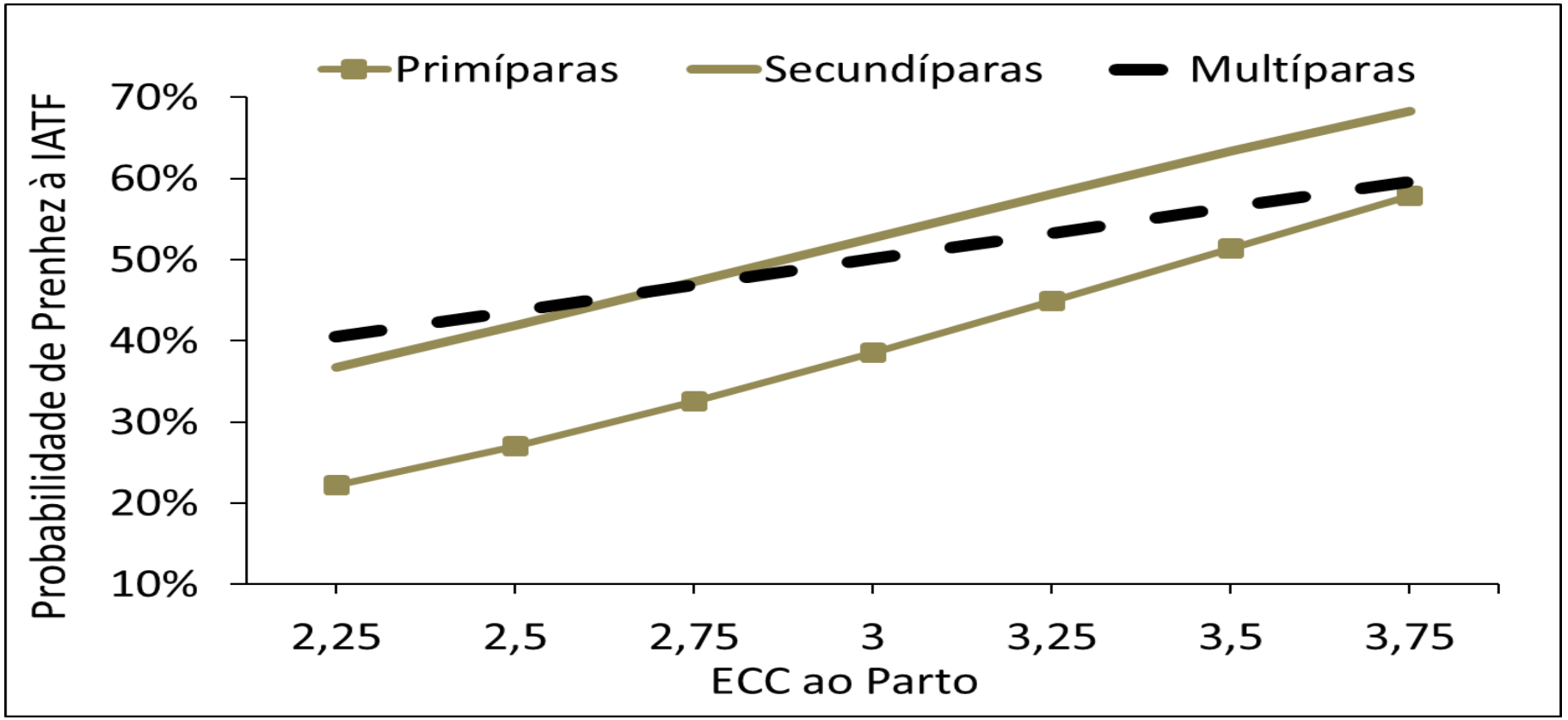
Se utilizar creep, qual touro devo utilizar?

Idade x época do ano x desmama antecipada
Creep x eficiência alimentar ?



NRC, 1996

ECC AO PARTO



Representação gráfica da probabilidade de prenhez à primeira IATF de acordo com ECC ao parto em primíparas (P=0,0006; linear), em secundíparas (P=0,0009; linear) e em multíparas (P=0,0012; linear) Nelore lactantes.

Dissertação de Mestrado:
Rafael Carvalho, 2018

EPIGENÉTICA

A janela do desenvolvimento onde os animais estão suscetíveis à influências ambientais

Epi significa “além”.

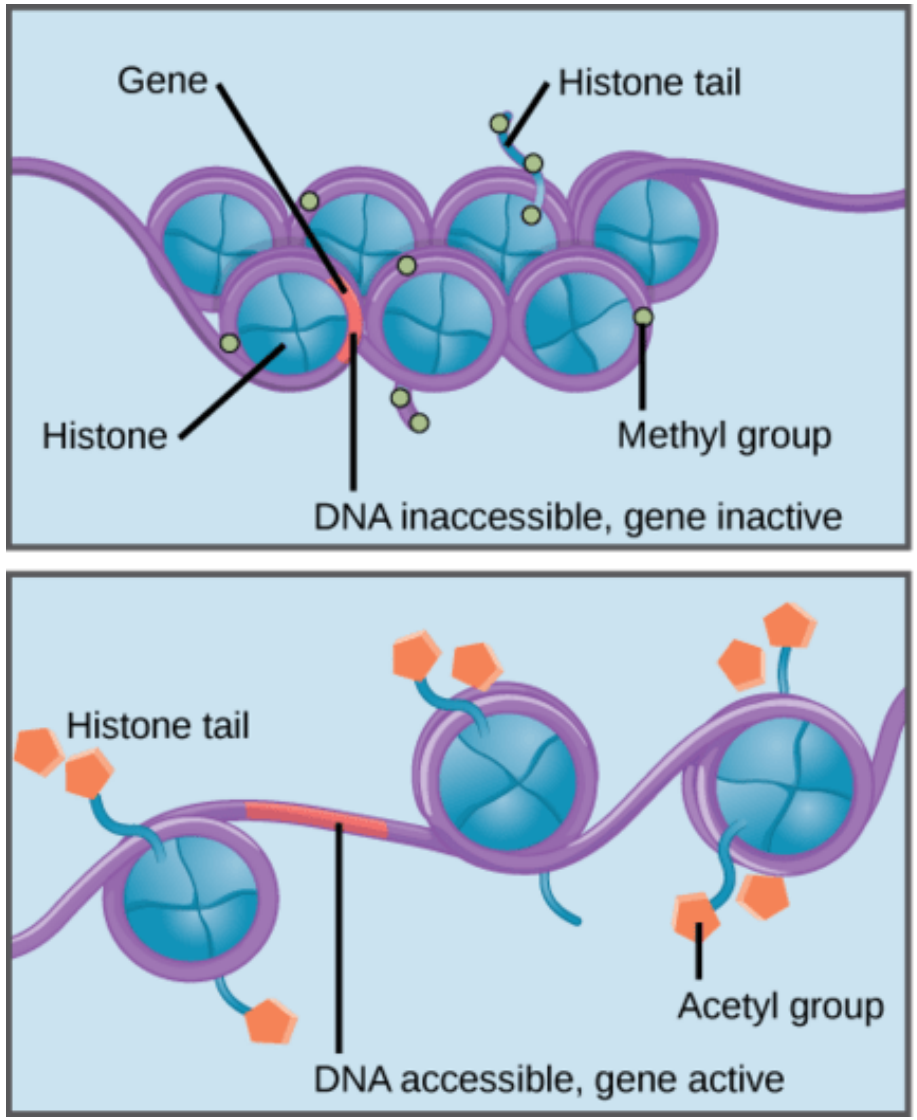
Então epigenética é o que vai além da genética.

- Conrad Waddington:

“Epigenética **é a capacidade de modificar as características hereditárias sem alterar a estrutura e sequência de DNA**.

Ou seja, existem fatores ou gatilhos que são capazes de ativar ou desativar o funcionamento dos genes do nosso corpo (Metilação genes)

- Metilação do DNA é uma reação que pode silenciar a sua expressão enquanto estiver metilado e retornar sua expressão quando não metilado



Methylation of DNA and histones causes nucleosomes to pack tightly together. Transcription factors cannot bind the DNA, and genes are not expressed.

Histone acetylation results in loose packing of nucleosomes. Transcription factors can bind the DNA and genes are expressed.

Existe estresse em nelore?

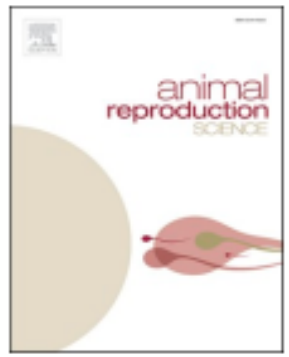
E estresse térmico?

Animal Reproduction Science 264 (2024) 107471

Contents lists available at ScienceDirect

Animal Reproduction Science

journal homepage: www.elsevier.com/locate/anireprosci



Pregnancy losses in *Bos indicus*-influenced beef and dairy recipients assigned to a fixed-time embryo transfer protocol

S.K. Munhoz [a], R.F. Cooke [b,*], A.K. Munhoz [a], C.P. Prado [a,b], M.H.C. Pereira [a], J.L.M. Vasconcelos [a,*]

[a] *School of Veterinary Medicine and Animal Science, Sao Paulo State University (UNESP), Botucatu 18168-000, Brazil*
[b] *Department of Animal Science, Texas A&M University, College Station, TX 77843-2471, USA*

Table 3

Effects of management system on body condition score (**BCS**; Wagner et al., 1988) and pregnancy losses of recipient *Bos indicus*-influenced beef heifers receiving an estrus synchronization + fixed-time embryo transfer (**FTET**; day 7 of the experiment) protocol. Heifers were managed on 1) pasture during the entire experiment, or 2) drylot system from day −90–32 of the experiment, and on pastures from day 32 to calving[xy].

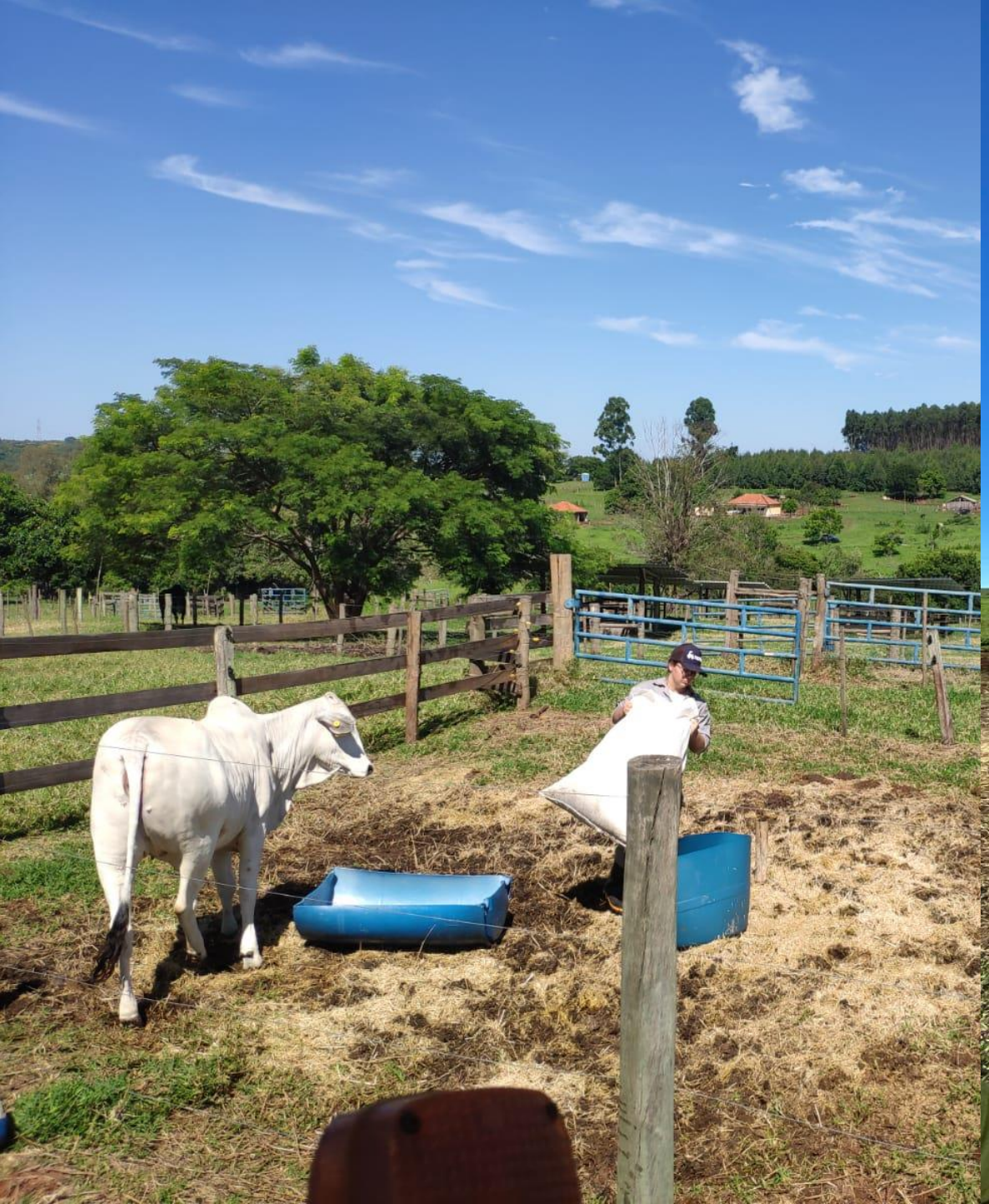
Item	Pasture	Drylot to pasture	SEM	P-value
BCS at FTET	5.27	6.04	0.02	< 0.01
BCS on day 32	5.28	6.06	0.02	< 0.01
BCS change	0.01	0.02	0.02	0.68
Pregnancy losses				
FTET (day 7) to day 32	56.9 (1865/3182)	56.2 (699/1184)	1.9	0.69
day 32–100	35.6 (469/1317)	50.0 (243/485)	1.8	< 0.01
day 100 to calving	32.2 (284/848)	44.8 (116/242)	3.3	< 0.01
Total losses (FTET to calving)	80.3 (2618/3182)	85.9 (1058/1184)	1.8	< 0.01

[x] Recipient heifers received a grain-based supplement at 0.3% of their body weight when managed on pasture, or a total mixed ration (58% forage and 42% concentrate) when managed in the drylots. Heifers received 2 mg of estradiol benzoate (Bioestrogen; Biogénesis Bagó; Vinhedo, SP, Brazil) + intravaginal device containing 0.5 g of progesterone (ReproOne; Globalgen, Jaboticabal, SP, Brazil) on day −10, followed by progesterone device removal + 1 mg of estradiol cypionate (Cronicip; Biogénesis Bagó) + 300 IU of eCG (Ecegon; Biogénesis Bagó) + 150 μg of d-cloprostenol (Croniben; Biogénesis Bagó) on day −2 of the experiment. The presence of a corpus luteum (**CL**) was evaluated on days 0 and 7 via transrectal ultrasonography (7.5-MHz transducer; Mindray DP-10, Mindray Medical International Limited; Shenzhen, China). Immediately after ultrasonography on day 7, cows diagnosed with a CL on that day and without a CL on day 0 received 10.5 μg of buserelin acetate (Gonaxal; Biogénesis Bagó) and a fresh *in vitro*-produced embryo.

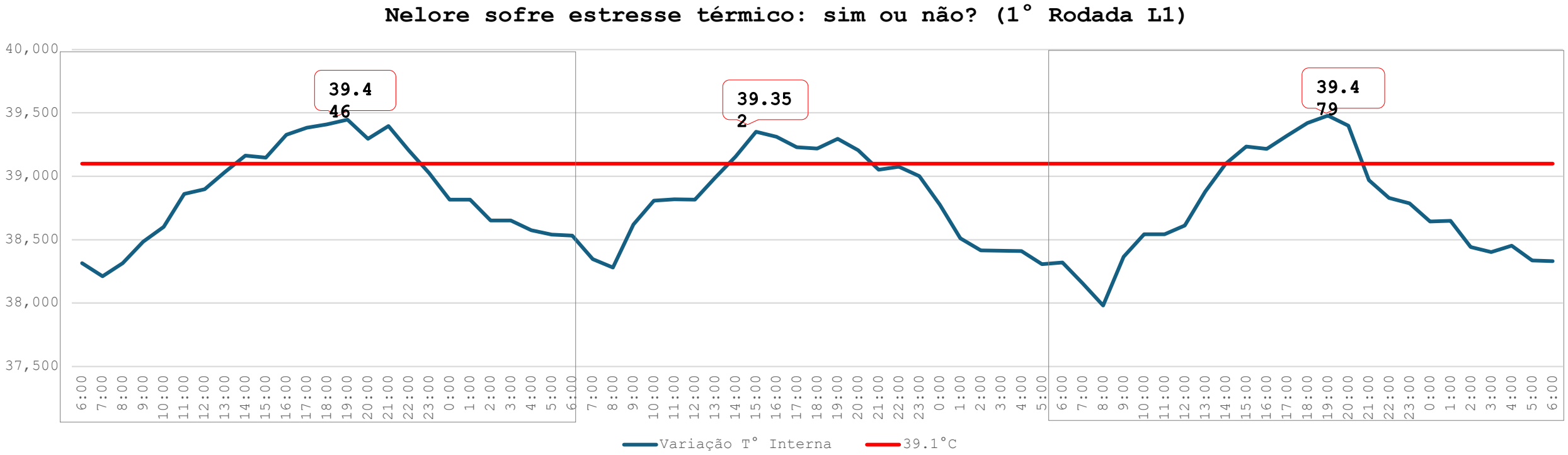
[y] Pregnancy status to FTET was verified by detecting a viable conceptus with transrectal ultrasonography (7.5-MHz transducer; Mindray DP-10, Mindray Medical International Limited; Shenzhen, China) on days 32 and 100 of the experiment, and according to calf birth. Values within parenthesis represent cows that lost the pregnancy divided by cows considered pregnant.

Existe estresse em nelore?

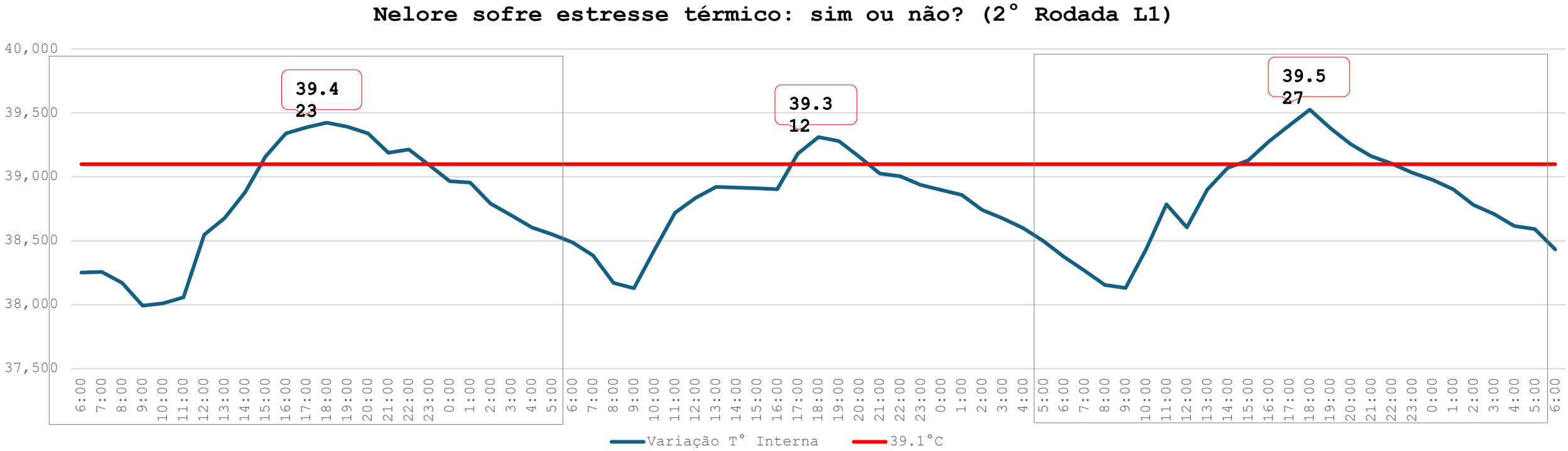
E estresse térmico?



