

Table S1. Association between self-reported knowledge and total knowledge scores of animal welfare of students from Pontificia Universidad Católica de Chile (PUC) and Universidad de Chile (UCHile)

Independent Variables/Covariates	Total (n = 996) ¹		
	OR ²	95% CI	
		Lower	Upper
Total knowledge score (0-7)	1.10	-0.01	0.19
<i>Age</i> ³			
21 – 23	0.73	-0.70	0.05
24 – 26	1.15	-0.42	0.69
27 and older	0.98	-0.80	0.74
Male	0.95	-0.23	0.14
<i>Grade</i> ⁴			
Second	0.67	-0.81	0.00
Third	0.72	-0.09	0.76
Fourth	0.84	-0.35	0.70
Fifth	0.71	-0.90	0.22
Sixth	1.24	-0.43	0.88
University of Chile	0.84	-0.42	0.07
<i>Faculty</i> ⁵			
Art and architecture	1.10	-0.29	0.49
Exact and natural sciences	1.49	0.00	0.80
Social Sciences	1.53 *	0.04	0.81
Law	1.20	-0.22	0.57
Humanities	0.64 *	-0.85	-0.05
Education	1.40	-0.05	0.73
Technology	0.62 *	-0.87	-0.10
Health	1.66 *	0.10	0.91
Administration and commerce	1.45	-0.04	0.78

OR = odds ratios, CI = confidence interval, * p < 0.05, ** < 0.01, *** p < 0.001

¹ Excludes participants who responded with 'not interested' to the question regarding self-reported knowledge of animal welfare

² Ordinal logistic regression

³ Reference group is age group '18-20'

⁴ Reference group is first grade

⁵ Reference group is faculty of Agriculture

Table S2. Chilean university students' perceptions toward animal welfare stratified by age groups.

	18-20 (n = 428)	21-23 (n = 422)	24-26 (n = 111)	> 26 (n = 39)	P- value
Importance of animal welfare in productive system, n (%)	417 (97.4)	410 (97.2)	109 (98.2)	38 (97.4)	0.971 ¹
<i>Quality of life in production of:</i>					
Cow's milk					
Good, n (%)	99 (23.1)	115 (27.3)	28 (25.2)	13 (33.3)	0.360 ²
Poor, n (%)	100 (23.4)	89 (21.1)	19 (17.1)	3 (7.7)	0.362 ¹
Beef					
Good, n (%)	84 (19.6) ^a	86 (20.4) ^a	41 (36.9) ^b	12 (30.8) ^{a,b}	<0.001 ¹
Poor, n (%)	95 (22.2)	86 (20.4)	19 (17.1)	6 (15.4)	0.364 ²
Salmon					
Good, n (%)	16 (3.7)	13 (3.1)	6 (5.4)	2 (5.1)	0.537 ¹
Poor, n (%)	114 (26.6)	105 (24.9)	23 (20.7)	12 (30.8)	0.363 ²
Pig					
Good, n (%)	132 (30.8) ^a	115 (27.3) ^{a,b}	19 (17.1) ^b	5 (12.8) ^{a,b}	0.004 ¹
Poor, n (%)	29 (6.8)	43 (10.2)	13 (11.7)	4 (10.3)	0.373 ¹
Laying hens					
Good, n (%)	97 (22.7)	93 (22.0)	17 (15.3)	7 (17.9)	0.355 ²
Poor, n (%)	90 (21.0)	99 (23.5)	37 (33.3)	14 (35.9)	0.358 ²
<i>Most important operations in animal production</i>					0.025 ¹
Food, n (%)	74 (17.3) ^a	91 (21.6) ^a	30 (27.0) ^a	11 (28.2) ^a	
Transportation, n (%)	13 (3.0) ^a	8 (1.9) ^a	5 (4.5) ^a	2 (5.1) ^a	
Slaughter, n (%)	29 (6.8) ^a	33 (7.8) ^a	4 (3.6) ^a	3 (7.7) ^a	
Rearing, n (%)	195 (45.6) ^a	213 (50.5) ^a	47 (42.3) ^a	17 (43.6) ^a	
Accommodation, n (%)	117 (27.3) ^a	77 (18.2) ^b	25 (22.5) ^{a,b}	6 (15.4) ^{a,b}	
<i>Food products made while taking into account animal welfare compared to products that do not take this into account</i>					0.022 ²
Better flavour, n (%)	247 (57.7) ^a	222 (52.6) ^a	57 (51.4) ^a	17 (43.6) ^a	
Same flavour, n (%)	69 (16.1) ^a	77 (18.2) ^a	25 (22.5) ^{a,b}	15 (38.5) ^b	
I don't know, n (%)	112 (26.2) ^a	123 (29.1) ^a	29 (26.1) ^a	7 (17.9) ^a	
<i>Food products made while taking into account animal welfare compared to products that do not take this into account</i>					0.026 ²
Higher nutritional quality, n (%)	244 (57.0) ^a	269 (63.7) ^a	67 (60.4) ^a	21 (53.8) ^a	
Same nutritional quality, n (%)	94 (22.0) ^a	58 (13.7) ^b	23 (20.7) ^{a,b}	12 (30.8) ^a	
I don't know, n (%)	90 (21.0) ^a	95 (22.5) ^a	21 (18.9) ^a	6 (15.4) ^a	

