Table S1. Unesp-Botucatu Cattle Pain Scale (UCAPS) [10]

Item	Description
Locomotion	(0) Walking with no obviously abnormal gait. (1) Walking with restriction, may be with hunched back and/or short steps. (2) Reluctant to stand up, standing up with difficulty or not walking.
Interactive behaviour	(0) Active; attention to tactile and/or visual and/or audible environmental stimuli; when near other animals, can interact with and/or accompany the group. (1) Apathetic: may remain close to other animals but interacts little when stimulated. (2) Apathetic: may be isolated or may not accompany the other animals; does not react to tactile, visual and/or audible environmental stimuli.
Activity	(0) Moves normally. (1) Restless, moves more than normal or lies down and stands up with frequency. (2) Moves less frequently in the pasture or only when stimulated.
Appetite	(0) Normorexia and/or rumination. (1) Hyporexia. (2) Anorexia.
Miscellaneous behaviours	Wagging the tail abruptly and repeatedly. Licking the affected area. Moves and arches the back when in standing posture. Kicking/foot stamping. Hind limbs extended caudally when in standing posture. Head below the line of spinal column. Lying down in ventral recumbency with full or partial extension of one or both hind limbs. Lying down with the head on/close to the ground. Extends the neck and body forward when lying in ventral recumbency. (0) All of the above-described behaviours are absent. (1) Presence of 1 of the behaviours described above. (2) Presence of 2 or more of the behaviours described above.

Table S2. Cow pain scale (CPS) [11]

Item	Description
Attention towards the surroundings	(0) Active and attentive. The cow is active: eating, ruminating, grooming etc. The cow is attentive and/or attention seeking/curious. (1) Quiet/depressed. The cow is not active, avoiding eye contact, may move away from the observer.
Head position	(0) High/level of withers. The cow is active, eating, ruminating or is contact seeking/curious. (1) Level of withers. The cow is not active, not eating, ruminating, grooming, or sleeping. (2) Low. The cow is not active, not eating, ruminating, grooming or sleeping; may lie down quickly after getting up.
Ear position	(0) Both ears forward or one ear forward or back and the other listening. (1) Ears back/asymmetric ear movements. Both ears back or moving in different directions (not forward or back). (2) Lambs' ears. Both ears to the sides and lower than usual; the pinna facing slightly down.
Facial expression	(0) Attentive/neutral look. The cow is attentive, focused on a task (eating, ruminating) or sleeping (1) Tense expression/strained appearance. The cow has a worried or strained look, furrows above the eyes and puckers above the nostrils.
Response to approach	(0) Look at observer, head up, ears forward or occupied with activity (grooming, ruminating). (1) Look at observer, ears not forward, leave when approached. (2) May/may not look at observer, head low, ears not forward may leave slowly.
Back position	(0) Normal. (1) Slightly arched back. (2) Arched back.

Table S3. Findings from mixed model of the Unesp-Botucatu Cattle Pain Scale for recognizing as the predictor variable.

Parameters	**Angular coefficient (beta)**			
Fixed effects	**Estimated**	**SE**	**T-value**	***p*-value**
Intercept (alpha)	2.6342	0.5725	4.6010	1.27-5
Evaluator	0.0053	0.1859	0.0280	0.9775
Time-point M1	0.7237	0.7157	1.0110	0.3147
Time-point M2	3.7105	0.7157	5.1840	1.35-6
Time-point M3	2.7632	0.7157	3.8610	2.14-4
Time-point M4	2.4605	0.7157	3.4380	8.94-4
Phase2	-0.0368	0.1559	-0.2360	0.8134
Breed Nelore	-0.4500	0.4533	-0.9930	0.3235

Random effects

Parameters		**Variance**	**SD**	**Level number**	**ICC**
Evaluator:(Time-point: Animal)	(Intercept)	0.4879	0.6985	190	0.07
Time-point: Animal	(Intercept)	4.046	2.011	95	0.59
Animal	(Intercept)	2.420-10	1.556-5	19	0.00
Residual		2.309	1.519		

Model parameters	**Mixed model**	**Null mixed model**	**Linear model**	**Null linear model**	***p*-value**
Degree of freedom	12	5	9	2	
Log-Likelihood	-812.57	-829.20	-895.4262	-944.3764	2.2-16
AIC	1649.150	1668.396	1808.852	1892.753	
BIC	1696.432	1688.097	1844.314	1900.633	
F-statistic (p-value)	NA	NA	15.62 (2.2-16)	0.00 (0.00)	
Adjusted R2 (R2)	NA	NA	0.21 (0.23)	0.00 (0.00)	
Pseudo R2 (total)	0.74	0.73	NA	NA	
Pseudo R2 (fixed effects)	0.22	0.00	NA	NA	

Legend: SE, Standard error; SD, Standard deviation; ICC, Intra-class correlation coefficient; NA, Not applicable.

Table S4. Findings from mixed model of the Unesp-Botucatu Cattle Pain Scale for recognizing as the predictor variable.

Parameters	**Angular coefficient (beta)**			
Fixed effects	**Estimated**	**SE**	**T-value**	***p*-value**
Intercept (alpha)	1.0386	0.4469	2.3240	0.0227
Evaluator	0.7368	0.1813	4.0650	9.97-5
Time-point M1	0.1842	0.5303	0.3470	0.7293
Time-point M2	3.4868	0.5303	6.5750	6.64-9
Time-point M3	2.1842	0.5303	4.1190	0.0001
Time-point M4	1.4868	0.5303	2.8040	0.0065
Phase 2	-0.0842	0.1391	-0.6050	0.5456
Breed Nelore	-0.1933	0.3753	-0.5150	0.6131

Random effects

Parameters		**Variance**	**SD**	**Level number**	**ICC**
Evaluator:(Time-point: Animal)	(Intercept)	0.6419	0.8012	190	0.14
Time-point: Animal	(Intercept)	1.8911	1.3752	95	0.42
Animal	(Intercept)	0.1330	0.3647	19	0.03
Residual		1.8377	1.3556		

Model parameters	**Mixed model**	**Null mixed model**	**Linear model**	**Null linear model**	***p*-value**
Degree of freedom	12	5	9	2	
Log-Likelihood	-763.81	-793.81	-816.68	-883.80	2.78-9
AIC	1551.628	1597.622	1651.369	1771.606	
BIC	1598.910	1617.323	1686.831	1779.487	
F-statistic (p-value)	NA	NA	22.52 (2.2-16)	0.00 (0.00)	
Adjusted R2 (R2)	NA	NA	0.28 (0.30)	0.00 (0.00)	
Pseudo R2 (total)	0.71	0.70	NA	NA	
Pseudo R2 (fixed effects)	0.29	0.00	NA	NA	

Legend: SE, Standard error; SD, Standard deviation; ICC, Intra-class correlation coefficient; NA, Not applicable