L1 = Lote 01

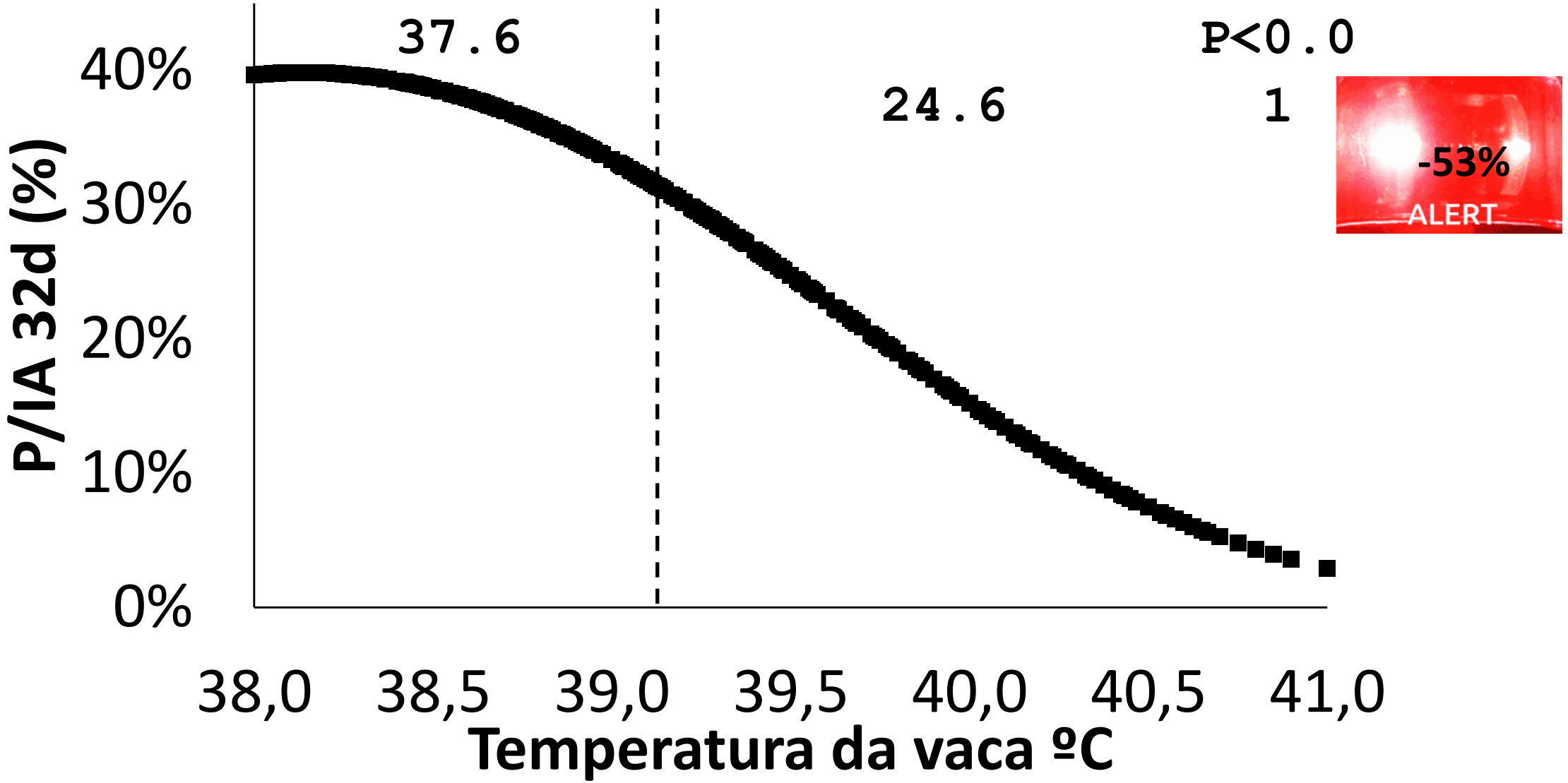


Temperatura ambiente máxima:	30.142	22:00			30.773	16:00			28.245	6:00
Temperatura ambiente mínima:	26.842	9:00			27.087	10:00			24.412	13:00
Umidade relativa do ar máxima:	76.974	12:00			72.677	16:00			78.527	21:00
Umidade relativa do ar mínima:	65.931	19:00			66.479	9:00			71.317	8:00
THI máximo:	81.09	22:00			82.97	16:00			79.03	6:00
THI mínimo:	77.43	9:00			76.58	10:00			73.42	13:00

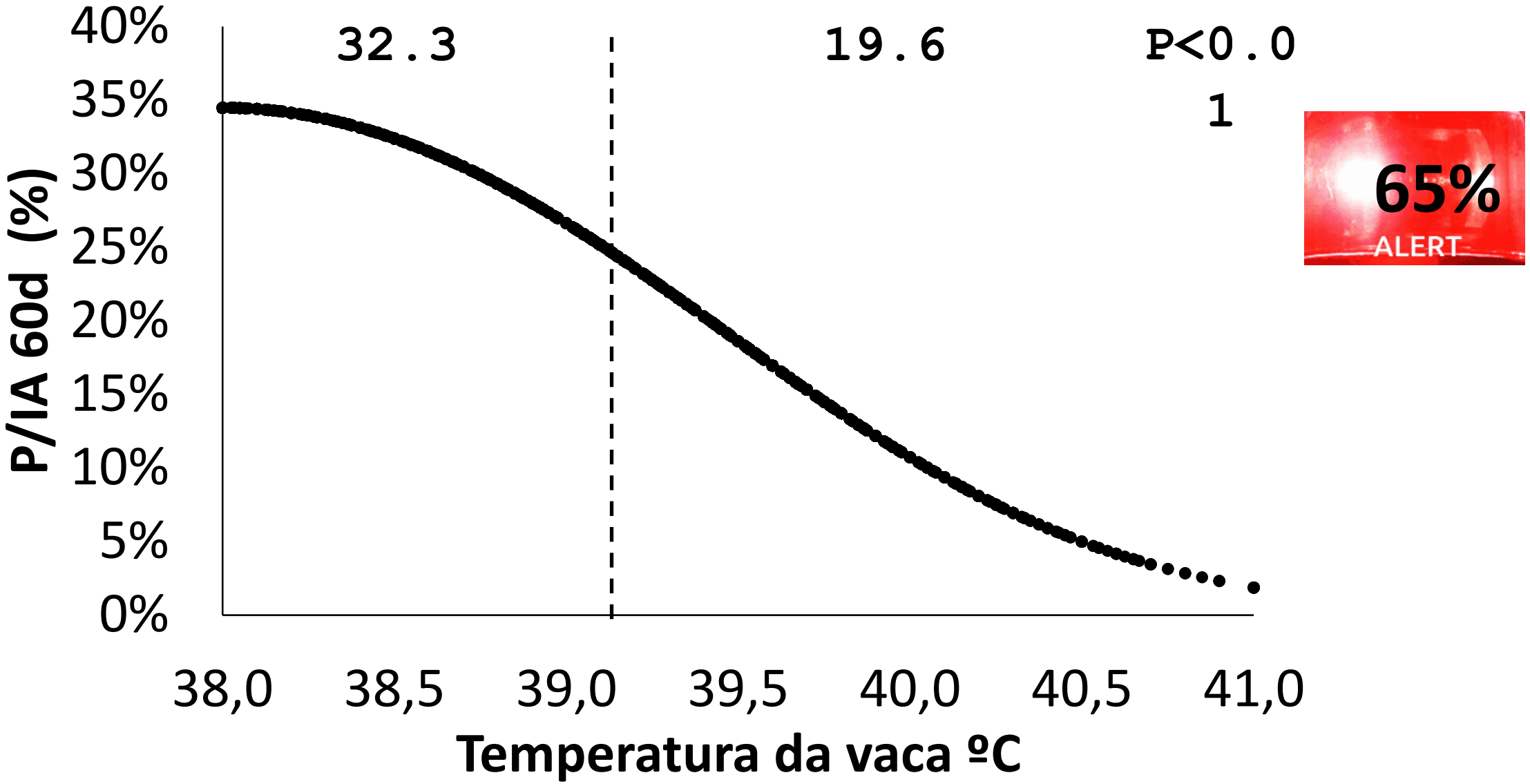


Temperatura ambiente máxima:	23.689	17:00			24.557	20:00			28.048	20:00
Temperatura ambiente mínima:	20.198	5:00			19.651	9:00			20.507	8:00
Umidade relativa do ar máxima:	85.188	12:00			86.972	18:00			86.755	14:00
Umidade relativa do ar mínima:	79.913	17:00			82.046	6:00			72.369	19:00
THI máximo:	72.8	17:00			74.49	20:00			79.08	20:00
THI mínimo:	67.32	5:00			66.56	9:00			68.06	8:00

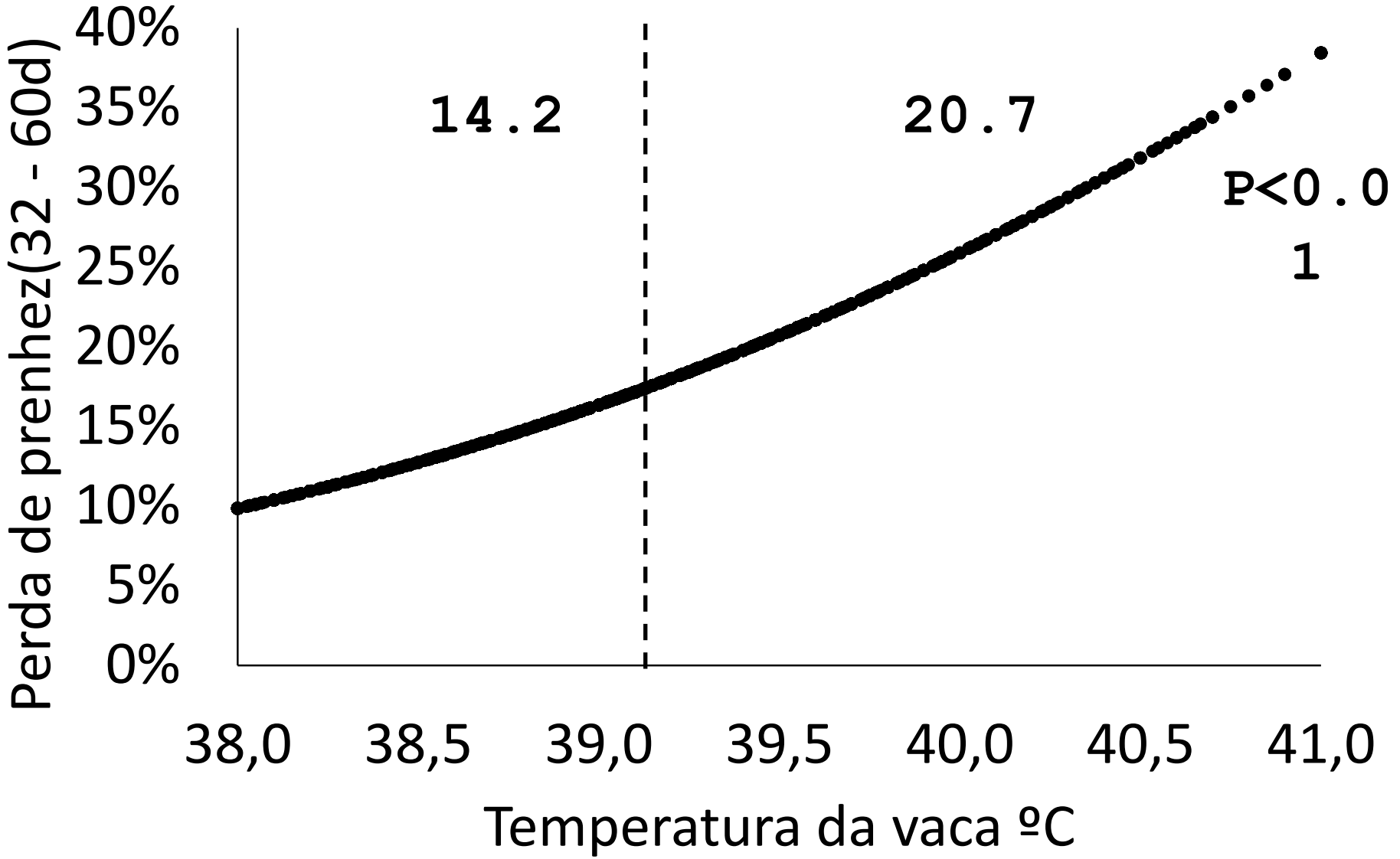
Impacto do Estresse térmico na fertilidade



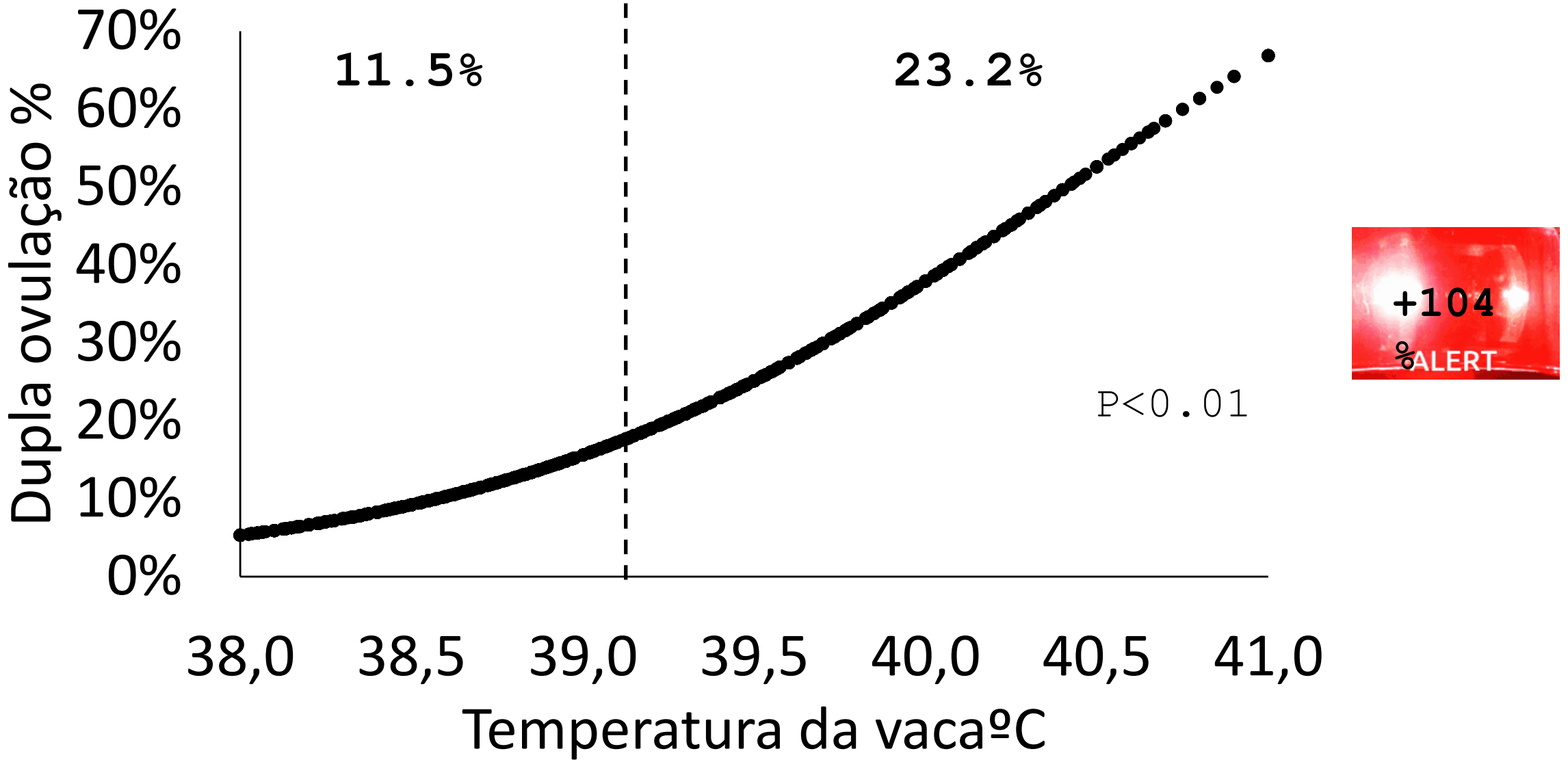
Impacto do Estresse térmico na fertilidade



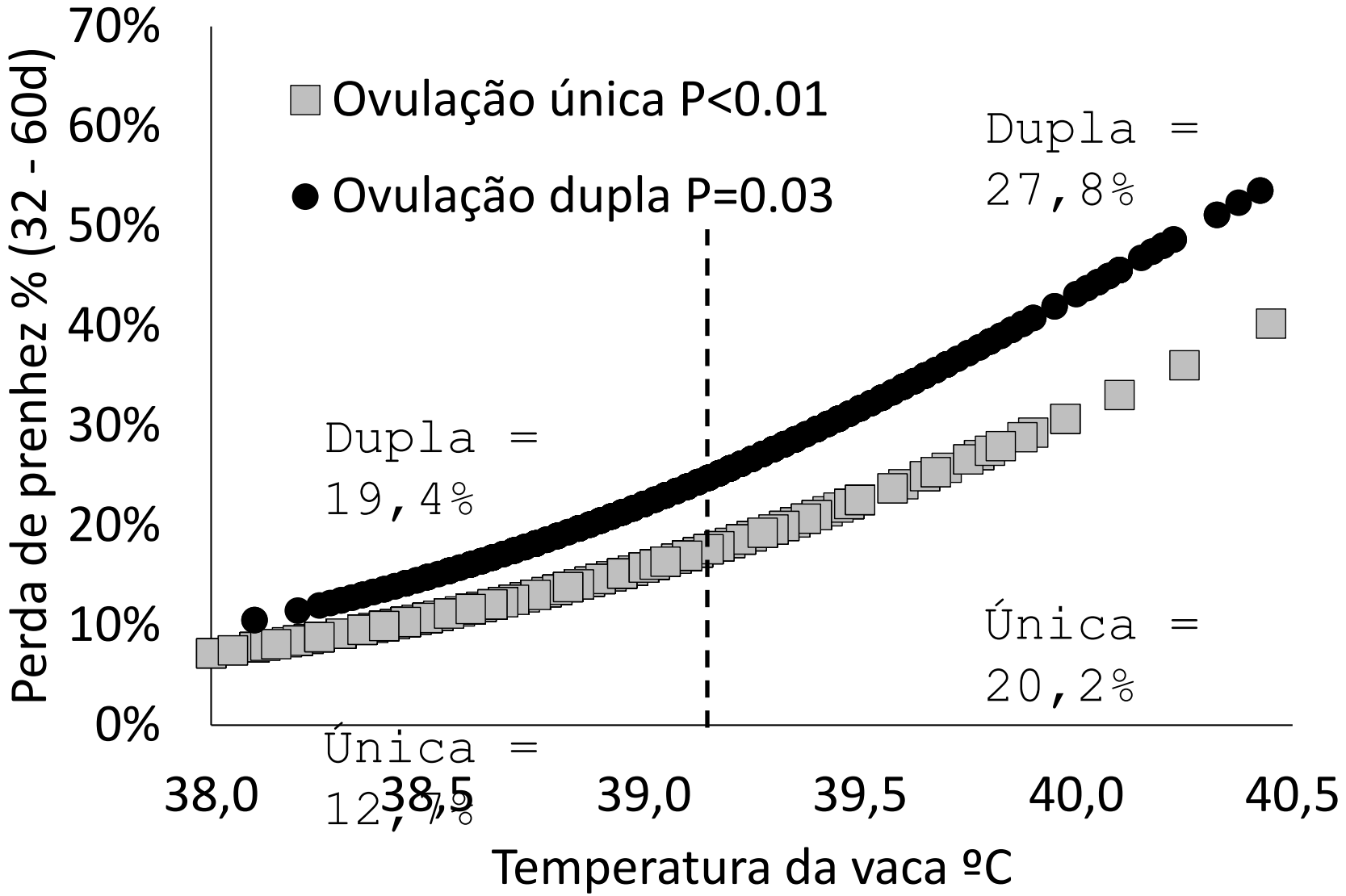
Impacto do Estresse térmico na fertilidade



Impacto do Estresse térmico na fertilidade



Impacto do Estresse térmico na fertilidade



Existe genética para termotolerância??

em gado de leite?
What have we recently learned about the impact of heat stress in dairy cattle?

XXV Curso "Novos Enfoques na Produção e Reprodução de Bovinos"

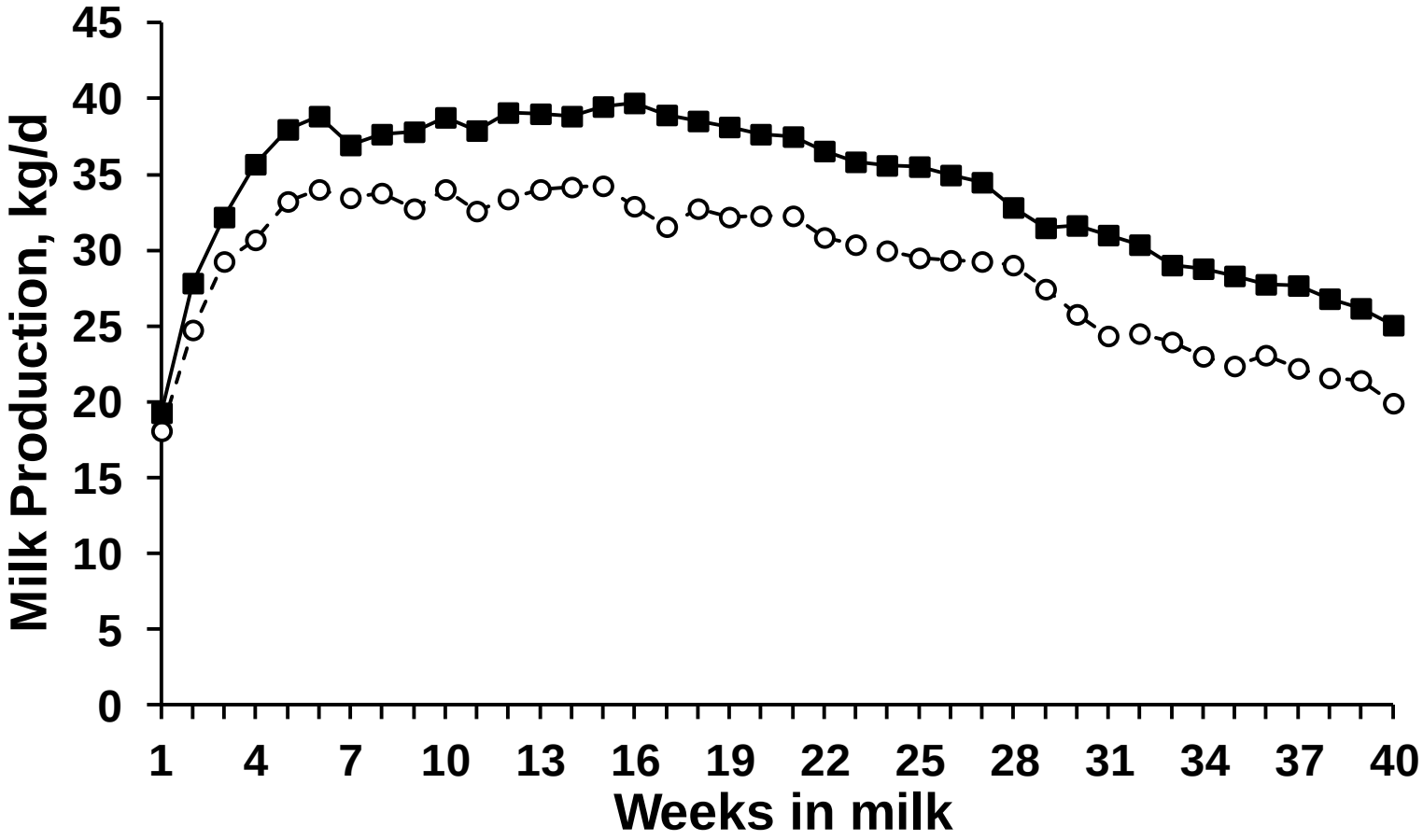
24 March 2023

G. E. Dahl

Department of Animal Sciences

gdahl@ufl.edu

COOLING DRY COWS INCREASES MILK



Tao et al., *J. Dairy Sci.* 94:597

J. Dairy Sci. 92:5988–5999
doi:10.3168/jds.2009-2343
© American Dairy Science Association, 2009.

Heat-stress abatement during the dry period: Does cooling improve transition into lactation?

