

Supplementary Material

Supplementary 1 Surveilled factors and answer options

	Variable	Variable labelling	Answer options
Farm characteristics	Housing system ^a		Cubicle pen Tie stall other
	Pasture	Pasture access present	Access to pasture No Access to pasture
	Farming type	Farming type	Conventional farming organic farming
	Herd size	Herd size	Number of cows
	Lameness	Lameness	Prevalence of lame cows
	Income Type	Income	Dairy farming as main income Dairy farming as supplementary income
	Visiting year	Year	Year of farm visit
Stockman's attitude	I am satisfied with the health of my animals.	Satisfaction animal health	1 Disagree 2 Neutral 3 Agree
	I feel overwhelmed by the daily work of dairy cow husbandry.	Pressure	1 Strongly Disagree 2 Disagree 3 Neutral

		4 Agree
		5 Strongly Agree
I can imagine establishing	Emotional	1 Strongly Disagree
an emotional relationship	relationship	2 Disagree
with a cow.		3 Neutral
		4 Agree
		5 Strongly Agree
I regularly attend	Continuing	1 Strongly Disagree
professional events of	education	2 Disagree
continuing education.		3 Neutral
		4 Agree
		5 Strongly Agree
Dealing with cows is easy	Animal handling	1 Strongly Disagree
for me.		2 Disagree
		3 Neutral
		4 Agree
		5 Strongly Agree
I accept economic losses in	Care of Male	1 Strongly Disagree
order to ensure adequate	calves	2 Disagree
care for bull calves.		3 Neutral
		4 Agree
		5 Strongly Agree
It is important for me to be	Patience	1 Strongly Disagree
patient with my cows.		2 Disagree
		3 Neutral

			4 Agree
			5 Strongly Agree
	It affects me to see a cow in pain.	Pain	1 Strongly Disagree
			2 Disagree
			3 Neutral
			4 Agree
			5 Strongly Agree
	On our farm, we often discuss what we could improve about the way we keep dairy cows	Discussions improvement	1 Strongly Disagree
			2 Disagree
			3 Neutral
			4 Agree
			5 Strongly Agree
Calving practices	I look at the cow's facial expression and eyes.	Facial expression	1 At every calving
			2 At conspicuous calving
			3 Never/rarely
	I observe the general behavior of the cow.	Observation behaviour	1 At every calving
			2 At conspicuous calving
			3 Never/rarely

^a for descriptive statistics only and excluded from modelling process

Supplementary 2 HEXACO-domains with Facets and Common Defining Adjectives

HEXACO-domain	Facet	Common Defining Adjectives	
Emotionality	Fearfulness	emotional, oversensitive,	brave, tough, independent,
	Anxiety	sentimental, fearful,	self-assured, stable
	Dependence	anxious, vulnerable	
	Sentimentality		
Extraversion	Social self-esteem	outgoing, lively,	shy, passive, withdrawn,
	Social boldness	extraverted, sociable,	introverted, quiet, reserved
	Sociability	talkative, cheerful, active	
	Liveliness		
Agreeableness	Forgivingness	patient, tolerant, peaceful,	ill-tempered, quarrelsome,
	Gentleness	mild, agreeable, lenient,	stubborn, choleric
	Flexibility	gentle	
	Patience		
conscientiousness	Organization	organized, disciplined,	sloppy, negligent, reckless,
	Diligence	diligent, careful,	lazy, irresponsible, absent-
	Perfectionism	thorough, precise	minded
	Prudence		
Openness to experience	Aesthetic appreciation	intellectual, creative,	shallow, unimaginative,
	Inquisitiveness	unconventional,	conventional
	Creativity	innovative, ironic	
	Unconventionality		

Supplementary 3 HEXACO questionnaire. Answer options are “Strongly agree”, “agree”, “neutral”, “disagree”, “strongly disagree” for all statements.

HEXACO-factor	Statement according to (44)	Facet
Openness to experience	I can look at a painting for a long time.	Aesthetic Appreciation
Conscientiousness	I make sure things are in the right spot.	Organization
Agreeableness	I remain unfriendly to someone who was mean to me.	Forgivingness
Extraversion	Nobody likes talking with me.	Social Self-Esteem
Emotionality	I am afraid of feeling pain.	Fearfulness
Openness to experience	I think science is boring.	Inquisitiveness
Conscientiousness	I postpone difficult tasks as long as possible.	Diligence
Agreeableness	I often express criticism.	Gentleness
Extraversion	I easily approach strangers.	Sociability
Emotionality	I worry less than others.	Anxiety
Openness to experience	I have a lot of imagination.	Creativity
Conscientiousness	I work very precisely.	Perfectionism
Agreeableness	I tend to quickly agree with others.	Flexibility
Extraversion	I like to talk with others.	Social Boldness
Emotionality	I can easily overcome difficulties on my own.	Dependence
Openness to experience	I like people with strange ideas.	Unconventionality
Conscientiousness	I often do things without really thinking.	Prudence
Agreeableness	Even when I’m treated badly, I remain calm.	Patience
Extraversion	I am seldom cheerful.	Liveliness
Emotionality	I have to cry during sad or romantic movies.	Sentimentality