¹Fisher's exact test and posthoc test with Bonferroni corrections for multiple comparisons.

Different superscript letters indicate a significant difference.

²Chi-square test for independence and posthoc test with Bonferroni corrections for multiple comparisons.

Different superscript letters indicate a significant difference.

Table S3. Chilean university students' perceptions toward dairy cows welfare stratified by age groups.

	18-20 (n = 428)	21-23 (n = 422)	24-26 (n = 111)	> 26 (n = 39)	P-value
<i>Highest level of animal welfare for dairy cows in:</i>					0.212 ¹
In-door production, n (%)	8 (1.9)	7 (1.7)	2 (1.8)	1 (2.6)	
Grazing production, n (%)	187 (43.7)	180 (42.7)	42 (37.8)	12 (30.8)	
Mixture of in-door and grazing, n (%)	174 (40.7)	182 (43.1)	58 (52.3)	24 (61.5)	
None, animals must be free, n (%)	59 (13.8)	53 (12.6)	9 (8.1)	2 (5.1)	
<i>Most important behavior performed by dairy cows:</i>					<0.001 ¹
Grooming, n (%)	51 (11.9) ^a	91 (21.6) ^b	23 (20.7) ^{a,b}	11 (28.2) ^b	
Maternal behavior, n (%)	298 (69.6) ^a	223 (52.8) ^b	57 (51.4) ^b	25 (64.1) ^{a,b}	
Reproduction, n (%)	34 (7.9) ^a	48 (11.4) ^a	13 (11.7) ^a	0 (0.0) ^a	
Game behavior, n (%)	45 (10.5) ^a	60 (14.2) ^a	18 (16.2) ^a	3 (7.7) ^a	
<i>When milking, a dairy cow:</i>					<0.001 ¹
Gets stressed, n (%)	207 (48.4) ^a	237 (56.2) ^a	63 (56.8) ^a	22 (56.4) ^a	
Is suffering, n (%)	49 (11.4) ^a	49 (11.6) ^a	3 (2.7) ^b	1 (2.6) ^{a,b}	
Is in pain, n (%)	75 (17.5) ^a	81 (19.2) ^a	18 (16.2) ^a	2 (5.1) ^a	
Has pleasure, n (%)	97 (22.7) ^a	55 (13.0) ^b	27 (24.3) ^a	14 (35.9) ^a	

¹ Fisher's exact test and posthoc test with Bonferroni corrections for multiple comparisons. Different superscript letters indicate a significant difference.

Table S4. Chilean university students' perceptions toward animal welfare stratified by gender.