B. C. do Amaral,* E. E. Connor,† S. Tao,* J. Hayen,* J. Bubolz,* and G. E. Dahl*[1]
*Department of Animal Sciences, University of Florida, Gainesville 32611
†Bovine Functional Genomics Laboratory, USDA-ARS, Beltsville Agricultural Research Center, Beltsville, MD 20705

J. Dairy Sci. 94:86–96
doi:10.3168/jds.2009-3004
© American Dairy Science Association®, 2011.

Heat stress abatement during the dry period influences metabolic gene expression and improves immune status in the transition period of dairy cows

B. C. do Amaral,*[1] E. E. Connor,† S. Tao,* M. J. Hayen,* J. W. Bubolz,* and G. E. Dahl*[2]
*Department of Animal Sciences, University of Florida, Gainesville 32611
†Bovine Functional Genomics Laboratory, USDA-ARS, Beltsville Agricultural Research Center, Beltsville, MD 20705

J. Dairy Sci. 94:5976–5986
doi:10.3168/jds.2011-4329
© American Dairy Science Association®, 2011.

Effect of heat stress during the dry period on mammary gland development

S. Tao, J. W. Bubolz, B. C. do Amaral,[1] I. M. Thompson, M. J. Hayen, S. E. Johnson, and G. E. Dahl[2]
Department of Animal Sciences, University of Florida, Gainesville 32611

J. Dairy Sci. 95:5035–5046
http://dx.doi.org/10.3168/jds.2012-5405
© American Dairy Science Association®, 2012.

Effect of cooling heat-stressed dairy cows during the dry period on insulin response

S. Tao,* I. M. Thompson,* A. P. A. Monteiro,* M. J. Hayen,* L. J. Young,† and G. E. Dahl*[1]
*Department of Animal Sciences, and
†Department of Statistics, Institute of Food & Agricultural Sciences, University of Florida, Gainesville 32611

J. Dairy Sci. 97:7426–7436
http://dx.doi.org/10.3168/jds.2013-7621
© American Dairy Science Association®, 2014.

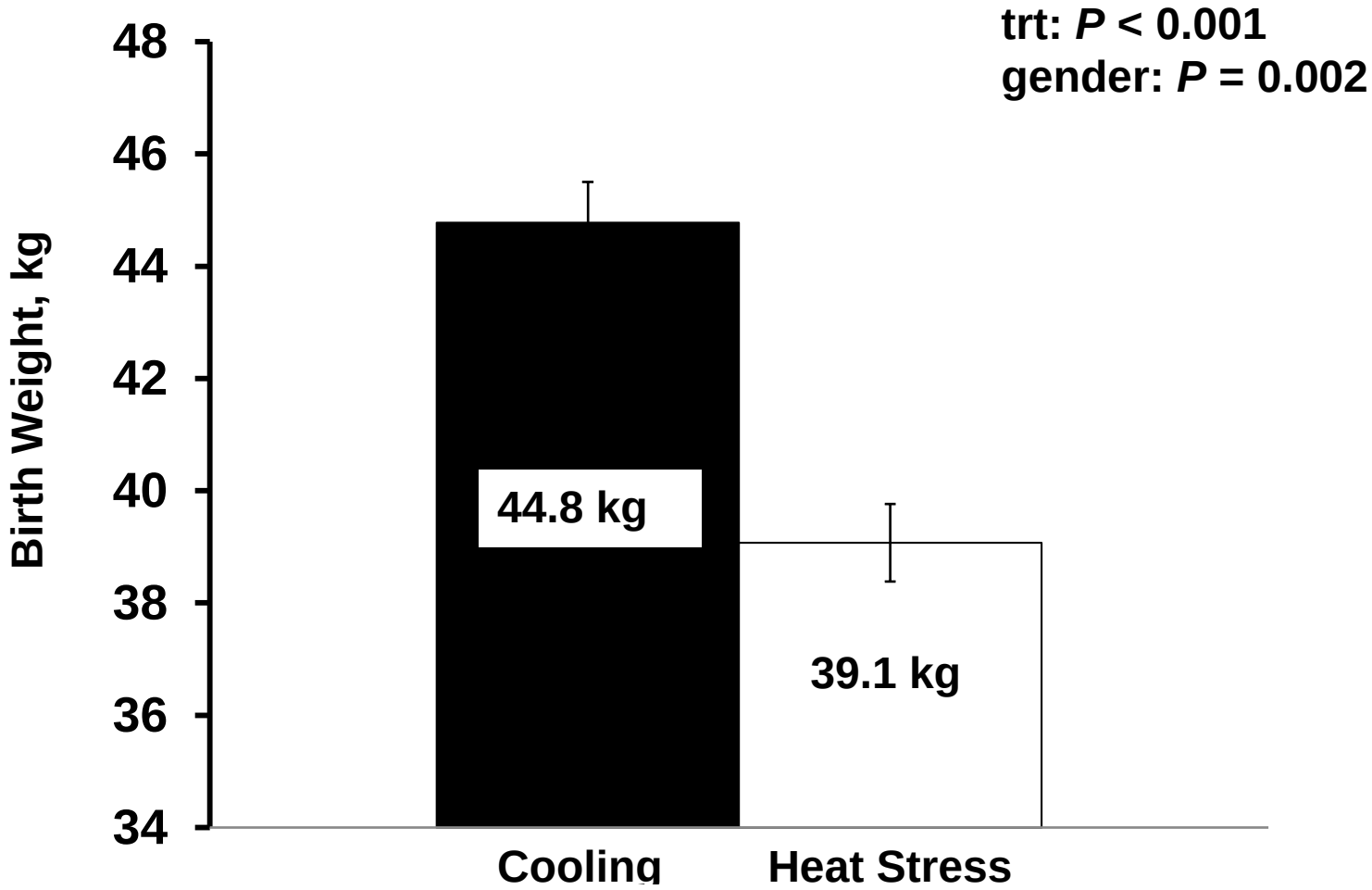
Effect of cooling during the dry period on immune response after *Streptococcus uberis* intramammary infection challenge of dairy cows

I. M. T. Thompson, S. Tao, A. P. A. Monteiro, K. C. Jeong, and G. E. Dahl[1]
Department of Animal Sciences, University of Florida, Gainesville 32611

Retrospective analysis of records of calves from 5 studies between 2007 and 2011

Monteiro et al. , *J. Dairy Sci.* 99:8443-8450.

Birth Weight



Monteiro et al. , *J. Dairy Sci*. 99:8443-8450.

IN UTERO HS DECREASES CALF SURVIVAL

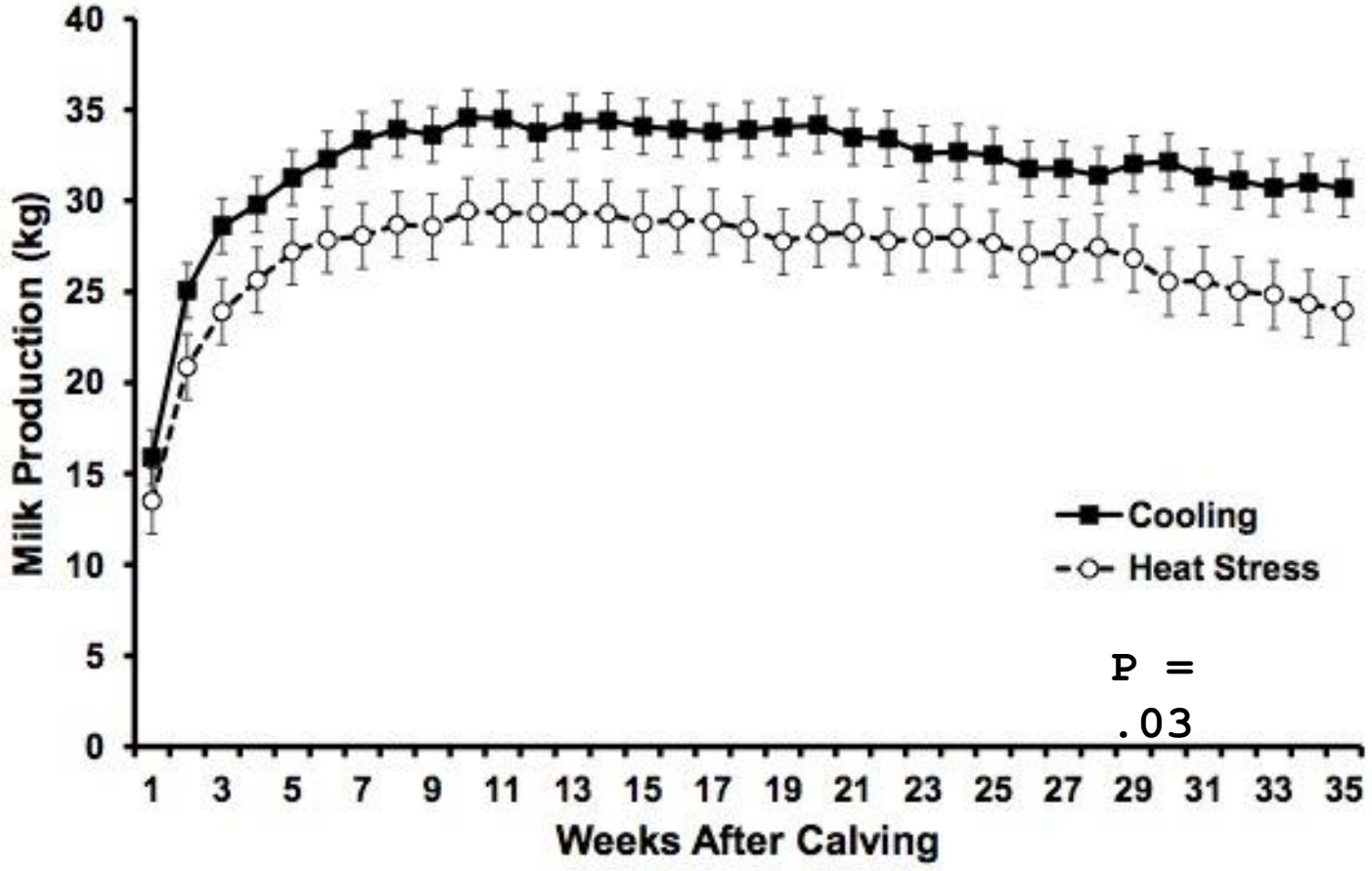
Table 1. Effect of maternal heat stress (HT) or cooling (CL) during late gestation on calf survival

	CL				HT				*P*
Parameter	AI	IVF[1]	Total	%[2]	AI	IVF	Total	%	Trt[3]
Bull calves, n	30	1	31	---	28	2	30	---	---
Heifer calves, n	29	12	41	---	29	15	44	---	---
DOA[4]	0	0	0	0.0	2	1	3	4.1	0.25
Males mortality by 4 mo of age	1	0	1	3.2	3	0	3	10.0	0.35
Heifers leaving herd before puberty	1	4	5	12.2	3	7	10	22.7	0.26
Due to sickness, malformation or growth retardation	1	0	1	2.4	3	5	8	18.2	0.03
Heifers leaving herd after puberty, before first lactation	1	0	1	2.4	3	0	3	6.8	0.62
Heifers completing first lactation	27	8	35	85.4	22	7	29	65.9	0.05

[1] IVF = in vitro fertilization.
[2] Percentage of animals (AI + IVF) affected out of total animals (males or females) in the respective treatment.
[3] Treatment.
[4] Dead on arrival. Includes male and female calves.

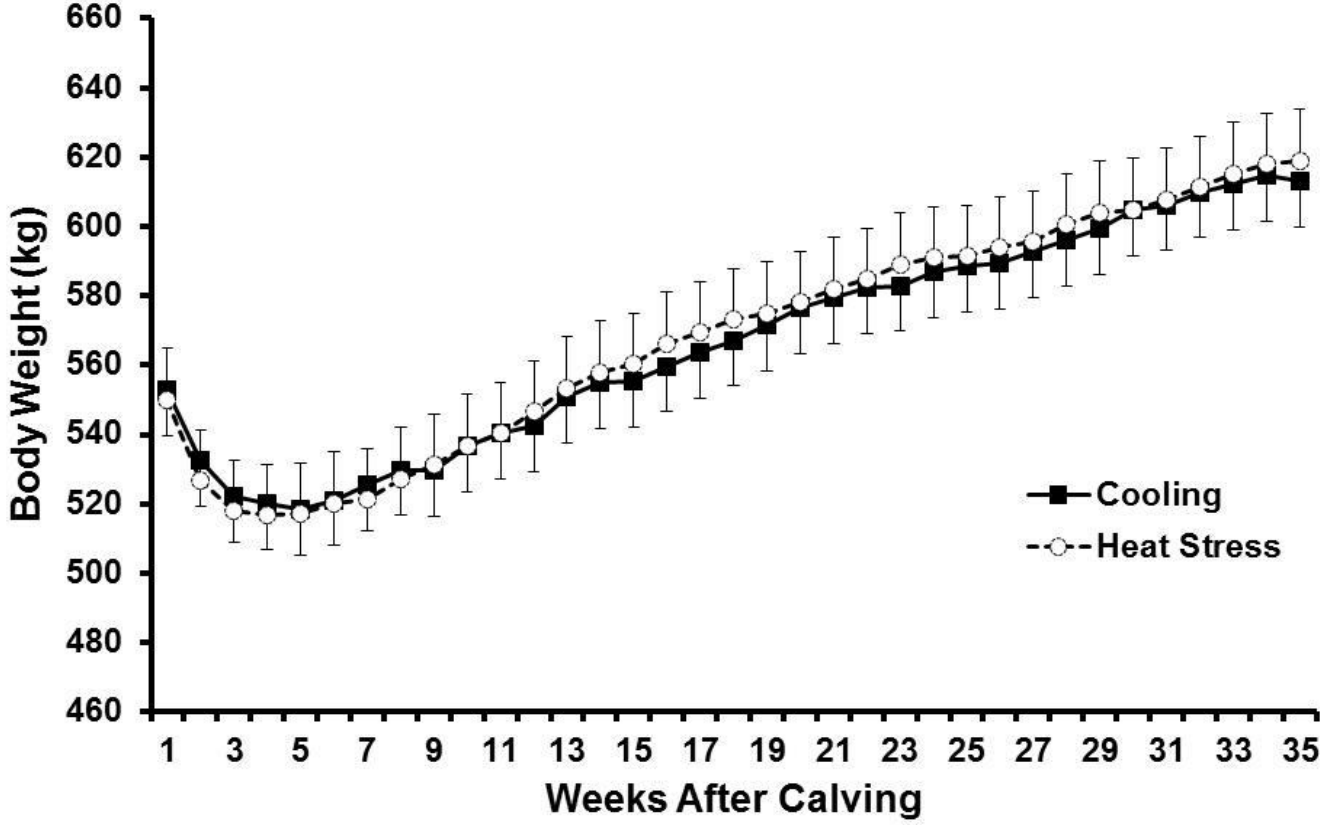
Monteiro et al. , *J. Dairy Sci.* 99:8443-8450.

In Utero Heat Stress Reduces Milk Production



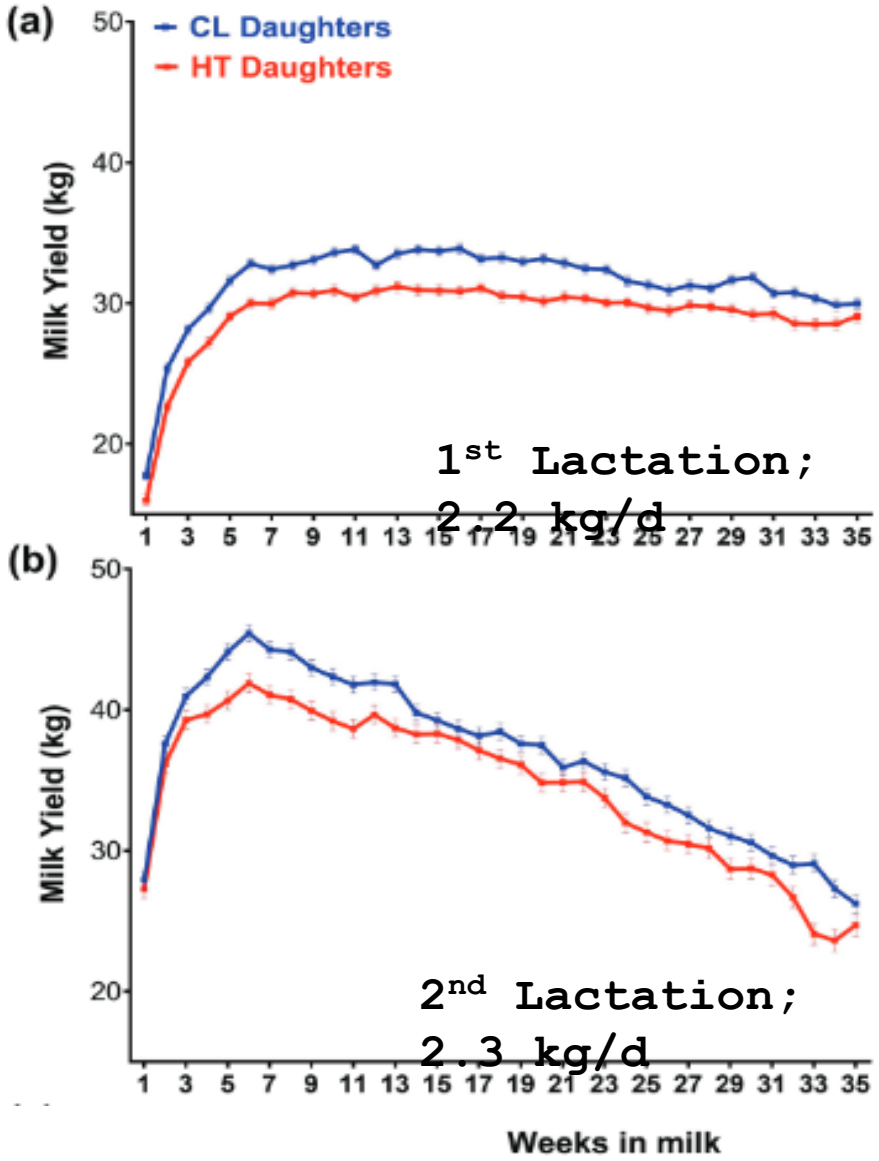
Monteiro et al. , *J. Dairy Sci*. 99:8443-8450.

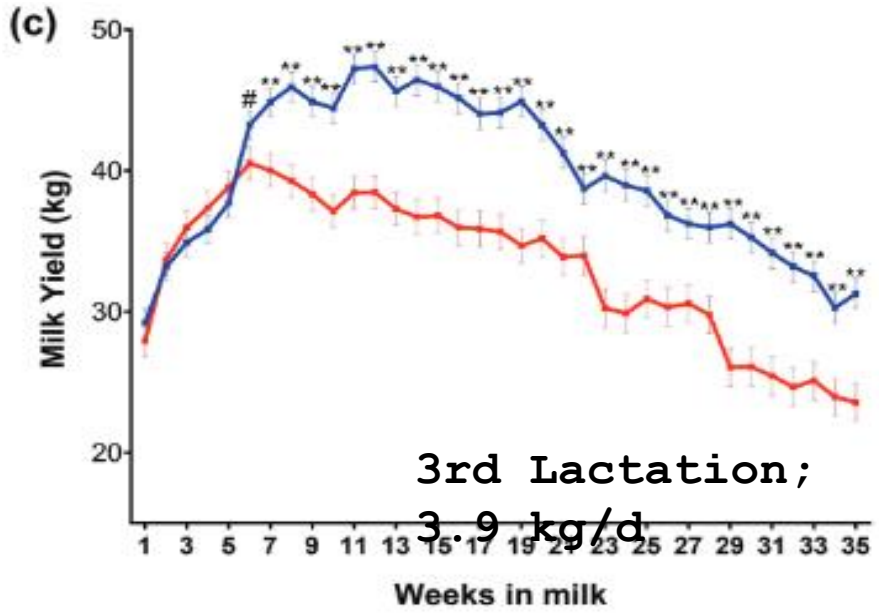
In Utero Heat Stress <u>Does Not</u> Affect Mature Bodyweight



Monteiro et al. , *J. Dairy Sci.* 99:8443-8450.