Supplementary 4 Farm characteristics and stockman's attitude

	Predictor	Categories	n _{farms} (%)	n _{cows} (%)
Farm characteristics	Housing system	Tie stall	55 (28.5)	1,306 (14.9)
		Cubicle pen	138 (71.5)	7468 (85.1)
	Pasture access present	Access	68 (35.2)	2283(26.0)
		No access	125 (64.8)	6,491 (74.0)
	Farming type	Conventional	160 (82.9)	7,699 (87.7)
		Organic	33 (17.1)	1,075 (12.3)
	Herd size	numeric value	45 ± 31; 5 (min) – 231 (max)	
	Lameness	numeric value	25% ± 14.0%; 3.3% (min) – 86.6% (max)	
	Income	Main income	157 (81.3)	8,029 (91.5)
		Supplementary income	36 (18.7)	745 (8.5)
	Year	2016	1 (0.5)	25 (0.3)
		2017	78 (40.4)	4,322 (49.3)
		2018	74 (38.3)	3,182 (36.2)
		2019	40 (20.7)	1,245 (14.2)
BTM – antibody status	<i>F. hepatica</i>	Seropositive	47 (24.4)	7,294 (83.1)
		Seronegative	146 (75.6)	1,480 (16.9)
	<i>O. ostertagi</i>	Seropositive	77 (39.9)	3,065 (34.9)
		Seronegative	116 (60.1)	5,709 (65.1)
Stockman's attitude	Satisfaction animal health	1	24 (12.4)	1,241 (14.1)
		2	36 (18.7)	1,527 (17.4)
		3	133 (68.9)	6,006 (68.5)

	Pressure	1	96 (49.7)	4,032 (46.0)
		2	48 (24.9)	2,236 (25.5)
		3	49 (25.4)	2,506 (28.5)
	Emotional relationship	1	23 (11.9)	1,354 (15.4)
		2	20 (10.4)	1,015 (11.6)
		3	150 (77.7)	6,405 (73.0)
	Continuing education	1	17 (8.8)	610 (6.9)
		2	24 (12.4)	850 (9.7)
		3	152 (78.8)	7,314 (83.4)
	Animal handling	1	7 (3.6)	283 (3.2)
		2	13 (6.7)	664 (7.6)
		3	173 (89.7)	7,827 (89.2)
	Care of male calves	1	2 (1.0)	296 (3.4)
		2	0 (0.0)	0 (0.0)
		3	191 (99.0)	8,478 (96.6)
	Patience	1	2 (1.0)	41 (0.5)
		2	11 (5.7)	870 (9.9)
		3	180 (93.3)	7,863 (89.6)
	Pain	1	2 (1.0)	44 (0.5)
		2	3 (1.6)	115 (1.3)
		3	188 (97.4)	8,615 (98.2)
	Discussions improvement	1	10 (5.2)	292 (3.3)
		2	13 (6.7)	453 (5.2)
		3	170 (88.1)	8,029 (91.5)
Calving practice	Facial expression	1	75 (38.9)	3,627 (41.3)

	2	40 (20.7)	1,753 (20.0)
	3	78 (40.4)	3,394 (38.7)
Observation behavior	1	183 (94.8)	7,976 (90.9)
	2	9 (4.7)	737 (8.4)
	3	1 (0.5)	61 (0.7)

Supplementary 5 Results of the HEXACO questionnaire

HEXACO-factor	Item according to (44)	Answer option	n _{farms} (%)	n _{cows} (%)
Emotionality	I am afraid of feeling pain.	1	27 (14.0)	1,105 (12.7)
		2	51 (26.4)	2,630 (29.9)
		3	41 (21.2)	1,834 (20.9)
		4	59 (30.6)	2,651 (30.1)
		5	15 (7.8)	554 (6.4)
	I worry less than others.	1	15 (7.8)	880 (10.0)
		2	49 (25.4)	1,959 (22.4)
		3	59 (30.6)	2,562 (29.1)
		4	54 (28.0)	2,663 (30.4)
		5	16 (8.3)	710 (8.1)
	I can easily overcome difficulties on my own.	1	19 (9.8)	1,067 (12.2)
		2	92 (47.7)	4,012 (45.6)
		3	63 (32.6)	2,892 (32.9)
		4	17 (.8)	762 (8.8)
		5	2 (1.0)	41 (0.5)
	I have to cry during sad or romantic movies.	1	33 (17.1)	1,586 (18.1)
		2	39 (20.2)	1,738 (19.90)
		3	55 (28.5)	2,440 (27.7)
		4	48 (24.9)	2,304 (26.2)
		5	18 (9.3)	706 (8.1)
Extraversion	Nobody likes talking with me.	1	0 (0.0)	0 (0.0)
		2	1 (0.5)	95 (1.1)
		3	23 (11.9)	918 (10.5)