	Female (n = 491)	Male (n = 509)	P- value
Importance of animal welfare in productive system, n (%)	473 (96.3)	501 (98.4)	0.037 ¹
<i>Quality of life in production of:</i>			
Cow's milk			
Good, n (%)	118 (24.0)	137 (26.9)	0.331 ¹
Poor, n (%)	105 (21.4)	106 (20.8)	0.871 ¹
Beef			
Good, n (%)	129 (26.3)	94 (18.5)	0.004 ¹
Poor, n (%)	88 (17.9)	118 (23.2)	0.044 ¹
Salmon			
Good, n (%)	20 (4.1)	17 (3.3)	0.607 ¹
Poor, n (%)	115 (23.4)	139 (27.3)	0.159 ¹
Pig			
Good, n (%)	140 (28.5)	131 (25.7)	0.354 ¹
Poor, n (%)	56 (11.4)	33 (6.5)	0.005 ¹
Laying hens			
Good, n (%) ²	84 (17.1)	130 (25.5)	0.001 ¹
Poor, n (%)	127 (25.9)	113 (22.2)	0.194 ¹
<i>Most important operations in animal production</i>			0.083 ¹
Food, n (%)	108 (22.0)	98 (19.3)	
Transportation, n (%)	13 (2.9)	15 (2.9)	
Slaughter, n (%)	41 (5.5)	28 (5.5)	
Rearing, n (%)	234 (46.8)	238 (46.8)	
Accommodation, n (%)	95 (25.5)	130 (25.5)	
<i>Food products made while taking into account animal welfare compared to products that do not take this into account</i>			0.082 ¹
Better flavour, n (%)	250 (50.9)	293 (57.6)	
Same flavour, n (%)	102 (20.8)	84 (16.5)	
I don't know, n (%)	139 (28.3)	132 (25.9)	
<i>Food products made while taking into account animal welfare compared to products that do not take this into account</i>			0.003 ¹
Higher nutritional quality, n (%)	276 (56.2)	325 (63.9)	
Same nutritional quality, n (%)	89 (18.1)	98 (19.3)	
I don't know, n (%)	126 (25.7)	86 (16.9)	

¹Chi-square test for independence

Table S5. Chilean university students' perceptions toward dairy cows welfare stratified by gender.

	Female (n = 491)	Male (n = 509)	P-value
<i>Highest level of animal welfare for dairy cows in:</i>			<0.001 ¹
In-door production, n (%)	11 (2.2)	7 (1.4)	
Grazing production, n (%)	212 (43.2)	209 (41.1)	
Mixture of in-door and grazing, n (%)	230 (46.8)	208 (40.9)	
None, animals must be free, n (%)	38 (7.7)	85 (16.7)	
<i>Most important behavior performed by dairy cows:</i>			<0.001 ¹
Grooming, n (%)	106 (21.6)	70 (13.8)	
Maternal behavior, n (%)	263 (53.6)	340 (66.8)	
Reproduction, n (%)	62 (12.6)	33 (6.5)	
Game behavior, n (%)	60 (12.2)	66 (13.0)	
<i>When milking, a dairy cow:</i>			0.113 ¹
Gets stressed, n (%)	275 (56.0)	254 (49.9)	
Is suffering, n (%)	42 (8.6)	60 (11.8)	
Is in pain, n (%)	88 (17.9)	88 (17.3)	
Has pleasure, n (%)	86 (17.5)	107 (21.0)	

¹Chi-square test for independence

Table S6. Chilean university students' perceptions toward animal welfare stratified by grade.

