Effect of treatment of phantom cows with a progesterone-based synchrony programme

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Supplementary Table 1. Results of univariable Cox proportional hazards models of the association between exposure variables and the daily hazard of conception in a randomised controlled trial evaluating the per protocol effect of treatment of phantom cows with a reproductive synchrony programme in 378 dairy cows on 14 New Zealand dairy farms.

Predictor	Coefficient (SE)	HR (95% CI) [a]	P-value [b]
Farm			**0.350**
1	(ref)		
2	-0.08 (0.42)	0.92 (0.40–2.11)	0.849
3	0.07 (0.37)	1.07 (0.52–2.20)	0.856
4	-0.14 (0.40)	0.87 (0.40–1.91)	0.732
5	0.47 (0.36)	1.60 (0.79–3.26)	0.192
6	0.46 (0.43)	1.59 (0.69–3.69)	0.279
7	-0.19 (0.46)	0.83 (0.33–2.05)	0.683
8	0.32 (0.39)	1.38 (0.64–2.97)	0.412
9	0.23 (0.43)	1.26 (0.54–2.91)	0.596
10	0.04 (0.46)	1.04 (0.42–2.56)	0.936
11	-0.11 (0.46)	0.90 (0.36–2.22)	0.819
12	0.26 (0.36)	1.29 (0.64–2.63)	0.477
13	0.58 (0.36)	1.79 (0.87–3.65)	0.111
14	0.28 (0.39)	1.33 (0.62–2.84)	0.465
Breed			**0.952**
Other	(ref)		
Friesian [c]	0.01 (1.01)	1.01 (0.79–1.29)	0.942
Age (years)			**0.474**
2	(ref)		
3-5	-0.14 (0.16)	0.87 (0.63–1.19)	0.378
≥6	-0.21 (0.17)	0.81 (0.58–1.13)	0.219
DIM at enrolment [d]			**0.312**
<100	(ref)		
100-115	-0.03 (0.18)	0.97 (0.68–1.37)	0.854
116-130	0.14 (0.17)	1.15 (0.83–1.60)	0.395

>130	0.29 (0.19)	1.33 (0.92–1.93)	0.124
BCS at enrolment [e]			**0.777**
No	(ref)		
Yes	0.04 (0.13)	1.04 (0.81–1.33)	0.777
NDO [f]			**0.725**
No	(ref)		
Yes	-0.04 (0.13)	0.96 (0.75–1.23)	0.725
Treatment [g]			**<0.001**
0-9 days	-3.23 (0.73)	0.04 (0.01–0.16)	<0.001
10-11 days	3.53 (0.71)	34.11 (8.41–138.28)	<0.001
12-25 days	-1.47 (0.41)	0.23 (0.10–0.52)	<0.001
>25 days	0.48 (0.25)	1.61 (1.00–2.62)	0.052

[a] Hazard ratio and 95% confidence interval.
[b] Likelihood ratio tests of nested models with and without the variable are in bold, otherwise the p-values are Wald tests.
[c] Friesian was defined as a cow ≥12/16 Friesian.
[d] Days in milk at enrolment.
[e] Body condition score at enrolment measured on a 10-point scale.
[f] Hormonal treatment for being not detected in oestrus (NDO) before mating start date.
[g] The effect of treatment was assessed separately for each of four time intervals after enrolment at day 0.

Supplementary Table 2. Comparison of final multivariable Cox proportional hazards models of the daily hazard of conception in a randomised controlled trial evaluating the per protocol effect of treatment of phantom cows with a reproductive synchrony programme, when cows that conceived prior to enrolment were excluded (n=378 observations analysed) or included (n=396 observations analysed).