Agreeableness	I easily approach strangers.	4	87 (45.1)	4,158 (47.3)
		5	82 (42.5)	3603 (41.1)
		1	3 (1.6)	266 (3.0)
		2	31 (16.1)	1,525 (17.4)
		3	54 (28.0)	2,378 (27.1)
	I like to talk with others.	4	77(39.9)	3,401 (38.7)
		5	28 (14.5)	1,204 (13.8)
		1	1 (0.5)	30 (0.4)
		2	6 (3.1)	1192 (2.2)
		3	33 (17.1)	1,689 (19.3)
	I am seldom cheerful.	4	113 (58.5)	5,295 (60.3)
		5	40 (20.7)	1,568 (17.8)
		1	8 (4.1)	472 (5.5)
		2	50 (25.9)	2,299 (26.1)
		3	61 (31.6)	2,371 (27.1)
	I remain unfriendly to someone who was mean to me.	4	63 (32.7)	3,014 (34.3)
		5	11 (5.7)	618 (7.0)
		1	12 (6.2)	675 (7.8)
		2	47 (24.4)	2,139 (24.3)
		3	81 (42.0)	3,648 (41.5)
	I often express criticism.	4	43 (22.2)	1,974 (22.5)
		5	10 (5.2)	338 (3.9)
		1	11 (5.7)	534 (6.2)
		2	53 (27.5)	2,372 (27.0)
		3	79 (40.9)	3,361 (38.3)

		4	44 (22.8)	2,164 (24.6)
		5	6 (3.1)	343 (3.9)
	I tend to quickly agree with	1	2 (1.0)	128 (1.5)
	others.	2	35 (18.2)	1,511 (17.2)
		3	100 (51.8)	4,673(53.1)
		4	52 (26.9)	2,316 (26.3)
		5	4 (2.1)	146 (1.7)
	Even when I'm treated badly,	1	11 (5.7)	639 (7.3)
	I remain calm.	2	46 (23.8)	2,051 (23.3)
		3	55 (28.5)	2,546 (28.9)
		4	69(35.8)	2,950 (33.5)
		5	12 (6.2)	588 (6.7)
Conscientiousness	I make sure things are in the	1	0 (0.0)	0 (0.0)
	right spot.	2	15 (7.8)	905 (10.3)
		3	40 (20.7)	1,775 (20.3)
		4	85 (44.0)	3,787 (43.2)
		5	53 (27.5)	2,307 (26.2)
	I postpone difficult tasks as	1	6 (3.1)	203 (2.3)
	long as possible.	2	38 (19.7)	1,541 (17.6)
		3	53 27.5)	2,588 (29.5)
		4	77 (39.9)	3,725 (42.3)
		5	19 (9.8)	717 (8.3)
	I work very precisely.	1	1 (0.5)	102 (1.2)
		2	9 (4.7)	584 (6.7)
		3	47 (24.4)	2,097 (23.9)

Openness		4	96 (49.7)	4,435 (50.5)
		5	40 (20.7)	1,556 (17.7)
	I often do things without	1	3 (1.6)	148 (1.7)
	really thinking.	2	15 (7.8)	647 (7.5)
		3	44 (22.8)	1,916 (21.8)
		4	97 (50.3)	4397 (50.1)
		5	34 (17.6)	1,666 (18.9)
	I can look at a painting for a	1	12 (6.2)	615 (7.0)
	long time.	2	53 (27.5)	2,732 (31.1)
		3	79 (40.9)	3,272 (37.3)
		4	43 (22.3)	1,967 (22.4)
		5	6 (3.1)	188 (2.1)
	I think science is boring.	1	5 (2.6)	161 (1.8)
		2	10 (5.2)	428 (4.9)
		3	38 (19.6)	1,769 (20.2)
		4	81 (42.0)	3,695 (42.1)
		5	59 (30.6)	2,721 (31.0)
	I have a lot of imagination.	1	1 (0.5)	199 (2.3)
		2	20 (10.4)	893 (10.2)
		3	73 (37.8)	3,191 (36.4)
		4	69 (35.8)	3034 (34.5)
		5	30 (15.5)	1,457 (16.6)
	I like people with strange	1	9 (4.7)	508 (5.8)
	ideas.	2	33 (17.1)	1,603 (18.2)
		3	81 (42.0)	3,243 (36.9)

4	57 (29.5)	2,914 (33.1)
5	13 (6.7)	506 (5.8)