	First (n = 170)	Second (n = 209)	Third (n = 207)	Fourth (n = 174)	Fifth (n = 150)	Sixth (n = 90)	P-value
Importance of animal welfare in productive system, n (%)	165 (97.1)	203 (97.1)	204 (98.6)	173 (99.4)	141 (94.0)	88 (97.8)	0.063 ¹
<i>Quality of life in production of:</i>							
<i>Cow's milk</i>							
Good, n (%)	41 (24.1) ^a	38 (18.2) ^a	63 (30.4) ^a	51 (29.3) ^a	35 (23.3) ^a	27 (30.0) ^a	0.040 ²
Poor, n (%)	29 (17.1)	46 (22.0)	53 (25.6)	31 (17.8)	35 (23.3)	17 (18.9)	0.293 ²
<i>Beef</i>							
Good, n (%)	29 (17.1) ^a	43 (20.6) ^a	45 (21.7) ^{a,b}	34 (19.5) ^a	38 (25.3) ^{a,b}	34 (37.8) ^b	0.004 ²
Poor, n (%)	45 (26.5) ^a	43 (20.6) ^{a,b}	37 (17.9) ^{a,b}	42 (24.1) ^{a,b}	31 (20.7) ^{a,b}	8 (8.9) ^b	0.025 ²
<i>Salmon</i>							
Good, n (%)	3 (1.8)	8 (3.8)	12 (5.8)	5 (2.9)	5 (3.3)	4 (4.4)	0.444 ¹
Poor, n (%)	48 (28.2) ^{a,b}	65 (31.1) ^a	47 (22.7) ^{a,b}	28 (16.1) ^b	38 (25.3) ^{a,b}	28 (31.1) ^{a,b}	0.013 ²
<i>Pig</i>							
Good, n (%)	54 (31.8) ^{a,c}	78 (37.3) ^a	48 (23.2) ^{c,b}	51 (29.3) ^a	32 (21.2) ^{a,b}	8 (8.9) ^b	<0.001 ²
Poor, n (%)	11 (6.5)	10 (4.8)	20 (9.7)	22 (12.6)	15 (10.0)	11 (12.2)	0.069 ²
<i>Laying hens</i>							
Good, n (%)	43 (25.3)	42 (20.1)	39 (18.8)	33 (19.0)	40 (26.7)	17 (18.9)	0.304 ²
Poor, n (%)	37 (21.8)	45 (21.5)	50 (24.2)	51 (29.3)	31 (20.7)	26 (28.9)	0.325 ²
<i>Most important operations in animal production</i>							0.082 ¹
Food, n (%)	24 (14.1)	44 (21.1)	36 (17.4)	42 (24.1)	30 (20.0)	30 (33.3)	
Transportation, n (%)	7 (4.1)	7 (3.3)	5 (2.4)	5 (2.9)	2 (1.3)	2 (2.2)	
Slaughter, n (%)	11 (6.5)	12 (5.7)	14 (6.8)	13 (7.5)	11 (7.3)	8 (8.9)	
Rearing, n (%)	81 (47.6)	92 (44.0)	107 (51.7)	74 (42.5)	83 (55.3)	35 (38.9)	
Accommodation, n (%)	47 (27.6)	54 (25.8)	45 (21.7)	40 (23.0)	24 (16.0)	15 (16.7)	
<i>Food products made while taking into account animal welfare compared to products that do not take this into account</i>							0.159 ²
Better flavour, n (%)	91 (53.5)	112 (53.6)	121 (58.5)	94 (54.0)	83 (55.3)	42 (46.7)	
Same flavour, n (%)	28 (16.5)	38 (18.2)	35 (16.9)	25 (14.4)	35 (23.3)	25 (27.8)	
I don't know, n (%)	51 (30.0)	59 (28.3)	51 (24.6)	55 (31.6)	32 (21.3)	23 (25.6)	
<i>Food products made while taking into account animal welfare compared to products that do not take this into account</i>							0.009 ²
Higher nutritional quality, n (%)	103 (60.6) ^a	111 (53.1) ^a	125 (60.4) ^a	115 (66.1) ^a	101 (67.3) ^a	46 (51.1) ^a	
Same nutritional quality, n (%)	29 (17.1) ^{a,b,c}	56 (26.8) ^c	35 (16.9) ^{a,b,c}	22 (12.6) ^b	20 (13.3) ^{a,b}	25 (27.8) ^{a,c}	
I don't know, n (%)	38 (22.4) ^a	42 (20.1) ^a	47 (22.7) ^a	37 (21.3) ^a	29 (19.3) ^a	19 (21.1) ^a	

¹ Fisher's exact test and posthoc test with Bonferroni corrections for multiple comparisons.

Different superscript letters indicate a significant difference.

² Chi-square test for independence and posthoc test with Bonferroni corrections for multiple comparisons.

Different superscript letters indicate a significant difference.

Table S7. Chilean university students' perceptions toward dairy cows welfare stratified by grade.