In Utero Heat Stress Alters Lifetime Yield



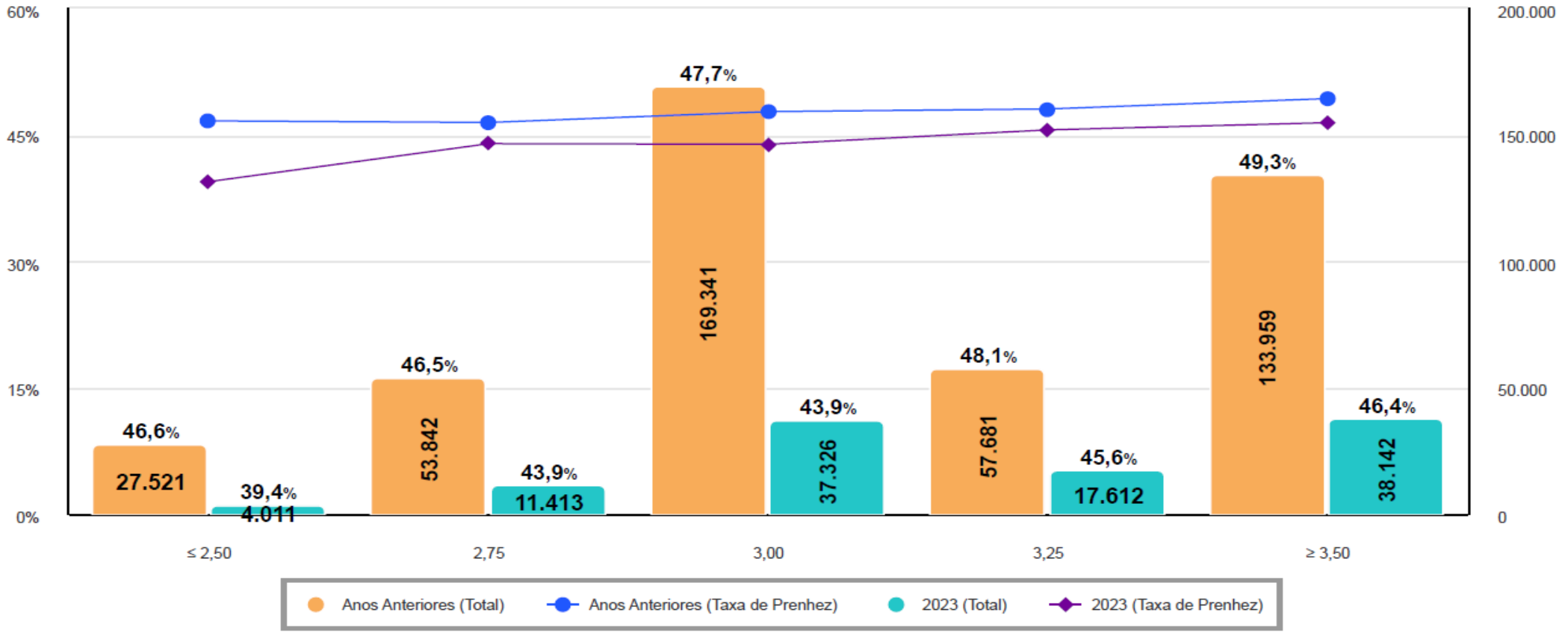


Laporta et al. , *J. Dairy Sci.* 103:7555-7568.

TAXA DE PRENHEZ À IATF E DISTRIBUIÇÃO POR ECC NO INÍCIO

gerar corte
gerar Faz
gerar Diferença
gerar Fazer
gerar Parte

NOVILHAS INDUZIDAS

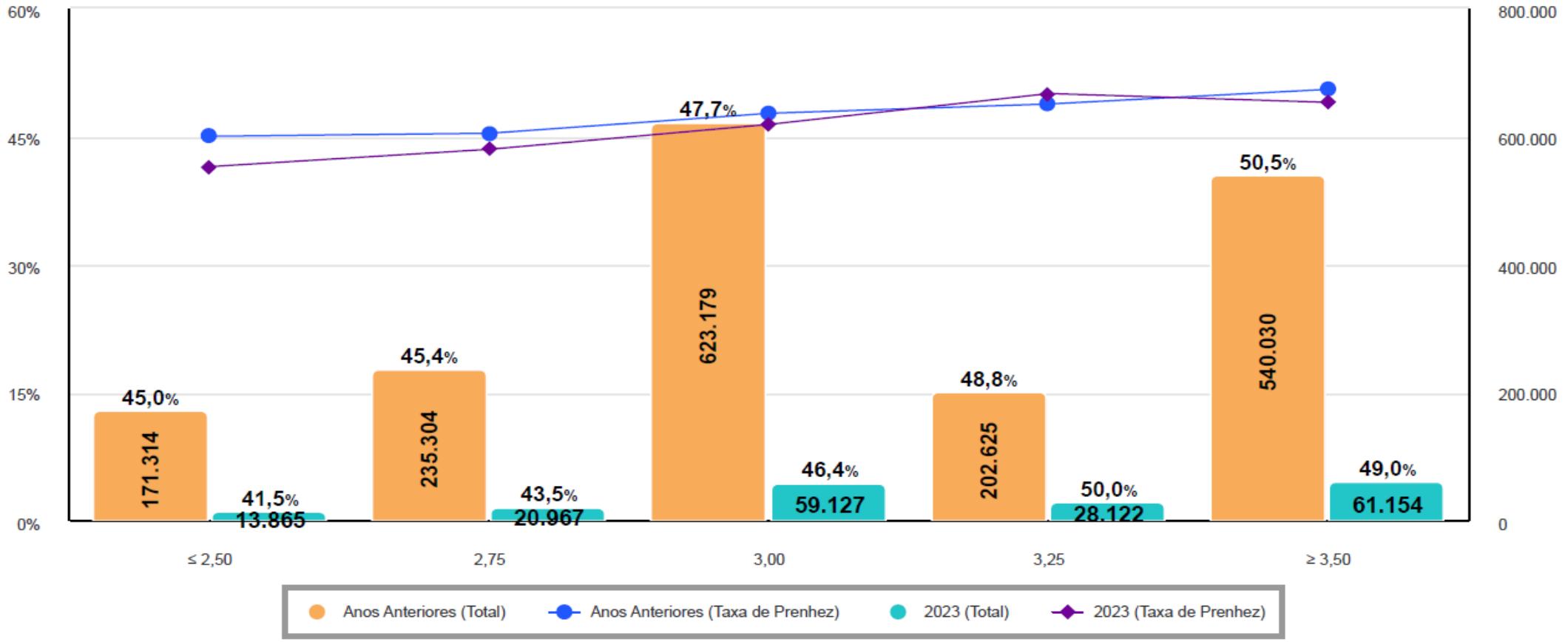


zoetis

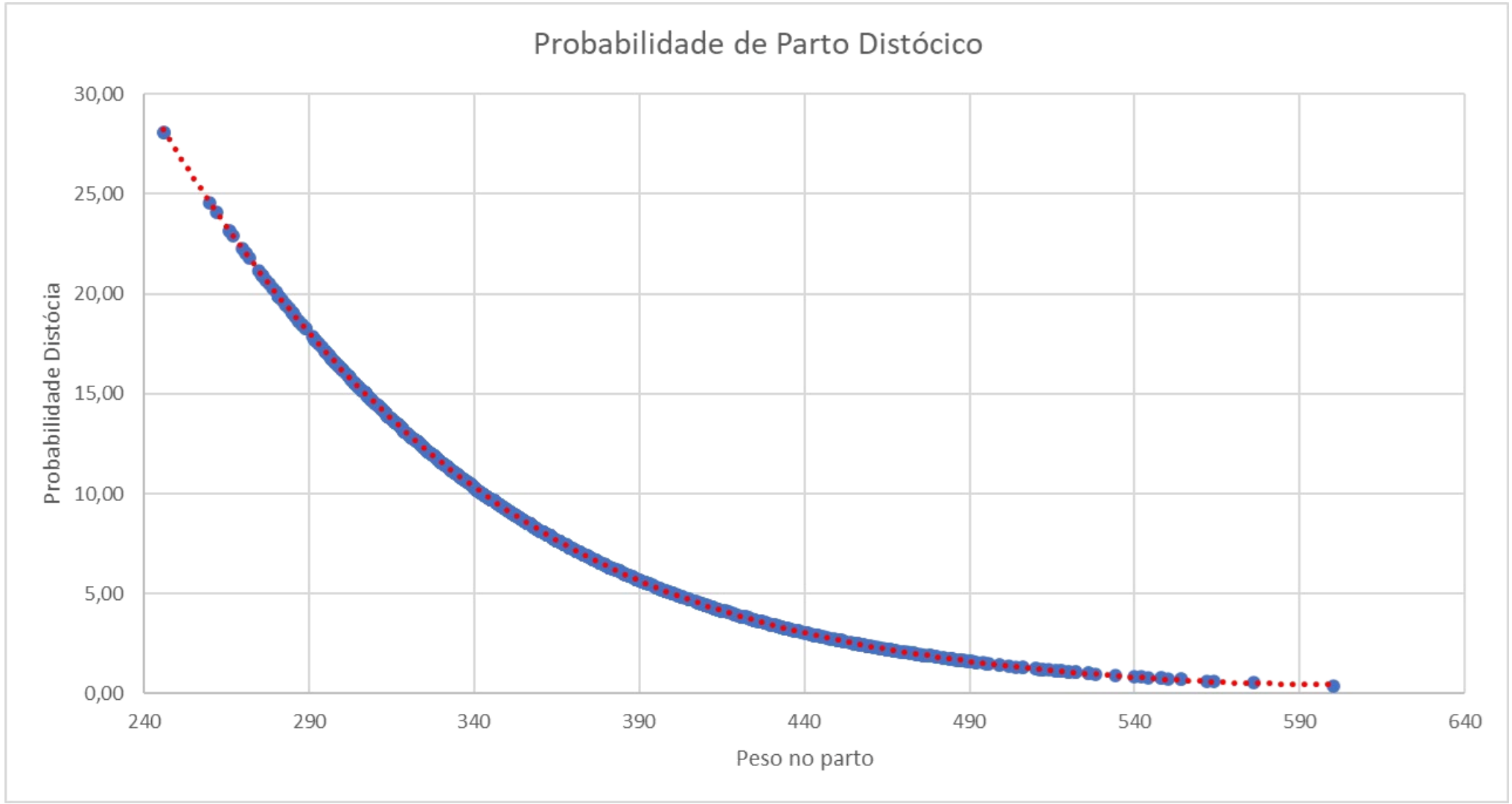
TAXA DE PRENHEZ À IATF E DISTRIBUIÇÃO POR ECC NO INÍCIO

gerar corte
gerar Faz
gerar Diferença
gerar Fazer
gerar Parte

NOVILHAS



zoetis

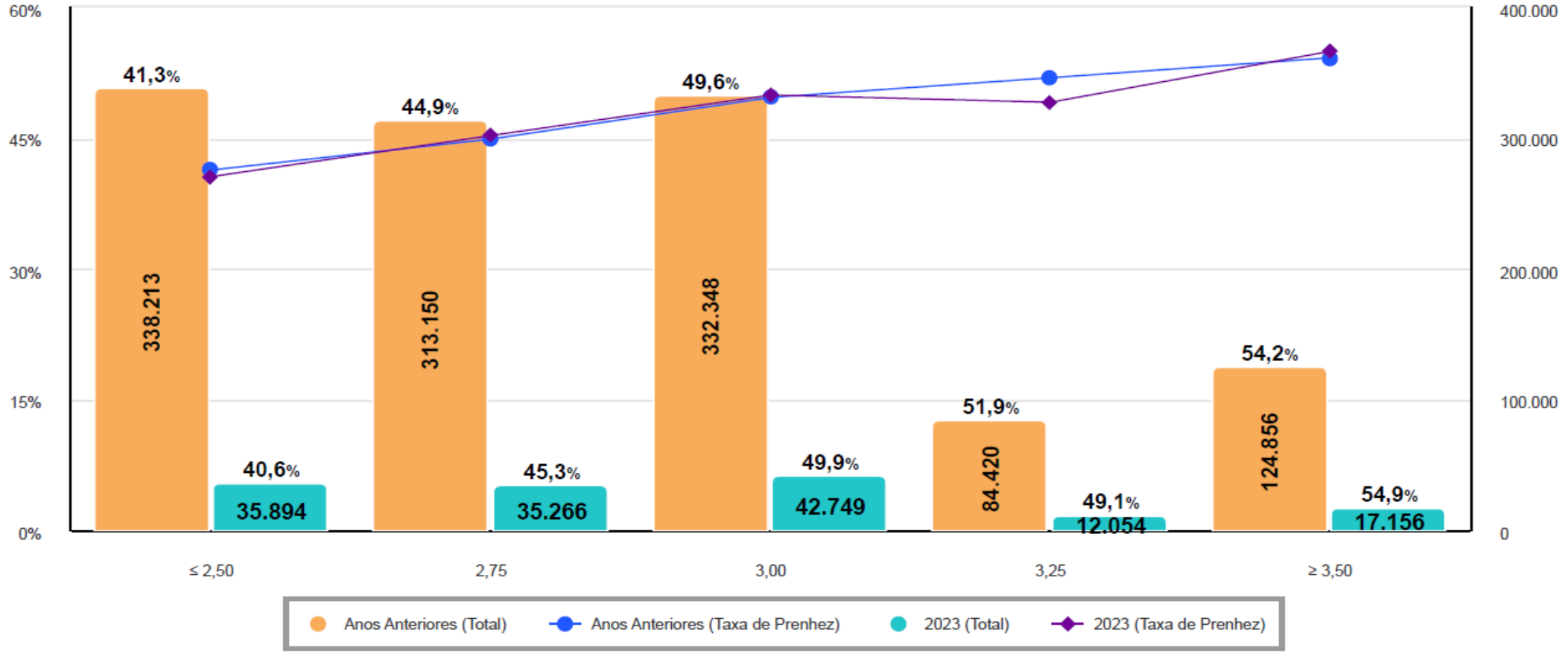


Tratar pré parto aumenta dificuldade ao parto??

