

Table 3: Median (min – max) decrease and increase in principle and criteria scores when measure scores were replaced with worst and best observed measure scores

Principles / Criteria	Measures	Changes in principles scores		Changes in criteria scores	
		Median decrease in worst scenario	Median increase in best scenario	Median decrease in worst scenario	Median increase in best scenario
Good feeding					
Absence of prolonged hunger	% lean cows	24 (0 – 71)	5 (0 – 69)	67 (0 - 98)	30 (0 - 98)
Absence of prolonged thirst	Water flow	11 (0 – 85)	0 (0 – 85)	29 (0 - 97)	0 (0 - 0)
	Trough length	25 (0 – 85)	0 (0 – 85)	29 (0 - 97)	0 (0 - 97)
	Number of water bowls	0 (0 – 85)	10 (0 – 85)	0 (0 - 97)	12 (0 - 97)
	Drinker cleanliness	12 (0 – 60)	0 (0 – 60)	40 (0 - 68)	0 (0 - 68)
	At least 2 drinkers per animal	0 (0 – 35)	0 (0 – 35)	20 (0 – 97)	0 (0 - 40)
Good housing					
Comfort around resting	Mean time to lie down	6 (0 – 20)	5 (0 – 20)	10 (0 – 32)	8 (0 - 31)
	% cows colliding with housing	0 (0 – 19)	11 (0 – 17)	0 (0 - 32)	18 (0 - 27)
	% cows lying outside of lying area	10 (0 – 20)	0 (0 – 29)	16 (0 – 32)	0 (0 – 46)
	% cows with dirty flanks	0 (0 – 5)	4 (0 – 14)	0 (0 – 12)	6 (0 – 22)
	% cows with dirty lower legs	0 (0 – 9)	4 (0 – 12)	0 (0 – 15)	6 (0 – 18)
	% cows with a dirty udder	0 (0 - 9)	4 (0 – 8)	0 (0 – 15)	6 (0 – 18)
Ease of movement	Loose or tied housing	24 (0 – 37)	0 (0 – 40)	66 (0 – 66)	0 (0 – 85)
Good health					
Absence of injuries	Lameness index	13 (0 – 37)	5 (0 – 35)	27 (3 – 69)	33 (0 – 57)
	Integument alteration index	4 (0 – 24)	5 (0 – 26)	10 (0 – 44)	26 (0 – 42)
Absence of disease	Number of coughs/cow/minute	0 (0 – 0)	0 (0 – 0)	0 (0 – 0)	0 (0 – 0)
	% cows with nasal discharge	1 (0 – 12)	0 (0 – 10)	8 (0 – 35)	0 (0 – 21)
	% cows with ocular discharge	1 (0 – 12)	0 (0 – 8)	8 (0 – 35)	0 (0 – 35)

	% cows with hampered respiration	1 (0 – 5)	0 (0 – 1)	4 (0 – 14)	0 (0 – 14)
	% cows with diarrhoea	2 (0 – 12)	0 (0 – 10)	9 (0 – 35)	0 (0 – 35)
	% cows with vulvar discharge	3 (0 – 12)	0 (0 – 7)	10 (0 – 35)	0 (0 – 24)
	% cows with SCC >400.000	2 (0 – 12)	1 (0 – 12)	8 (0 – 35)	4 (0 – 35)
	% cows mortality	2 (0 – 11)	0 (0 – 12)	8 (0 – 35)	0 (0 – 35)
	% calvings with dystocia	1 (0 – 12)	0 (0 – 13)	7 (0 – 35)	4 (0 – 35)
	% downer cows	2 (0 – 12)	1 (0 – 13)	0 (0 – 35)	3 (0 – 35)
Absence of pain induced by management procedures	Dehorning method (none, surgery)	15 (0 – 35)	6 (0 – 40)	50 (0 – 89)	48 (0 – 98)
	Tail docking method (none, ring)	14 (0 – 34)	0 (0 – 6)	6 (0 – 89)	0 (0 – 0)
Appropriate behaviour					
Expression of social behaviour	Head butts/cow/15 min.	13 (0 – 37)	1 (0 – 16)	69 (0 – 100)	8 (0 – 49)
	Displacements/cow/15 min.	16 (0 – 44)	2 (0 – 30)	69 (0 – 100)	19 (0 – 93)
Expression of other behaviour	Number of hours on pasture	15 (0 – 38)	0 (0 – 34)	64 (1 – 100)	0 (0 – 85)
	Number of days on pasture	15 (0 – 38)	1 (0 – 24)	64 (1 – 100)	15 (0 – 86)
Good human-animal relationship	ADF index	10 (0 – 37)	9 (0 – 37)	31 (0 – 87)	56 (0 – 87)
Positive emotional state	QBA index	20 (0 – 50)	7 (0 – 44)	52 (0 – 93)	40 (0 – 93)