	First (n = 170)	Second (n = 209)	Third (n = 207)	Fourth (n = 174)	Fifth (n = 150)	Sixth (n = 90)	P-value
<i>Highest level of animal welfare for dairy cows in:</i>							0.002 ¹
In-door production, n (%)	3 (1.8) ^a	1 (0.5) ^a	7 (3.4) ^a	1 (0.6) ^a	4 (2.7) ^a	2 (2.2) ^a	
Grazing production, n (%)	78 (45.9) ^a	91 (43.5) ^a	91 (44.0) ^a	74 (42.5) ^a	62 (41.3) ^a	25 (27.8) ^a	
Mixture of in-door and grazing, n (%)	57 (33.5) ^a	93 (44.5) ^a	84 (40.6) ^a	84 (48.3) ^{a,b}	63 (42.0) ^a	57 (63.3) ^b	
None, animals must be free, n (%)	32 (18.8) ^a	24 (11.5) ^a	25 (12.1) ^a	15 (8.6) ^a	21 (14.0) ^a	6 (6.7) ^a	
<i>Most important behavior performed by dairy cows:</i>							0.004 ¹
Grooming, n (%)	23 (13.5) ^a	33 (15.8) ^{a,b}	34 (16.4) ^{a,b}	31 (17.8) ^{a,b}	29 (19.3) ^{a,b}	26 (28.9) ^b	
Maternal behavior, n (%)	118 (69.4) ^a	141 (67.5) ^a	123 (59.4) ^{a,b}	96 (55.2) ^{a,b}	77 (51.3) ^b	48 (53.3) ^{a,b}	
Reproduction, n (%)	14 (8.2) ^a	17 (8.1) ^a	16 (7.7) ^a	19 (10.9) ^a	23 (15.3) ^a	6 (6.7) ^a	
Game behavior, n (%)	15 (8.8) ^a	18 (8.6) ^a	34 (16.4) ^a	28 (16.1) ^a	21 (14.0) ^a	10 (11.1) ^a	
<i>When milking, a dairy cow:</i>							<0.001 ¹
Gets stressed, n (%)	81 (47.6) ^{a,b}	98 (46.9) ^b	119 (57.5) ^{a,b}	95 (54.6) ^{a,b}	94 (62.7) ^a	42 (46.7) ^{a,b}	
Is suffering, n (%)	26 (15.3) ^a	22 (10.5) ^{a,b}	19 (9.2) ^{a,b}	19 (10.9) ^{a,b}	14 (9.3) ^{a,b}	2 (2.2) ^b	
Is in pain, n (%)	26 (15.3) ^a	40 (19.1) ^a	40 (19.3) ^a	40 (23.0) ^a	16 (10.7) ^a	14 (15.6) ^a	
Has pleasure, n (%)	37 (21.8) ^{a,b,c,d}	49 (23.4) ^{c,d}	29 (14.0) ^{b,d}	20 (11.5) ^b	26 (17.3) ^{b,d}	32 (35.6) ^{a,c}	

¹Fisher's exact test and posthoc test with Bonferroni corrections for multiple comparisons. Different superscript letters indicate a significant difference.

FULL SURVEY
SECTION I : SOCIODEMOGRAPHIC CHARACTERISTICS

1. Gender

- ☐ Female
- ☐ Male

2. Age

- ☐ 18-20
- ☐ 21-23
- ☐ 24-26
- ☐ More than 26

3. In which university do you study?

- ☐ Pontifical Catholic University of Chile
- ☐ University of Chile

4. Year of career

- ☐ First
- ☐ Second
- ☐ Third
- ☐ Room
- ☐ Fifth
- ☐ Sixth

5 . Study area

- ☐ Agricultural
- ☐ Art and architecture
- ☐ Exact and natural sciences
- ☐ Social Sciences
- ☐ Law
- ☐ Humanities
- ☐ Education
- ☐ Technology
- ☐ Health
- ☐ Administration and commerce

6. Commune of residence:

7. It has some kind of relationship with the field

- ☐ No
- ☐ Family members living in the countryside
- ☐ Family member working in the agricultural sector
- ☐ Residential area