TAXA DE PRENHEZ À IATF E DISTRIBUIÇÃO POR ECC NO INÍCIO

gerar corte
gerar Faz
gerar Diferença
gerar Fazer
gerar Parte

PRIMÍPARAS

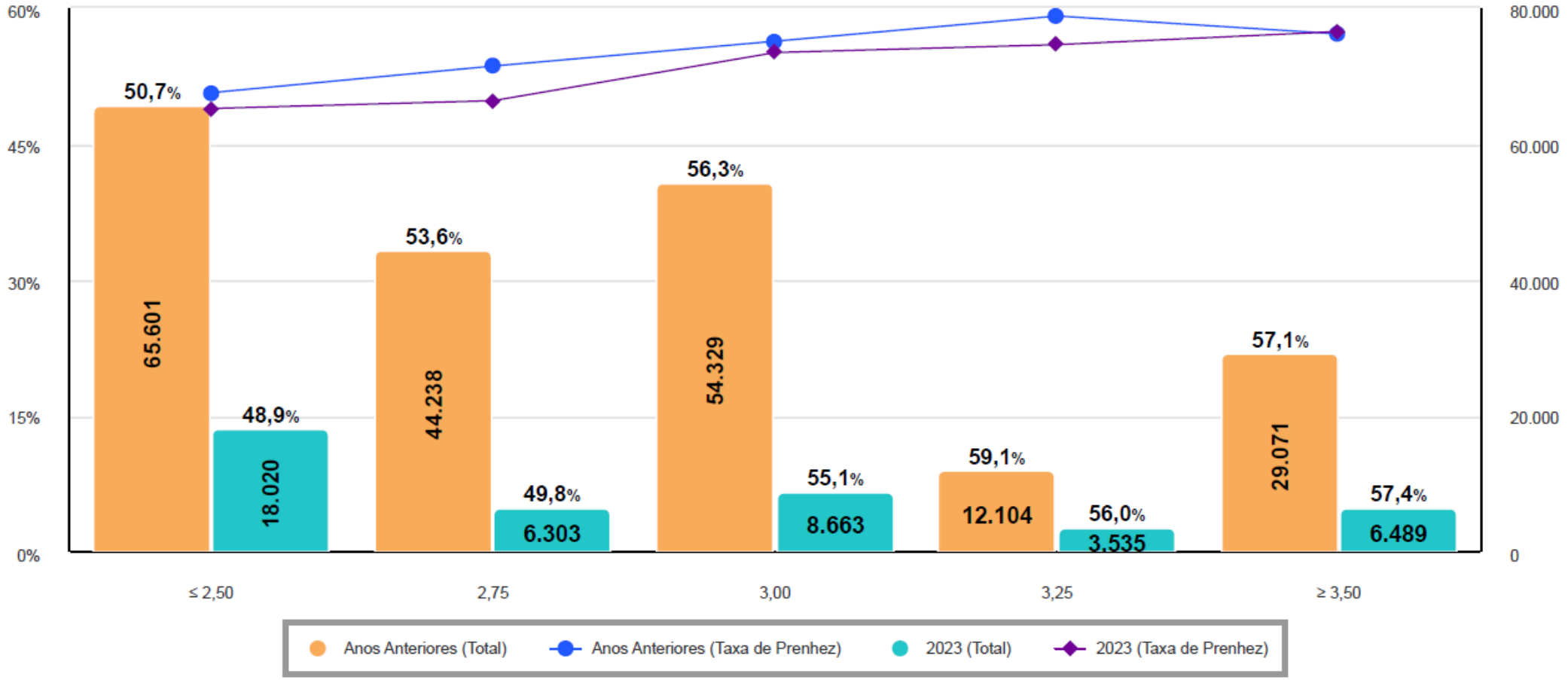


zoetis

TAXA DE PRENHEZ À IATF E DISTRIBUIÇÃO POR ECC NO INÍCIO

gerar corte
gerar Faz
gerar Diferença
gerar Fazer
gerar Parte

SECUNDÍPARAS

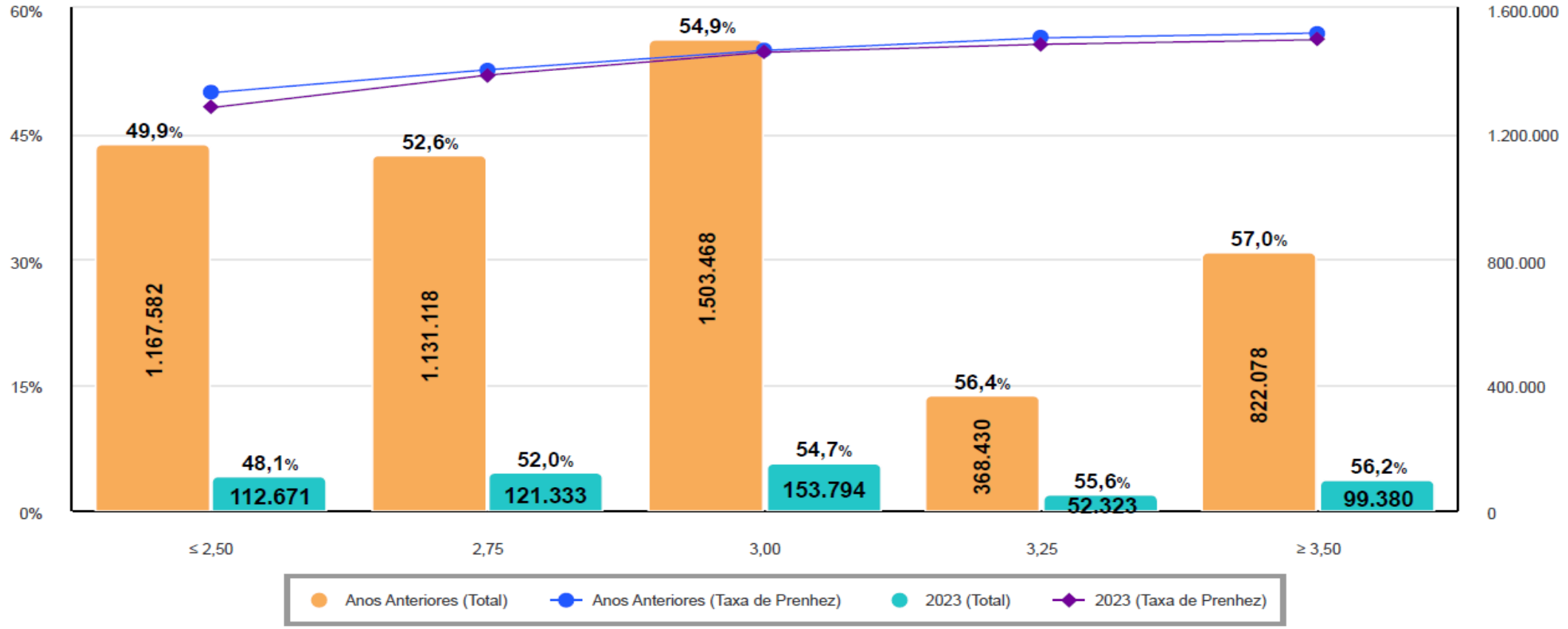


zoetis

TAXA DE PRENHEZ À IATF E DISTRIBUIÇÃO POR ECC NO INÍCIO

gerar corte
gerar Faz
gerar Diferença
gerar Fazer
gerar Parte

MULTÍPARAS



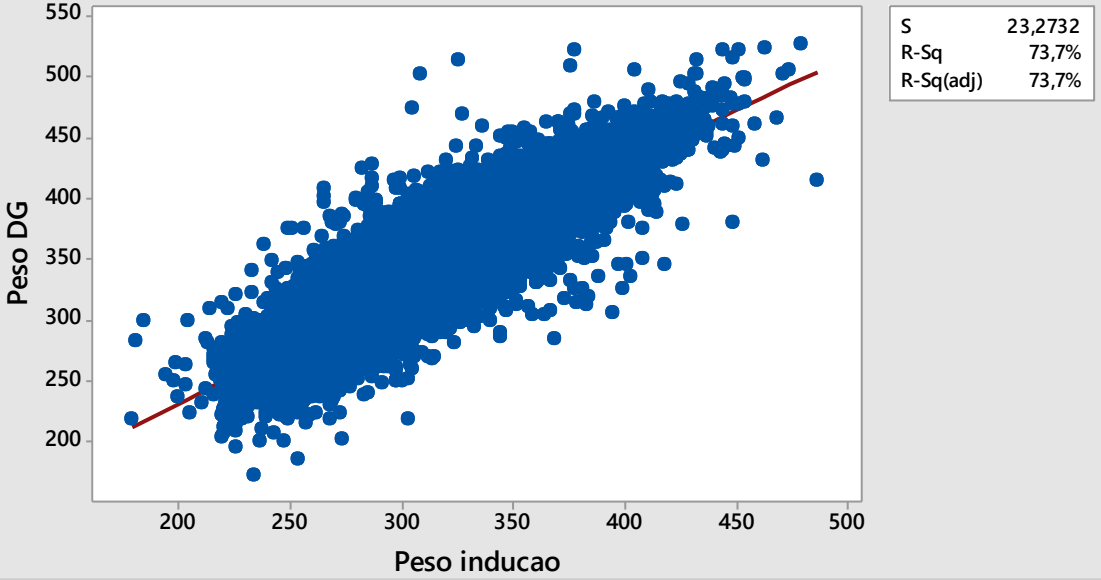
zoetis

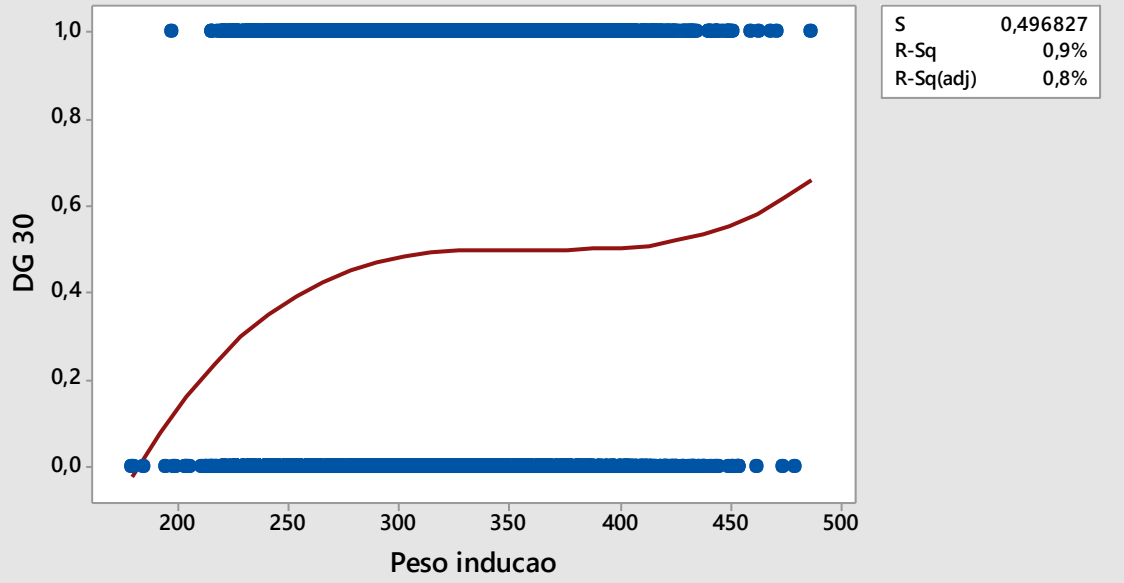
Taxa de reposição x descarte voluntario e involuntário?

Vital para o melhoramento genético.

Novilhas 14 meses?

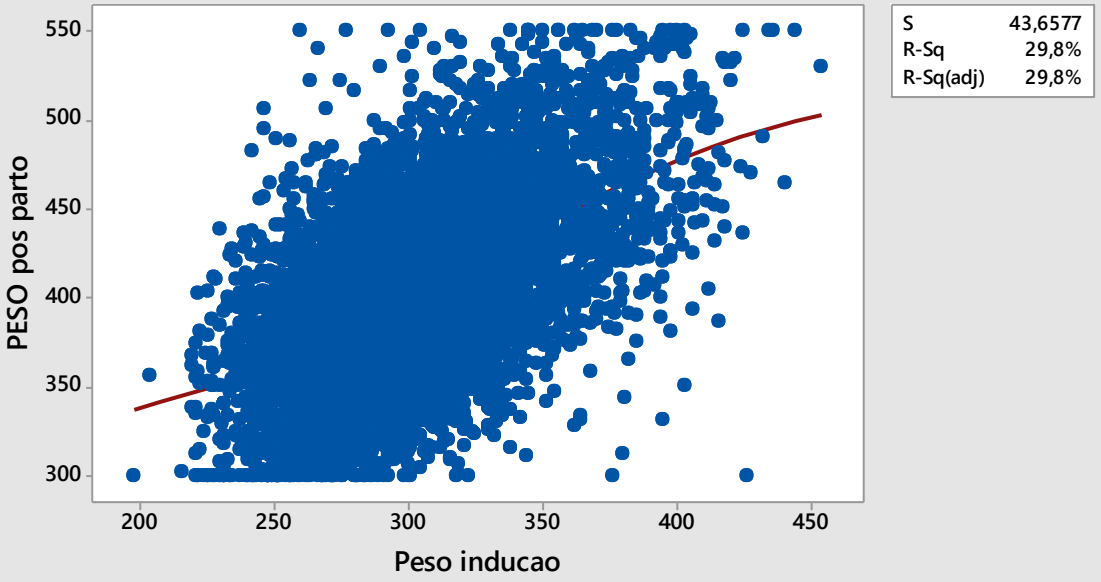
+ 0,001599 Peso inducao^2 - 0,000002 Peso inducao^3





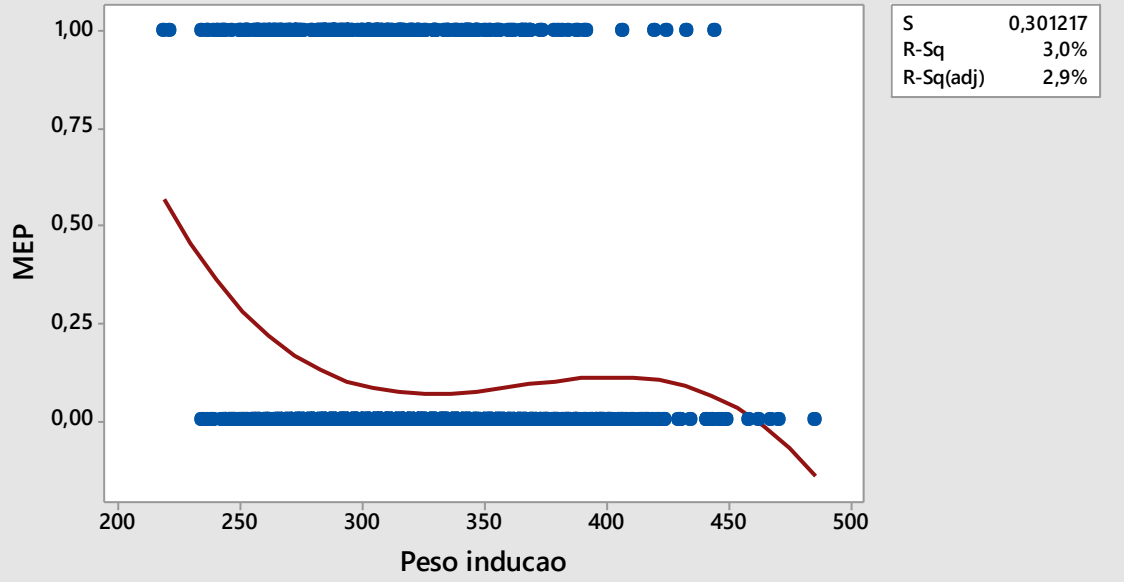
Fitted Line Plot

PESO pos parto = 503,8 - 2,421 Peso inducao
+ 0,01003 Peso inducao^2 - 0,000010 Peso inducao^3



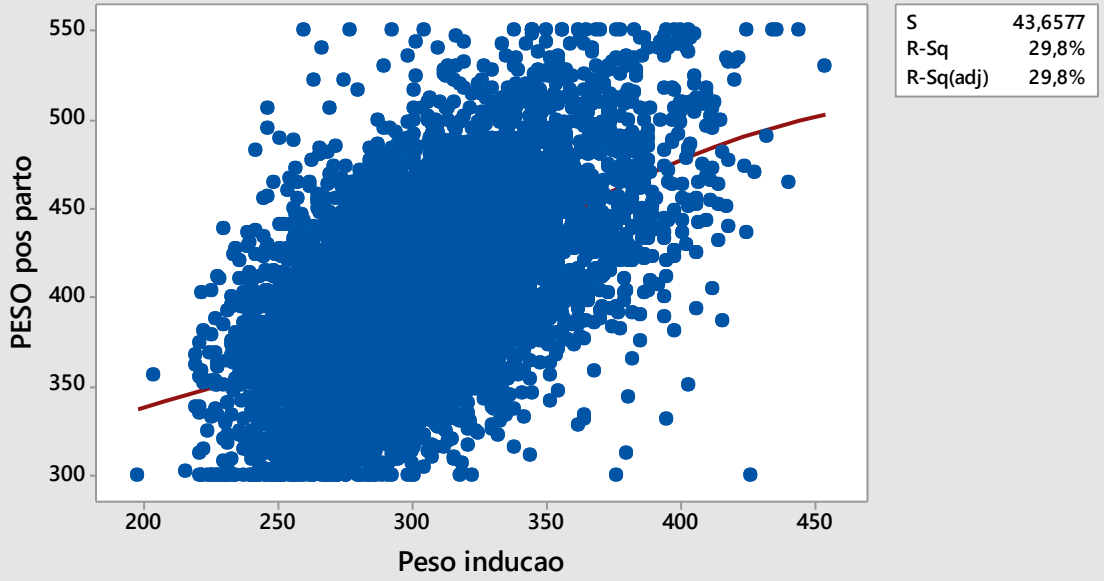
Fitted Line Plot

MEP = 9,111 - 0,07565 Peso inducao
+ 0,000209 Peso inducao^2 - 0,000000 Peso inducao^3



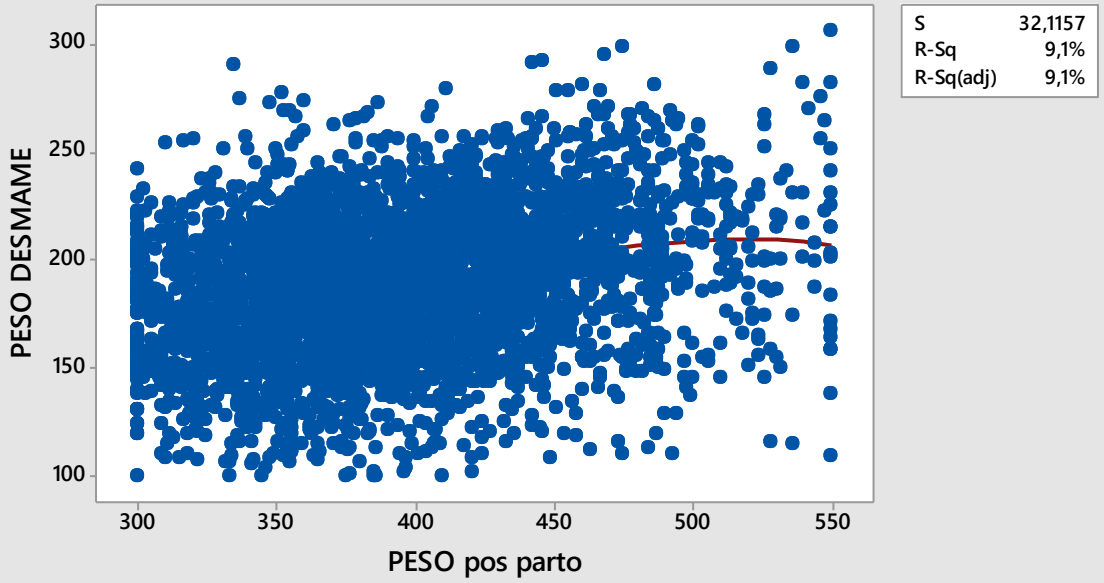
Fitted Line Plot

PESO pos parto = 503,8 - 2,421 Peso inducao
+ 0,01003 Peso inducao^2 - 0,000010 Peso inducao^3

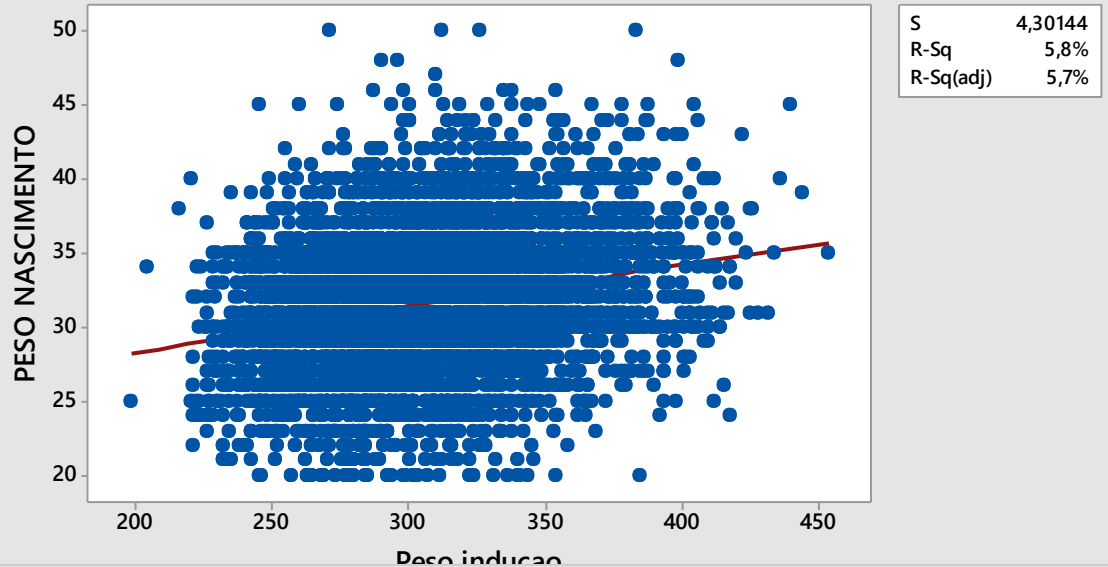


Fitted Line Plot

PESO DESMAME = 594,0 - 3,404 PESO pos parto
+ 0,008843 PESO pos parto^2 - 0,000007 PESO pos parto^3

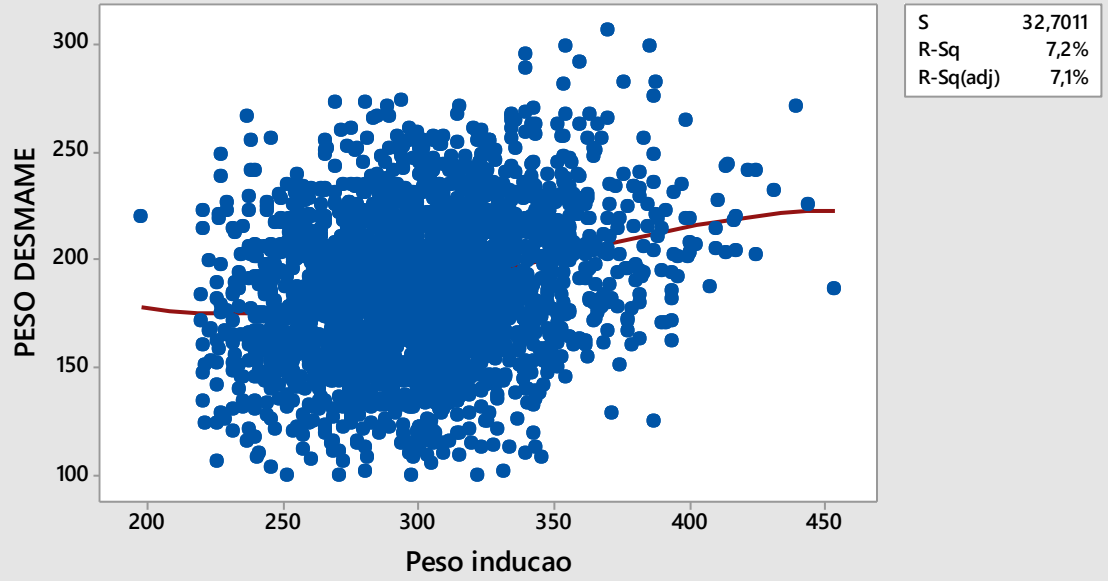


PESO NASCIMENTO = 18,72 + 0,0636 Peso inducao
- 0,000097 Peso inducao^2 + 0,000000 Peso inducao^3

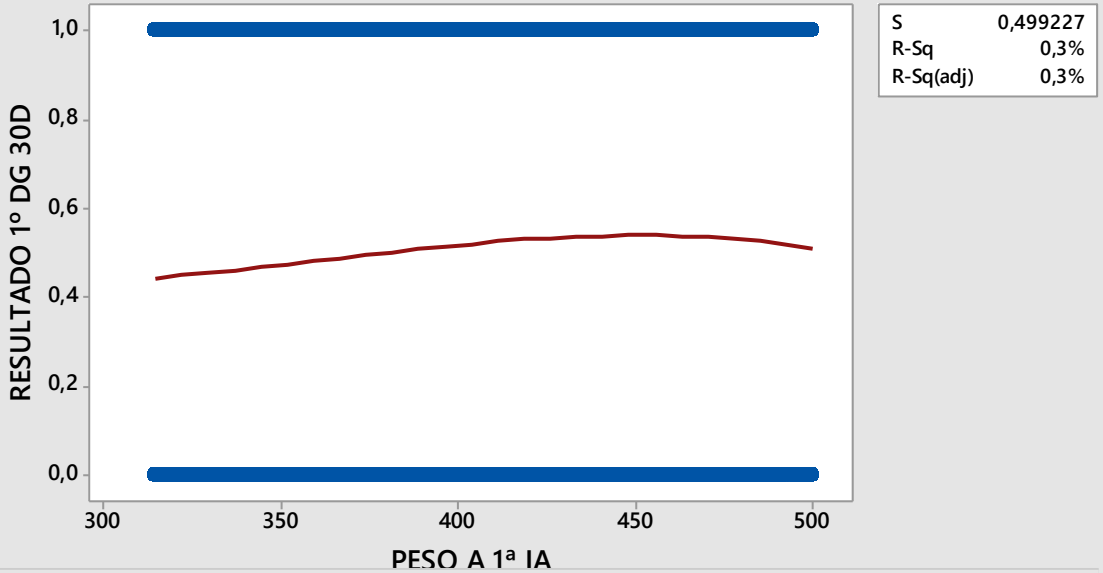


Fitted Line Plot

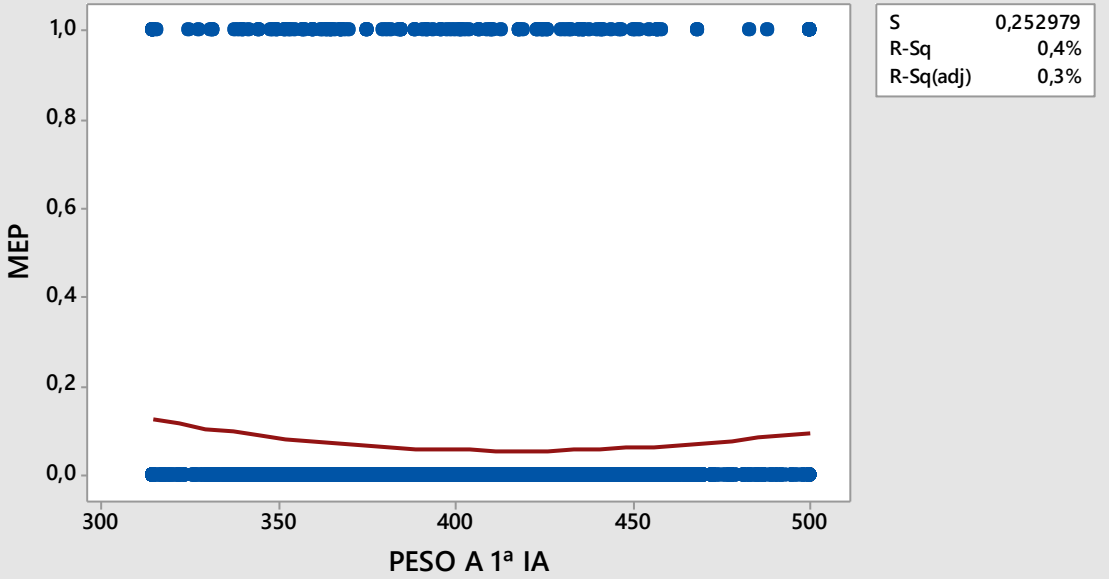
PESO DESMAME = 419,2 - 2,547 Peso inducao
+ 0,008310 Peso inducao^2 - 0,000008 Peso inducao^3