	Per-protocol analysis		Intention-to-treat analysis	
Variable	**HR (95% CI) [a]**	**P-value [b]**	**HR (95% CI)**	**P-value**
Breed		**0.694**		**0.855**
Other				
Friesian [c]	1.05 (0.77–1.43)	0.745	1.02 (0.79–1.33)	0.864
Age (years)		**0.839**		**0.949**
2				
3-5	0.98 (0.80–1.20)	0.833	1.00 (0.82–1.21)	0.972
≥6	0.91 (0.64–1.30)	0.598	0.96 (0.69–1.31)	0.781
DIM at enrolment [d]		**0.340**		**0.257**
<100				
100-115	0.97 (0.73–1.30)	0.863	1.04 (0.77–1.40)	0.807
116-130	1.14 (0.81–1.61)	0.444	1.18 (0.84–1.67)	0.341
>130	1.37 (0.80–2.36)	0.252	1.44 (0.85–2.44)	0.172
BCS at enrolment [e]		**0.397**		**0.513**
≥4.5				
<4.5	1.12 (0.87–1.44)	0.379	1.09 (0.89–1.33)	0.411
Treatment [f]		**<0.001**		**<0.001**
0-9 days [g]	0.04 (0.01–0.32)	0.002	0.04 (0.01–0.18)	<0.001
10-11 days	33.40 (8.65–128.96)	<0.001	33.37 (8.62–129.21)	<0.001
12-25 days	0.21 (0.09–0.49)	<0.001	0.21 (0.09–0.49)	<0.001
>25 days	1.73 (1.34–2.22)	<0.001	1.73 (1.34–2.25)	<0.001

[a] Hazard ratio and 95% confidence interval.
[b] Likelihood ratio tests of nested models with and without the variable are in bold, otherwise the p-values are Wald tests.
[c] Friesian was defined as a cow ≥12/16 Friesian.
[d] Days in milk at enrolment.
[e] Body condition score at enrolment measured on a 10-point scale.
[f] The effect of treatment was assessed separately for each of four time intervals after enrolment at day 0.
[g] The first time stratum of model that included cows that conceived prior to enrolment was -44-9 days.

Supplementary Table 3. Comparison of final multivariable Cox proportional hazards models of the daily hazard of conception in a randomised controlled trial evaluating the per protocol effect of treatment of phantom cows with a reproductive synchrony programme, when cows that conceived prior to enrolment were excluded (n=378 observations analysed) or included (n=396 observations analysed).

	Per-protocol analysis		Intention-to-treat analysis	
Variable	**OR (95% CI) [a]**	**P-value [b]**	**OR (95% CI)**	**P-value**
Breed		**0.731**		**0.831**
Other	(ref)			
Friesian [c]	0.91 (0.52–1.59)	0.731	0.94 (0.55—1.63)	0.831
Age (years)				
2	(ref)	0.749		0.706
3-5	0.94 (0.57–1.54)	0.809	0.95 (0.58–1.56)	0.84
≥6	0.80 (0.41–1.54)	0.496	0.79 (0.41–1.53)	0.49
DIM at enrolment [d]		**0.134**		**0.053**
<100	(ref)			
100-115	1.17 (0.67–2.03)	0.581	1.17 (0.68–2.00)	0.578
116-130	1.44 (0.76–2.72)	0.263	1.47 (0.80–2.72)	0.215
>130	2.04 (0.77–5.43)	0.154	1.95 (0.80–4.75)	0.144
BCS at enrolment [e]		**0.177**		**0.237**
≥4.5	(ref)			
<4.5	1.38 (0.86–2.21)	0.177	1.28 (0.85–1.93)	0.237
Treatment group		**<0.001**		**0.001**
Control	(ref)			
Treatment	1.70 (1.34–2.17)	<0.001	1.46 (1.16–1.83)	0.001

[a] Odds ratio and 95% confidence interval.
[b] ANOVA tests of nested models with and without the variable are in bold, otherwise the p-values are Wald tests.
[c] Friesian was defined as a cow ≥12/16 Friesian.
[d] Days in milk at enrolment.
[e] Body condition score at enrolment measured on a 10-point scale.