SECTION II: KNOWLEDGE

8. Have you heard about animal welfare?

- ☐ Yes
- ☐ No

9. Do you consider animal welfare an important issue in productive systems?

- ☐ Yes
- ☐ No

10. What do you think is your level of knowledge about animal welfare?

- ☐ High knowledge
- ☐ Medium knowledge
- ☐ Low knowledge
- ☐ NO knowledge
- ☐ I'm not interested

11. Please select from which source did you get your knowledge on animal welfare

- ☐ Educational institutions
- ☐ Social networks (facebook , twitter, instagram , etc.)
- ☐ Comments from friends and siblings
- ☐ Internet (easy to use search engines like google, wikipedia , etc.)
- ☐ Mass media (press, television, radio, cinema, etc.)

1 2 . What do you understand by animal welfare ?

- ☐ Adequate mental and physical state of an animal allowing the expression of their natural behaviors.
- ☐ Appropriate policies, legislation and standards developed and implemented in favor of animals.
- ☐ Avoid the use of animals to meet the needs and requirements of human beings.

1 3 . Have you heard about the five freedoms of animal welfare?

- ☐ Yes
- ☐ No

1 4 . Is there a current Law on Protection Animal in Chile?

- ☐ Yes
- ☐ No
- ☐ I do not know

1 5 . Do you think animals have emotions?

- ☐ Yes
- ☐ NO
- ☐ I do not know

1 6 . Do you think animals have different personality types?

- ☐ Yes
- ☐ NO
- ☐ I do not know

A then a series of questions about specific dealings will be made in milk production

1 7 . Does a dairy cow feel more comfortable walking on a smooth concrete floor or on land?

- ☐ Smooth cement
- ☐ Soil (in summer it is dry and in winter there is rain)
- ☐ I do not know

1 8 . Castration (extraction of the testicle) is a common management in productive systems. Is this practice done with the use of anesthetics (chemical that causes temporary loss of sensation of a part of the body)?

- ☐ True
- ☐ False

☐ I do not know

19 . Is it a common practice in dairy cows in the country separating the calf from the mother after birth?

☐ True

☐ False

☐ I do not know

20 . The dehorning is done in bovine dairies to calves to prevent the growth of a future horn. Is or is mainly done by:

☐ Esthetic

☐ Ease of handling

☐ I do not know

21 . Would you like an animal welfare course available for all faculties at your university ?

☐ Yes

☐ NO

SECTION III PERCEPTION

22 . In which of the following production systems do you believe that animals have a better quality of life?

☐ Cow's milk production system

☐ Beef production system

☐ Salmon production system

☐ Pig production system

☐ Laying hens production system

23 . In which of the following production systems do you believe that animals have a worse quality of life?

☐ Cow's milk production system

☐ Beef production system

☐ Salmon production system

☐ Pig production system

☐ Laying hens production system

24 . Under what conditions is the highest level of animal welfare offered for dairy cows?

☐ In-door production system (roofed housing)

☐ Grazing production system (trees and shrubs)

☐ A mixture of both

☐ None since they must be free

25 . Which of the following operations corresponds to the most important in an animal production system from your point of view?

- ☐ Food
- ☐ Transportation
- ☐ Slaughter
- ☐ Rearing (man power used for rearing animals from birth to weaning)
- ☐ Accommodation

26 . In your opinion, which is the most important behavior to be performed by dairy cows.

- ☐ Grooming (self-care)
- ☐ Maternal behavior (mother-child interaction)
- ☐ Sexual behavior (reproduction)
- ☐ Game behavior (entertainment)

27. From the physiological point of view, milking in a dairy cow corresponds to an event that causes:

- ☐ Stress
- ☐ Suffering
- ☐ Pain
- ☐ Pleasure

28. In your opinion, products made under animal welfare in terms of taste are:

- ☐ Food with better flavor
- ☐ Food with the same flavor as products that are not under Animal welfare
- ☐ I do not know

29 . In your opinion, products made under animal welfare in nutritional terms are:

- ☐ Foods with higher nutritional quality
- ☐ Foods of the same nutritional quality as foods without Animal welfare
- ☐ I do not know

Thank you for your participation!

<https://es.surveymonkey.com/r/bienestaranimalycomunidaduniversitaria>