RESULTADO 1º DG 30D = 1,928 - 0,01393 PESO A 1ª IA
+ 0,000041 PESO A 1ª IA^2 - 0,000000 PESO A 1ª IA^3

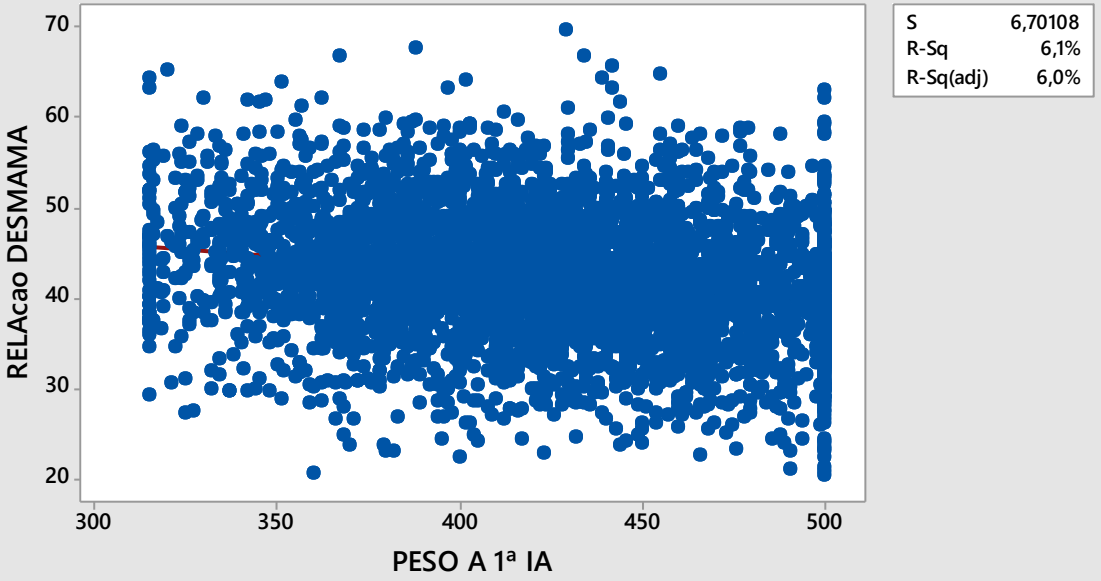


+ 0,000014 PESO A 1ª IA^2 - 0,000000 PESO A 1ª IA^3



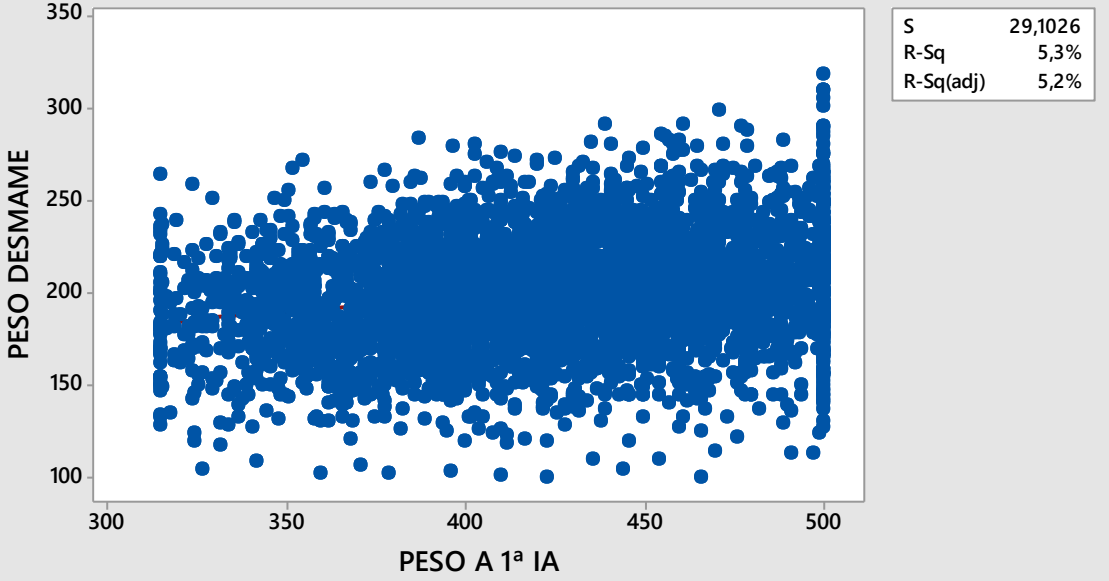
Fitted Line Plot

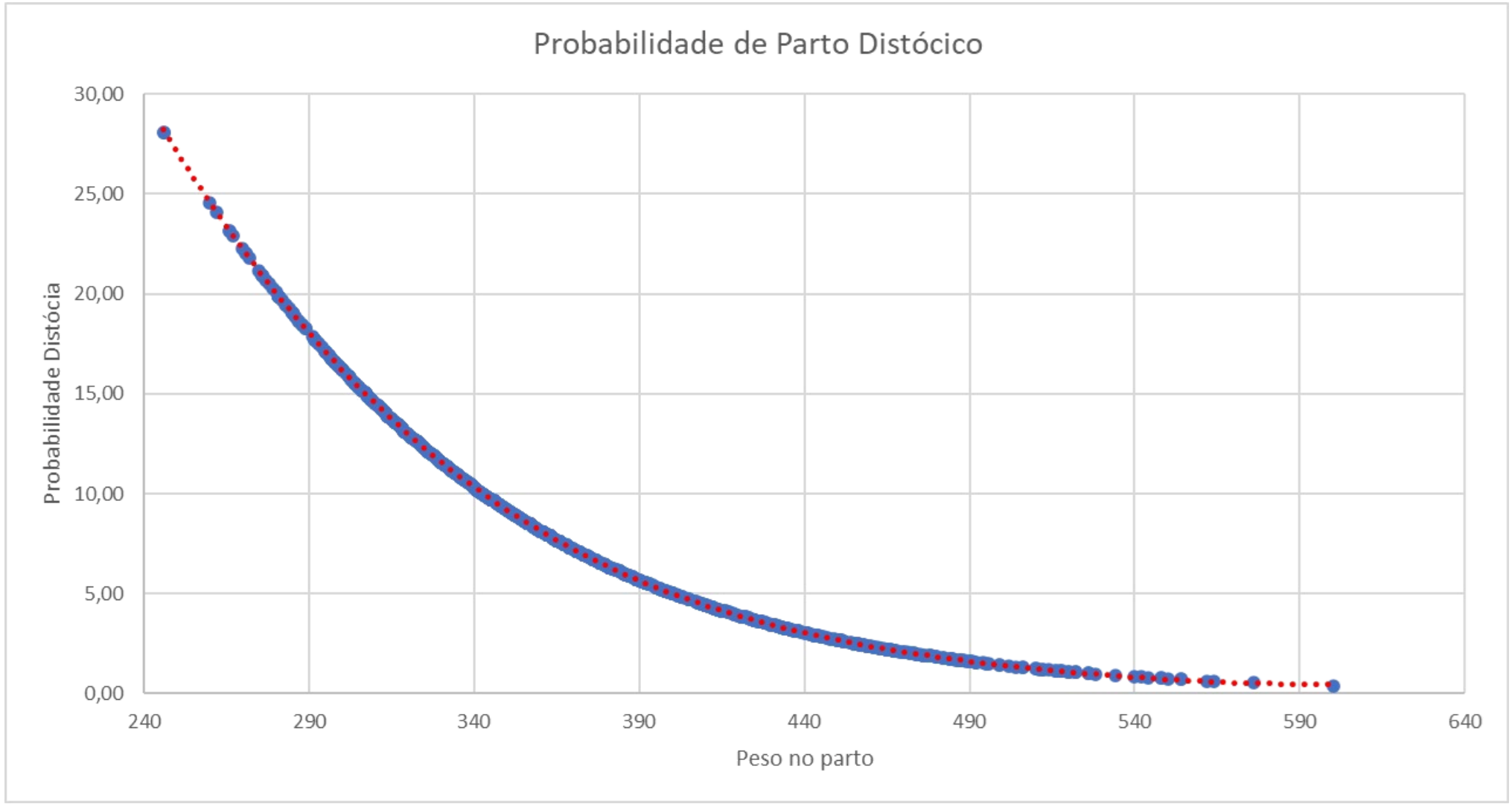
RELAcao DESMAMA = 89,71 - 0,3066 PESO A 1ª IA
+ 0,000730 PESO A 1ª IA^2 - 0,000001 PESO A 1ª IA^3



Fitted Line Plot

PESO DESMAME = - 40,7 + 1,467 PESO A 1ª IA
- 0,003197 PESO A 1ª IA^2 + 0,000003 PESO A 1ª IA^3





Tratar pré parto aumenta dificuldade ao parto??

- **Qual o melhor touro para fertilidade? Precocidade?**
- **Antecipação de ovulação?**

- **Qual o ECC adequado? Queremos que ganhe ou perca peso?**

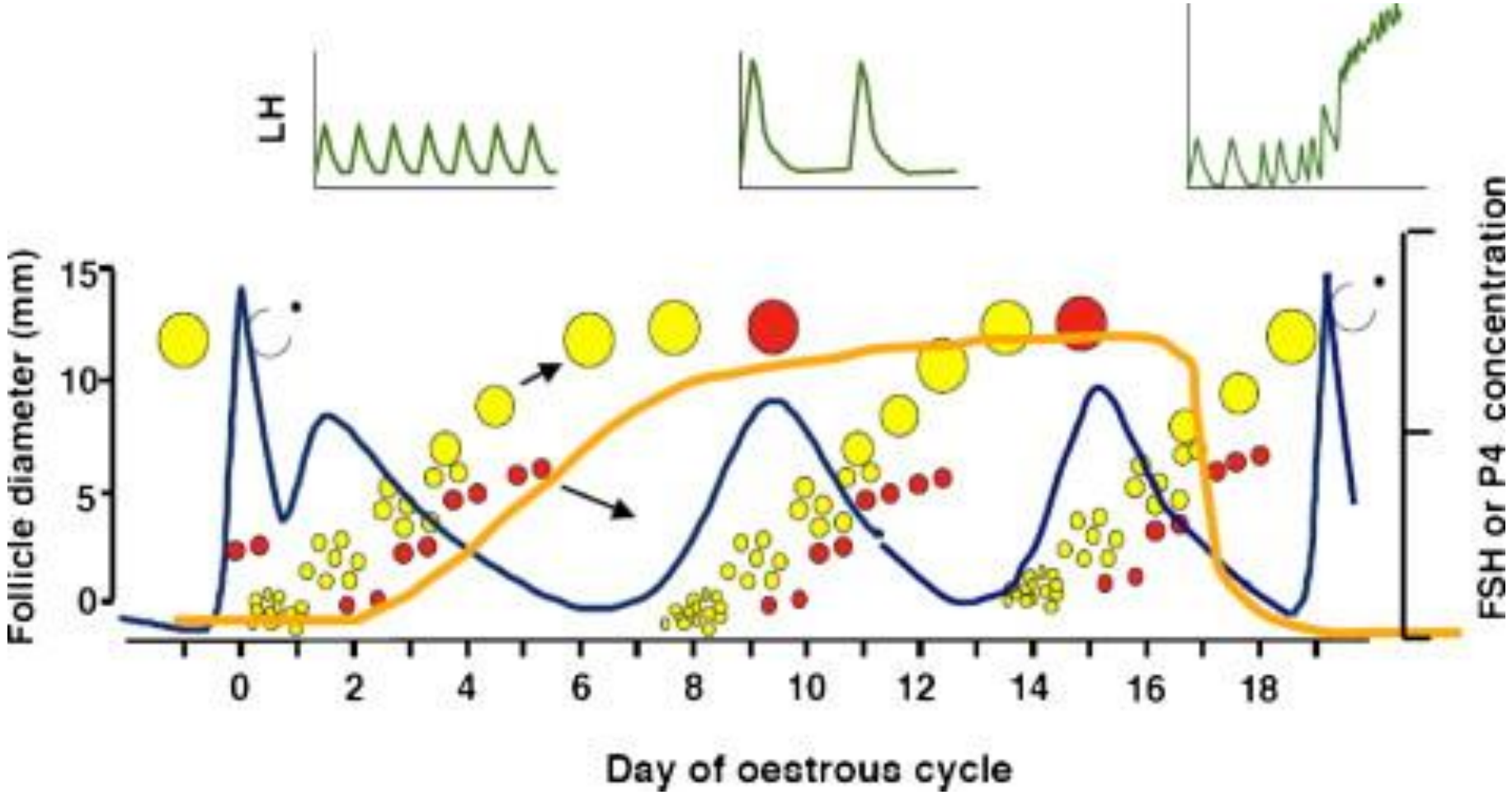
- **E os pastos, melhores ou piores**

- **E a nutrição, melhor ou pior?**
- **Sal mineral ou proteinado?**

- **Qual a matriz ideal? Parto no cedo ou dentro da estação de monta?**

- **Boa genética, bom pasto, boa suplementação, bom ECC = antecipação ou atraso da ciclicidade? Interfere no protocolo de IATF?**

- **Passado, presente e futuro?**



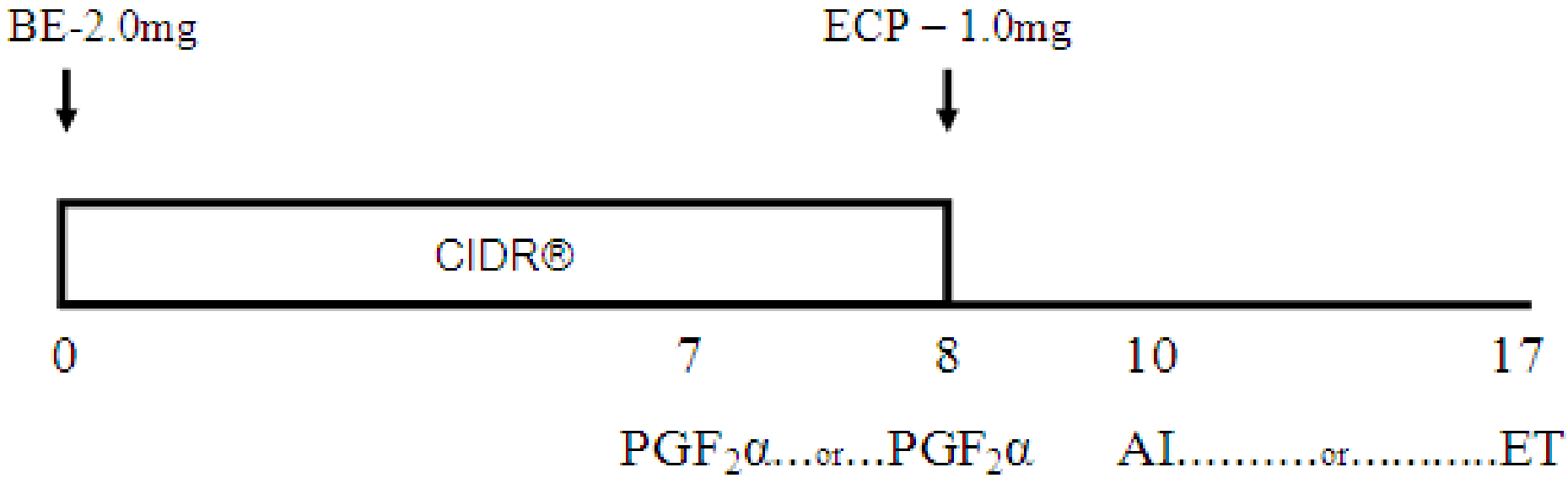
Schematic depiction of the pattern of secretion of follicle-stimulating hormone (FSH), luteinising hormone (LH), and progesterone (P4); and the pattern of growth of ovarian follicles during the oestrous cycle in cattle.

Ford et al., 2010

J. Dairy Sci. 96:2837–2846
http://dx.doi.org/10.3168/jds.2012-5840
© American Dairy Science Association®, 2013.

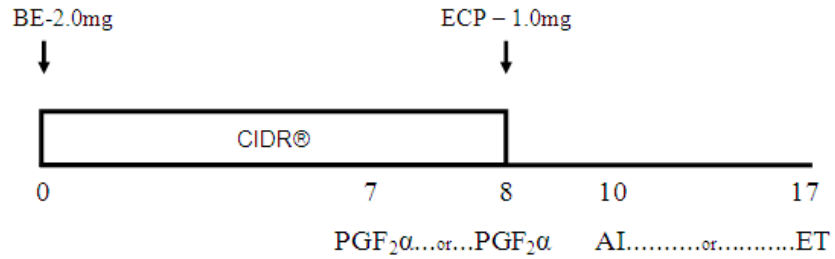
Timing of prostaglandin $F_{2\alpha}$ treatment in an estrogen-based protocol for timed artificial insemination or timed embryo transfer in lactating dairy cows

M. H. C. Pereira,* C. P. Sanches,* T. G. Guida,* A. D. P. Rodrigues,* F. L. Aragon,† M. B. Veras,† P. T. Borges,† M. C. Wiltbank,‡ and J. L. M. Vasconcelos*[1]
*Department of Animal Production, São Paulo State University, Botucatu 18168-000, Brazil
†Pioneiros Veterinary Clinic, Carambei-PR 84145-000, Brazil
‡Department of Dairy Science, University of Wisconsin, Madison 53706



The main hypothesis of this study was that treatment 1d before P4 intravaginal device removal. rather than at the time of P4 intravaginal device removal would result in a greater percentage of cows with complete CL regression at the time of AI and improved fertility in the TAI and TET programs

PGF d7 vs. d8



	PGF d7	PGF d8	P=
P4 na PGF	2.34 ± 0.15	2.14 ± 0.15	0.12
P4 d7	2.47 ± 0.22	2.33 ± 0.22	0.26
P/IA 32d	**32.9 (87/238)**	**20.6 (42/168)**	
P/IA 60d	30.0 (81/238)	19.2 (40/168)	
			32d **<0.01**
P/TE 32d	**47.0 (116/243)**	**40.7 (100/244)**	60d **0.02**
P/TE 60d	37.9 (95/243)	33.5 (83/244	

Available online at www.sciencedirect.com

ScienceDirect

Theriogenology 72 (2009) 179–189

Theriogenology

www.theriojournal.com

Fixed-time artificial insemination with estradiol and progesterone for *Bos indicus* cows I: Basis for development of protocols

M. Meneghetti [a], O.G. Sá Filho [a], R.F.G. Peres [a], G.C. Lamb [b], J.L.M. Vasconcelos [a,*]

[a] *Departamento de Produção Animal, Faculdade de Medicina Veterinária e Zootecnia-UNESP, Botucatu-SP 18618-000, Brazil*

[b] *North Florida Research and Education Center, University of Florida, Marianna, FL 32446, USA*

Received 29 September 2008; received in revised form 5 February 2009; accepted 8 February 2009

Table 3
Pregnancy rates of suckled *Bos indicus* cows treated in Experiment 5.

Item	Pregnancy rate[a]
	Proportion, n (%)
CL presence[b]–Treatment[c]	
With CL–$PGF_{2\alpha}$d7	86/171 (50.3)[x]
With CL–$PGF_{2\alpha}$d9	56/155 (36.1)[y]
Without CL–$PGF_{2\alpha}$d7	285/603 (47.3)[x]
Without CL–$PGF_{2\alpha}$d9	195/403 (48.4)[x]
Body condition score[d]	
2.5	204/507 (40.2)[x]
3.0	154/344 (44.8)[x]
3.5	264/481 (54.9)[y]

[a] Percentage of cows pregnant to TAI compared with all cows treated.

[b] Presence of CL was evaluated by ultrasound examination on Day 7 of a TAI protocol.

[c] Cows treated with 12.5 mg dinoprost tromethamine on Day 7 (48 h before CIDR withdrawal; $PGF_{2\alpha}$d7) or on Day 9 (immediately after CIDR withdrawal; $PGF_{2\alpha}$d9) of a TAI protocol.

[d] Body condition scores assessed on a 1 to 5 scale [3].

[x,y] Means with different letters differ ($P < 0.05$; Bonferroni test).

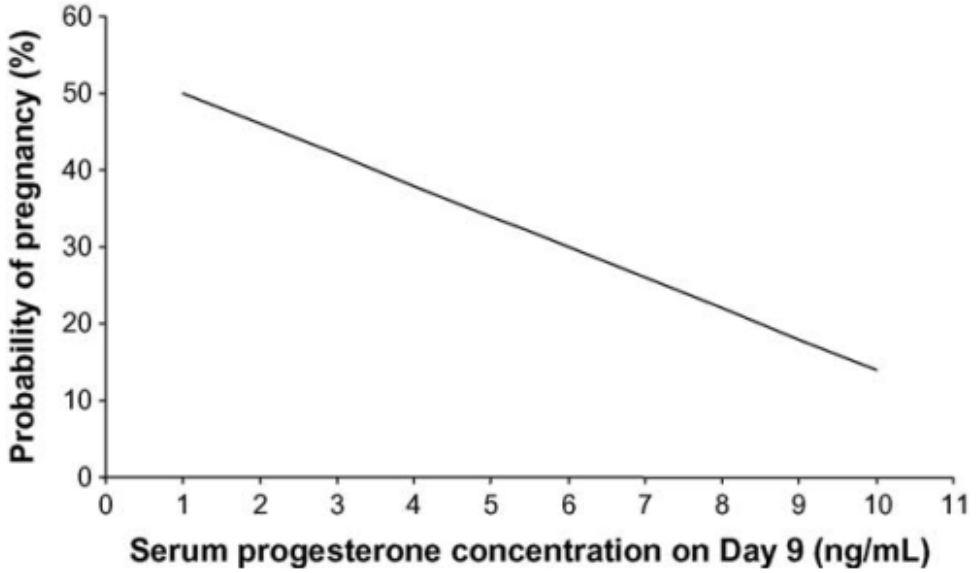


Fig. 5. Relationship between serum concentration of progesterone on Day 9 of a TAI protocol and the probability of pregnancy in cycling Nelore cows (Experiment 5; $P < 0.05$).

PGd7 com CL: 50,3%
PGd9 com CL: 36,1%

Available online at www.sciencedirect.com

ScienceDirect

Theriogenology 72 (2009) 681–689

Theriogenology

www.theriojournal.com

Strategies to improve fertility in *Bos indicus* postpubertal heifers and nonlactating cows submitted to fixed-time artificial insemination

R.F.G. Peres [a], I. Claro Júnior [a], O.G. Sá Filho [a], G.P. Nogueira [b], J.L.M. Vasconcelos [a,*]

[a] *Departamento de Produção Animal, Faculdade de Medicina Veterinária e Zootecnia-UNESP, Botucatu SP 18618-000, Brazil*

[b] *Departamento de Apoio, Produção e Saúde Animal, Curso de Medicina Veterinária UNESP Araçatuba, 16050-680, Brazil*

Received 27 February 2009; received in revised form 16 April 2009; accepted 19 April 2009

Table 1
Ovulation, conception, and pregnancy rates of *Bos indicus* postpubertal heifers (Experiment 1) and nonlactating cows (Experiment 2) submitted to a TAI protocol

Item	Ovulation rate, proportion (%)[a]	Conception rate, proportion (%)[b]	Pregnancy rate, proportion (%)[c]
Experiment 1			
Main effects[d]			
CIDR first use	507/566 (89.6)	258/507 (50.9)	258/566 (45.6)
CIDR third use	516/587 (87.9)	260/516 (50.4)	260/587 (44.3)
0 IU eCG	337/402 (83.8)[a]	166/337 (49.3)	166/402 (41.3)[a]
200 IU eCG	339/383 (88.5)[ab]	180/339 (53.1)	180/383 (47.0)[b]
300 IU eCG	347/368 (94.3)[b]	172/347 (49.6)	172/368 (46.7)[b]
Treatments			
CIDR first use/0 IU eCG	161/191 (84.3)	79/161 (49.1)	79/191 (41.4)
CIDR first use/200 IU eCG	169/188 (89.9)	87/169 (51.5)	87/188 (46.3)
CIDR first use/300 IU eCG	177/187 (94.6)	92/177 (52.0)	92/187 (49.2)
CIDR third use/0 IU eCG	176/211 (83.4)	87/176 (49.4)	87/211 (41.2)
CIDR third use/200 IU eCG	170/195 (87.2)	93/170 (54.7)	93/195 (47.7)
CIDR third use/300 IU eCG	170/185 (93.9)	80/170 (47.1)	80/181 (44.2)
Experiment 2			
Main effects[e]			
$PGF_{2\alpha}$ Day 7	299/350 (85.4)[c]	182/299 (60.9)[c]	182/350 (52.0)[c]
$PGF_{2\alpha}$ Day 9	271/352 (77.0)[d]	128/271 (47.2)[d]	128/352 (36.4)[d]
0 IU eCG	255/352 (72.4)[e]	132/255 (51.8)	132/352 (37.5)[e]
300 IU eCG	315/350 (90.0)[f]	178/315 (56.5)	178/350 (50.8)[f]
Treatments			
$PGF_{2\alpha}$ Day 7/0 IU eCG	143/178 (80.3)	85/143 (59.4)	85/178 (47.7)
$PGF_{2\alpha}$ Day 7/300 IU eCG	156/172 (90.7)	97/156 (62.1)	97/172 (56.4)
$PGF_{2\alpha}$ Day 9/0 IU eCG	112/174 (64.4)	47/112 (42.0)	47/174 (27.0)
$PGF_{2\alpha}$ Day 9/300 IU eCG	159/178 (89.3)	81/159 (50.9)	81/178 (45.5)

[a,b]Different letters in the same column differ (effect of eCG treatment; $P < 0.05$). [c,d]Different letters in the same column differ (effect of time of $PGF_{2\alpha}$ treatment; $P < 0.05$). [e,f]Different letters in the same column differ (effect of eCG treatment; $P < 0.05$).

[a] Percentage of cows ovulating compared with all cows treated.

[b] Percentage of cows pregnant to TAI compared with cows that ovulated.

[c] Percentage of cows pregnant to TAI compared with all cows treated.

[d] Cows received a not previously used CIDR (first use) or a CIDR used previously for 18 d (third use) at initiation of a TAI protocol and 0, 200, or 300 IU eCG on Day 9 relative to CIDR insertion, in a 2 by 3 factorial design.

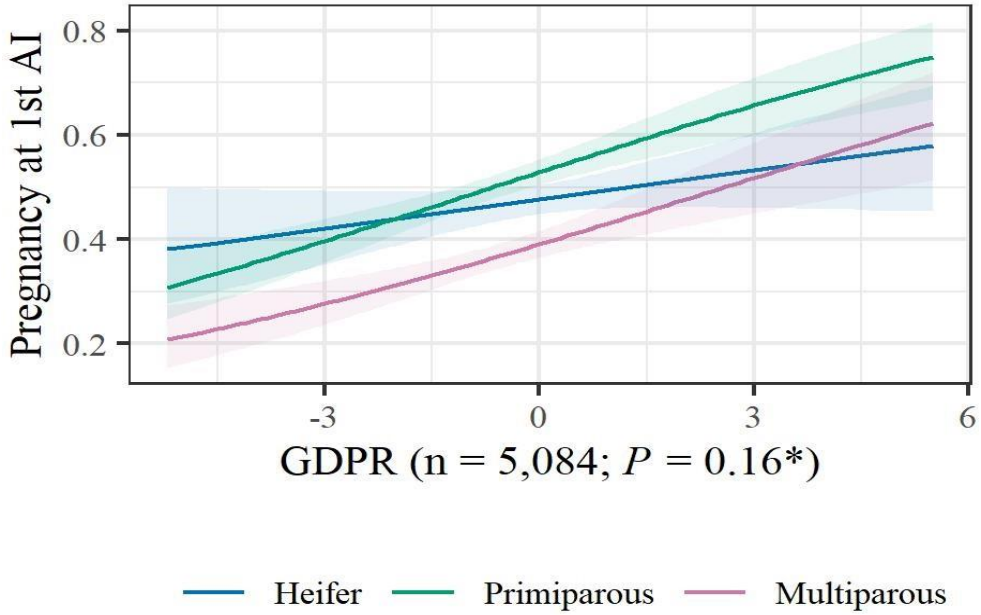
[e] Cows treated with 12.5 mg dinoprost tromethamine on Day 7 (48 h before CIDR withdrawal; $PGF_{2\alpha}$ Day 7) or on Day 9 (immediately after CIDR withdrawal; $PGF_{2\alpha}$ Day 9), and 0 IU eCG or 300 IU eCG on Day 9 of an ovulation synchronization protocol.

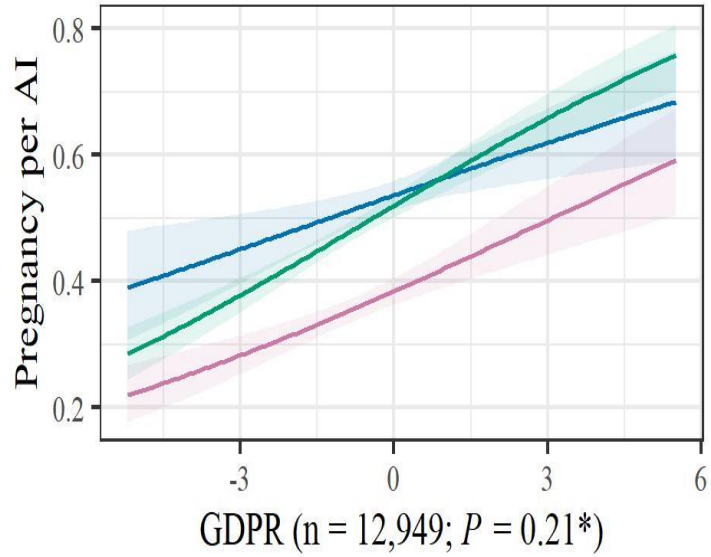
J. Dairy Sci. 105
https://doi.org/10.3168/jds.2021-21766
© 2022, The Authors. Published by Elsevier Inc. and Fass Inc. on behalf of the American Dairy Science Association®.
This is an open access article under the CC BY license (http://creativecommons.org/licenses/by/4.0/).

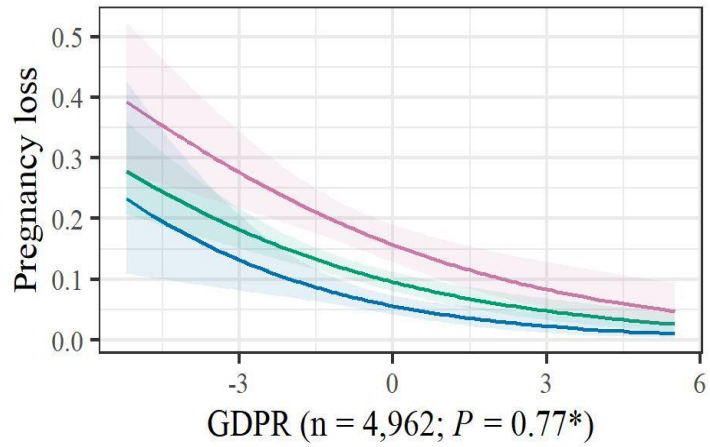
Association between genomic daughter pregnancy rates and reproductive parameters in Holstein dairy cattle

A. M. L. Madureira,[1,2] J. Denis-Robichaud,[1] T. G. Guida,[3] R. L. A. Cerri,[1] and J. L. M. Vasconcelos[3]*
[1]Applied Animal Biology, Faculty of Land and Food Systems, University of British Columbia, Vancouver, BC, Canada V6T 1Z4
[2]University of Guelph, Ridgetown Campus, Ridgetown, ON, Canada N0P 2C0
[3]Department of Animal Production, São Paulo State University, Botucatu, Brazil 18168-000

Genética para fertilidade??
Genética para expressão de cio?
Presença de CL??

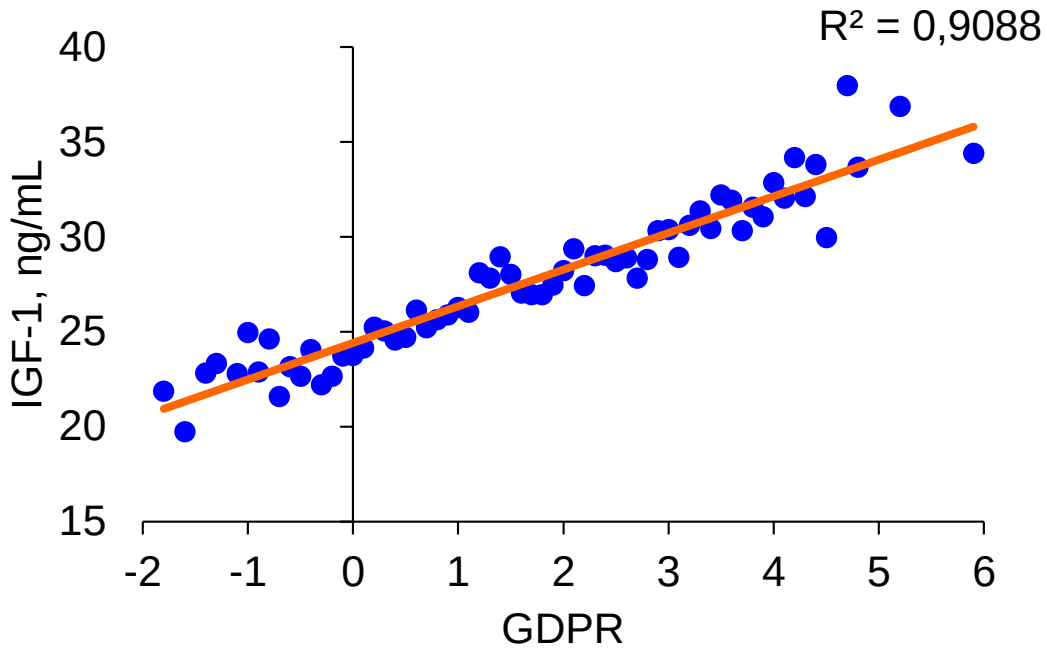


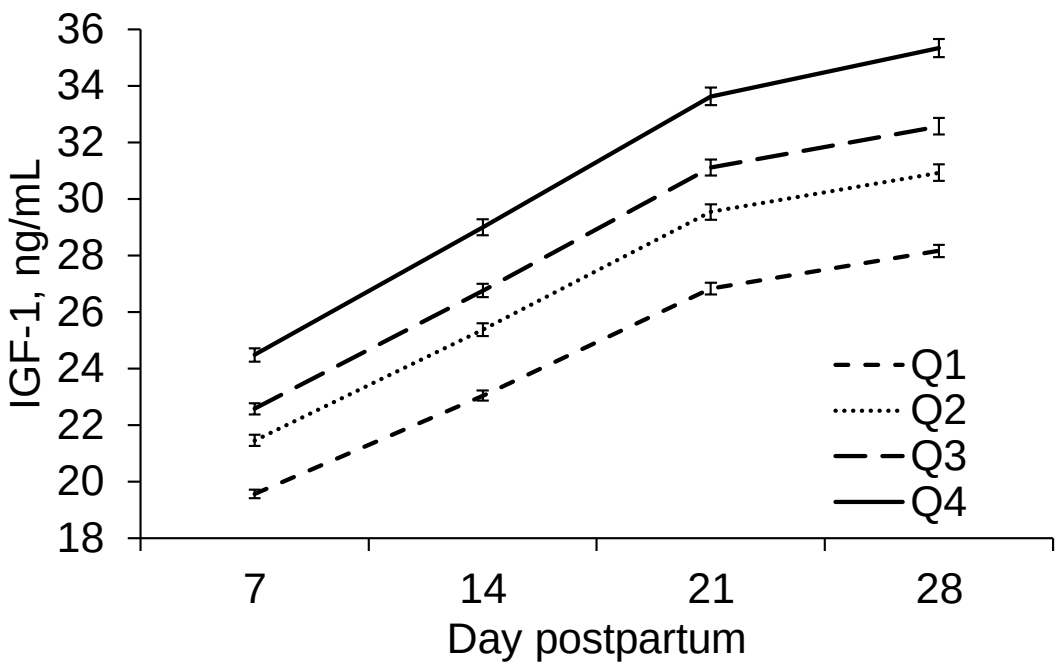




Heifer Primiparous Multiparous

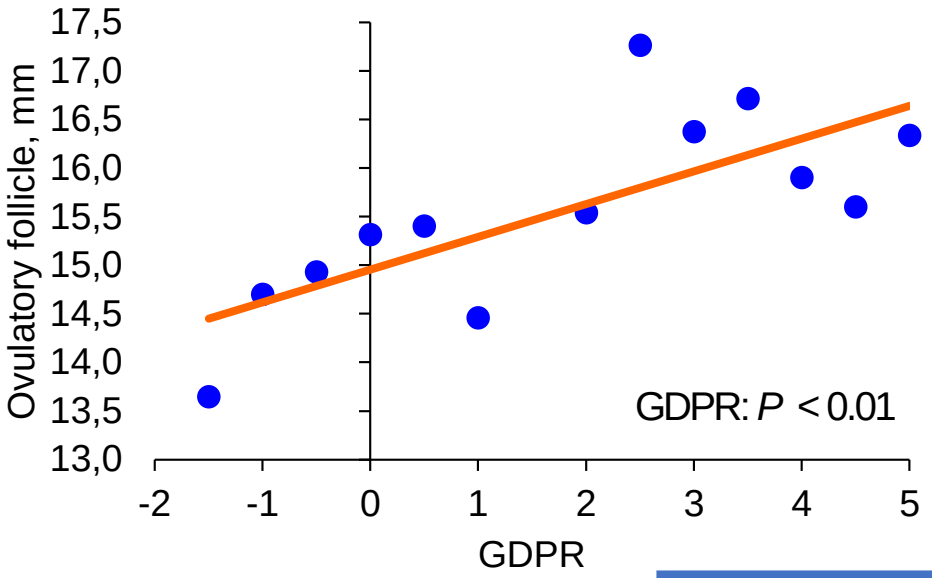
Associação entre GDPR e Concentração de IGF-1

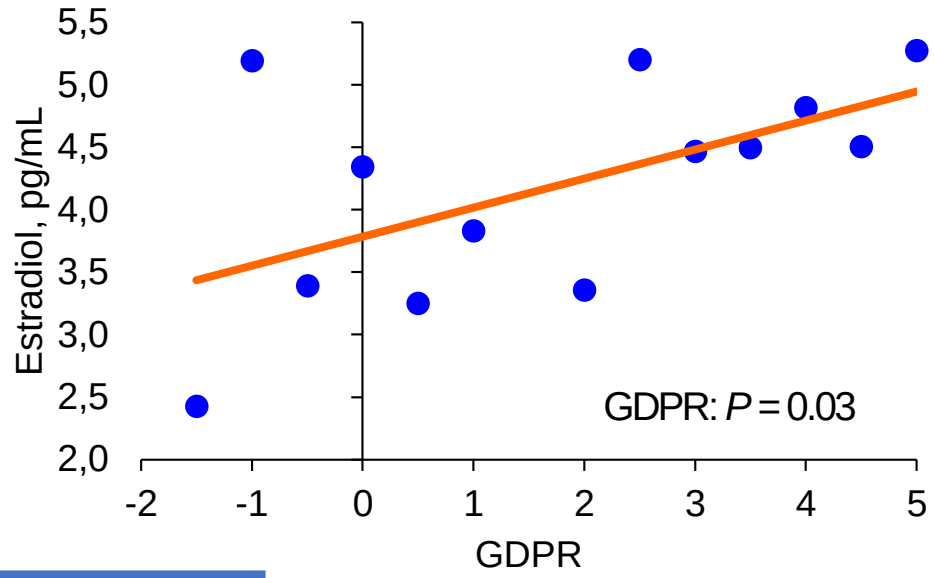




GDPR – $P < 0.01$
DIM – $P < 0.01$
GDPR x DIM – $P = 0.83$

Associação entre GDPR e Tamanho do Folículo Ovulatório e Concentração de Estradiol no Estro





GDPR	Ovulação
-1.80 a 1.00	75.0% (30/51)
1.60 a 5.30	90.7% (39/48)

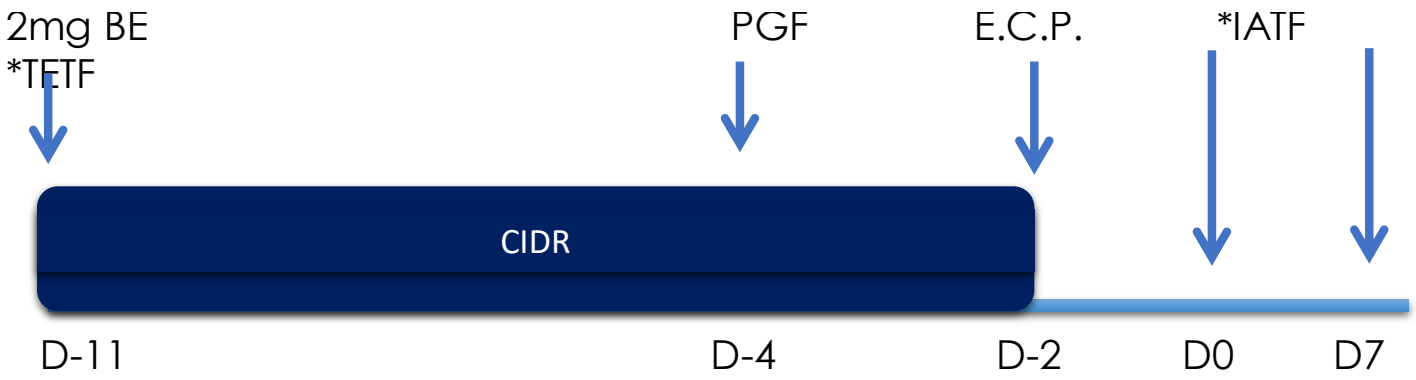
GDPR: $P = 0.10$

- GDPR favorece expressão de cio, possivelmente através de alterações no folículo
- Associação negativa entre GHCR e cio é preocupante e deve ser estudada

J. Dairy Sci. 99:2237–2247
http://dx.doi.org/10.3168/jds.2015-9903
© American Dairy Science Association®, 2016.

Expression of estrus improves fertility and decreases pregnancy losses in lactating dairy cows that receive artificial insemination or embryo transfer

M. H. C. Pereira,* M. C. Wiltbank,† and J. L. M. Vasconcelos*[1]
*Faculdade de Medicina Veterinária e Zootecnia, Universidade Estadual Paulista (UNESP), Botucatu, SP 18618-000, Brazil
†Department of Dairy Science, University of Wisconsin, Madison 53706



*IATF (d0 n=5430) ou no d7 TETF (n=2003).

Efeito da expressão de estro prenhez e perda de prenhez (não houve interação técnica X estro)

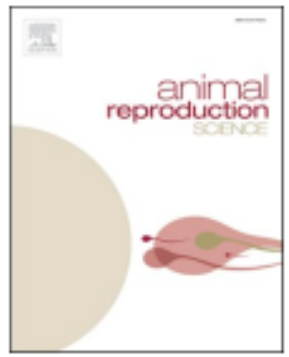
	Cio Não	Cio Sim	P=
P/IA			
32d	**25.5 (222/846)**	**38.9 (1785/4584)**	**<0.01**
60d	**20.1 (179/846)**	**33.3 (1530/4584)**	**<0.01**
Perda prenhez	**20.1 (43/222)**	**14.4 (255/1785)**	**0.01**
P/TE			
32d	**32.7 (193/606)**	**46.2 (645/1397)**	**<0.01**
60d	**25.1 (150/606)**	**37.5 (525/1397)**	**<0.01**
Perda prenhez	**22.7 (43/193)**	**18.6 (120/645)**	**0.01**

Animal Reproduction Science 264 (2024) 107471

Contents lists available at ScienceDirect

Animal Reproduction Science

journal homepage: www.elsevier.com/locate/anireprosci



Pregnancy losses in *Bos indicus*-influenced beef and dairy recipients assigned to a fixed-time embryo transfer protocol

S.K. Munhoz [a], R.F. Cooke [b,*], A.K. Munhoz [a], C.P. Prado [a,b], M.H.C. Pereira [a], J.L.M. Vasconcelos [a,*]

[a] *School of Veterinary Medicine and Animal Science, Sao Paulo State University (UNESP), Botucatu 18168-000, Brazil*
[b] *Department of Animal Science, Texas A&M University, College Station, TX 77843-2471, USA*

Table 4
Effects of sire used for *in vitro* embryo production on pregnancy losses of recipient *Bos indicus*-influenced beef heifers receiving an estrus synchronization + fixed-time embryo transfer (**FTET**; day 7 of the experiment) protocol[xy].

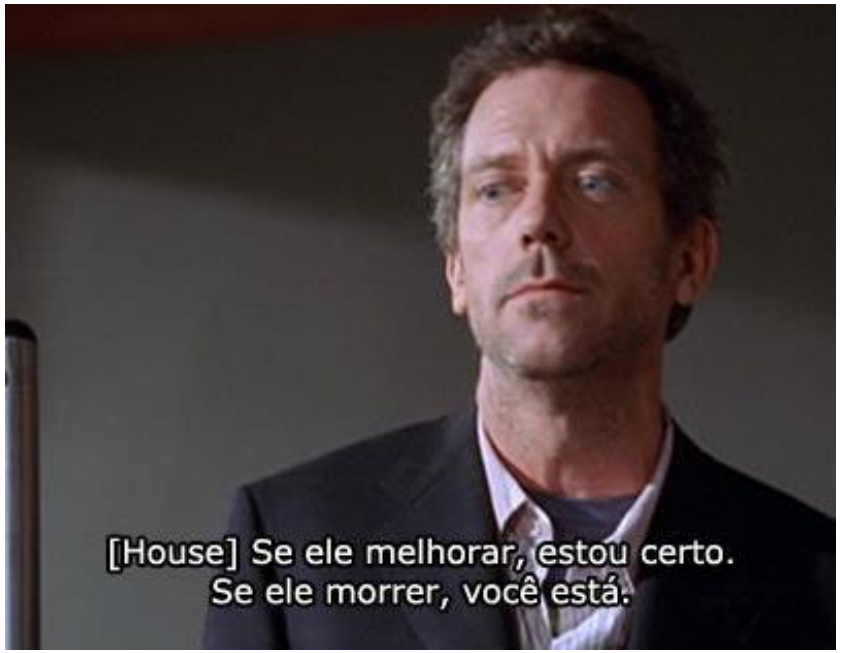
Item	FTET to day 32	day 32–100	day 100 to calving	FTET to calving (total)
Sire A	59.1[a] (1137/1914)	39.5[b] (312/777)	35.2[ab] (168/465)	83.9[ab] (1617/1914)
Sire B	60.2[a] (878/1447)	41.1[b] (237/569)	42.6[a] (143/332)	86.5[a] (1258/1447)
Sire C	52.9[b] (302/572)	34.4[b] (95/264)	30.2[b] (53/169)	78.7[bc] (456/572)
Sire D	55.6[ab] (117/206)	24.9[c] (25/89)	29.2[b] (21/64)	77.0 [cd] (163/206)
Sire E	54.3[ab] (70/124)	26.3[c] (16/54)	16.5[c] (7/38)	73.1[d] (93/124)
Sire F	51.8[b] (54/103)	53.5[a] (27/49)	35.0[ab] (8/22)	85.0[a] (89/103)
SEM	2.9	4.3	5.5	2.1
P-value	0.02	< 0.01	< 0.01	< 0.01

[x] Recipient heifers received 2 mg of estradiol benzoate (Bioestrogen; Biogénesis Bagó; Vinhedo, SP, Brazil) + intravaginal device containing 0.5 g of progesterone (ReproOne; Globalgen, Jaboticabal, SP, Brazil) on day −10, followed by progesterone device removal + 1 mg of estradiol cypionate (Cronicip; Biogénesis Bagó) + 300 IU of eCG (Ecegon; Biogénesis Bagó) + 150 μg of d-cloprostenol (Croniben; Biogénesis Bagó) on day −2 of the experiment. The presence of a corpus luteum (**CL**) was evaluated on days 0 and 7 via transrectal ultrasonography (7.5-MHz transducer; Mindray DP-10, Mindray Medical International Limited; Shenzhen, China). Immediately after ultrasonography on day 7, cows diagnosed with a CL on that day and without a CL on day 0 received 10.5 μg of buserelin acetate (Gonaxal; Biogénesis Bagó) and a fresh *in vitro*-produced embryo.

[y] Pregnancy status to FTET was verified by detecting a viable conceptus with transrectal ultrasonography (7.5-MHz transducer; Mindray DP-10, Mindray Medical International Limited; Shenzhen, China) on days 32 and 100 of the experiment, and according to calf birth. Values within parenthesis represent cows that lost the pregnancy divided by cows considered pregnant.


XXV CURSO NOVOS ENFOQUES NA
PRODUÇÃO E REPRODUÇÃO DE BOVINOS
XXV CURSO NOVOS ENFOQUES
NA PRODUÇÃO E REPRODUÇÃO
DE BOVINOS

“Não há remédio certo que resolva um diagnóstico errado.”



Genética para touro de monta natural é a mesma para touro de IATF?

“Comunicação não é o que você fala, mas o que o outro compreende do que foi dito.”

Cláudia Belucci

Nossa função: Levar para o sistema de produção os requisitos de meio ambiente para que a excelente genética disponível se expresse .

1 + 1 + 1 pode ser maior que 3, depende de nós.

Genética + Reprodução + Nutrição.

Parabéns e muito obrigado.

28º SEMINÁRIO
NACIONAL DE CRIADORES E PESQUISADORES

DA PRENHEZ AO PARTO

REALIZAÇÃO E TRANSMISSÃO

ANCP

www.ancp.org.br

ancpgenetica

APOIO:

AGRO ANTÔNIO BALBINO

Cargill

GERAMAIS DIGITAL

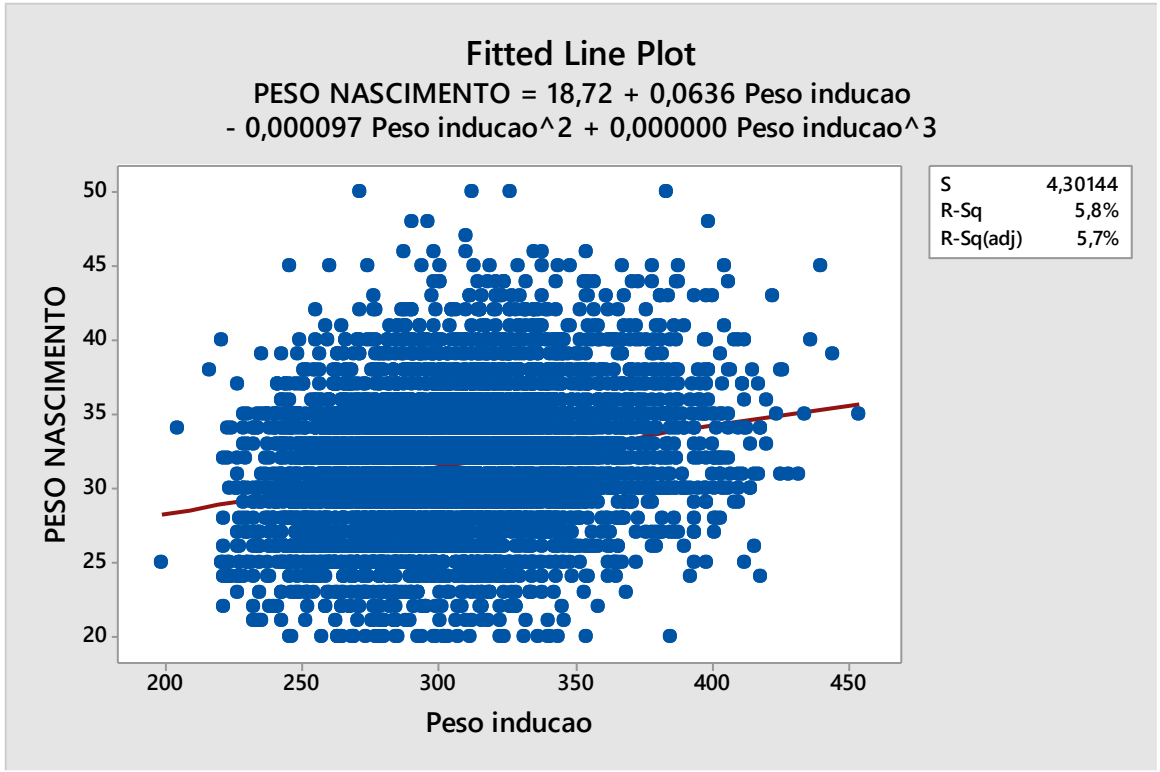
Fazenda Batuque

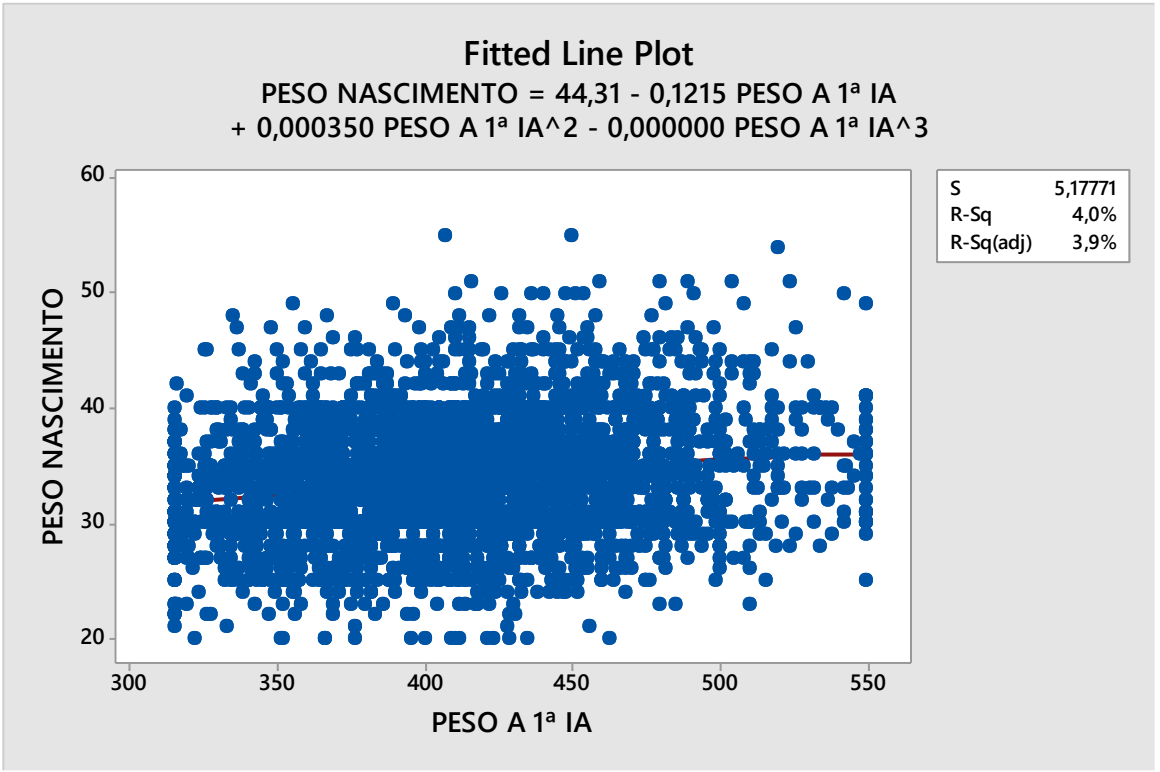
GA+Intergado agora é Ponta

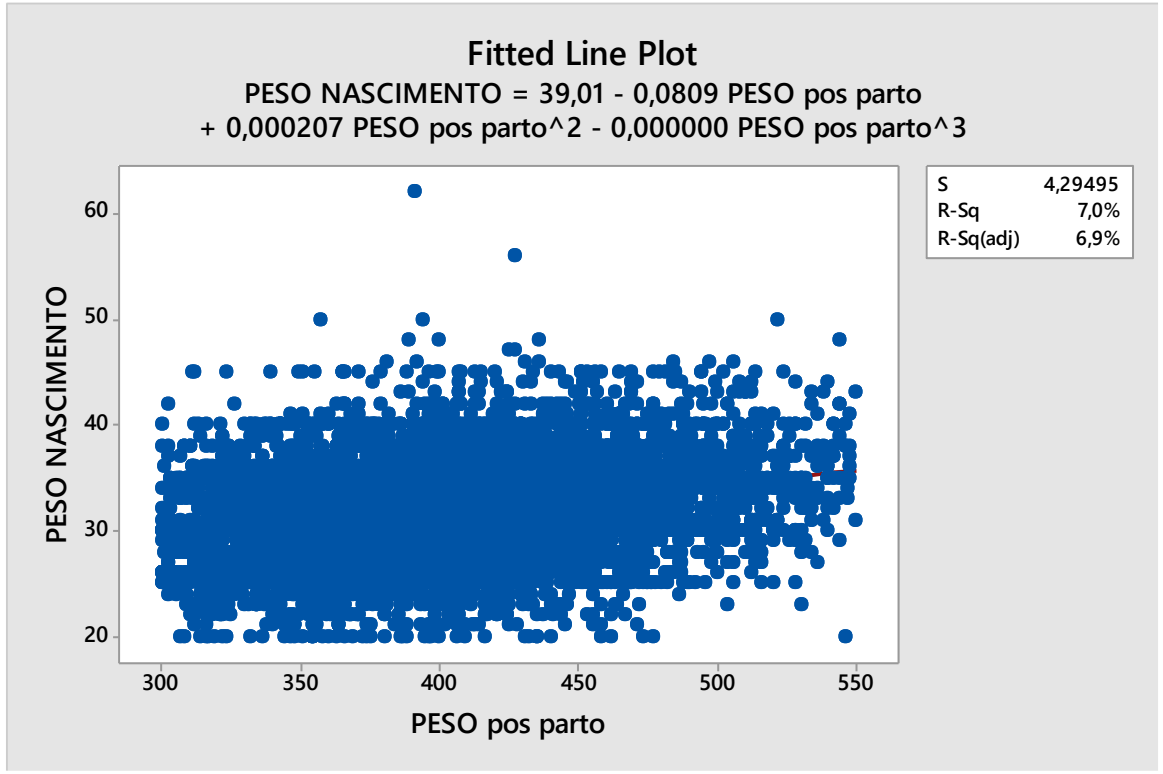
TERRA BRAVA AGROPECUARIA

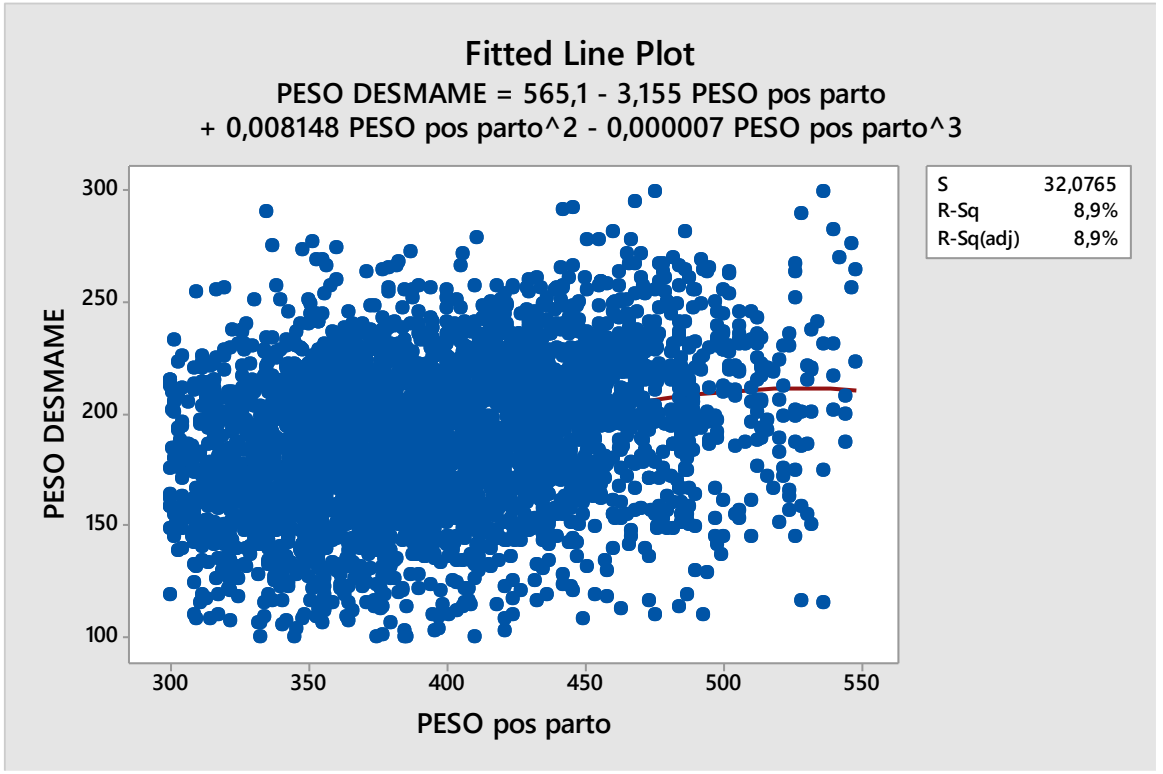
RETRANSMISSÃO

CANAL DO CRIADOR


Fitted Line Plot
PESO NASCIMENTO = 18,72 + 0,0636 Peso inducao
- 0,000097 Peso inducao^2 + 0,000000 Peso inducao^3
S 4,30144
R-Sq 5,8%
R-Sq(adj) 5,7%
PESO NASCIMENTO
Peso inducao
50
45
40
35
30
25
20
200
250
300
350
400
450


Fitted Line Plot
PESO NASCIMENTO = 44,31 - 0,1215 PESO A 1ª IA
+ 0,000350 PESO A 1ª IA^2 - 0,000000 PESO A 1ª IA^3
S 5,17771
R-Sq 4,0%
R-Sq(adj) 3,9%
PESO NASCIMENTO
PESO A 1ª IA
60
50
40
30
20
300
350
400
450
500
550


Fitted Line Plot
PESO NASCIMENTO = 39,01 - 0,0809 PESO pos parto
+ 0,000207 PESO pos parto^2 - 0,000000 PESO pos parto^3
S 4,29495
R-Sq 7,0%
R-Sq(adj) 6,9%
PESO NASCIMENTO
PESO pos parto
60
50
40
30
20
300
350
400
450
500
550


Fitted Line Plot
PESO DESMAME = 565,1 - 3,155 PESO pos parto
+ 0,008148 PESO pos parto^2 - 0,000007 PESO pos parto^3
S 32,0765
R-Sq 8,9%
R-Sq(adj) 8,9%
PESO DESMAME
PESO pos parto
300
250
200
150
100
300
350
400
450
500
550