

Consumers' willingness-to-pay for dairy and plant-based milk alternatives towards sustainable dairy: A scoping review

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Table S1: Summary of extracted for the 123 retained articles used for analysis

No.	Authors	Country	Region	Milk type	Initial Sample	Data collection location	Elicitation	Attribute class	Main attribute	Mean WTP Premium ¹ (%)	Analytical Method
1	Zhu et al., 2023	China	Asia	Cow	803	Public places	DCE ²	Organic	Organic	178 (Outlier)	LCM ³ & RPL ⁴
2	Xu et al., 2023	China	Asia	Cow	389	Online	CVM ⁵	Safety	Antibiotic-free	49	Tobit
3	Sonntag et al., 2023	Germany	Europe	Cow	1084	Online	DCE	Environment	Climate impact	43	RPL
4	Schell et al., 2023	United States	N. America ⁶	Cow	1000	Online & lab	Auction & DE ⁷	Safety	Antibiotic-free	3	Tobit
5	Rafiee et al., 2023	Iran	Asia	Cow	794	Informal markets	CVM	Organic	Organic	14	Logit
6	Li et al., 2023	China	Asia	Cow	1000	Public places	DCE	Environment	Green	40	RPL
7	Hossain et al., 2023	Bangladesh	Asia	Cow	384	Supermarkets	CVM	Safety	Traceability	12	Regression
8	Habiyaremye et al., 2023	Rwanda	Africa	Cow	384	Laboratory ⁸	Auction	Safety	Safety & Quality	92	Tobit
9	Endara et al., 2023	United States	N. America	Cow	500	Online	DCE	Safety	Shelf life	44	RPL
10	Staffolani et al., 2022	Italy	Europe	Cow	335	Online	CVM	Environment	Mountain product	22	Logit
11	Oliveira et al., 2022	Brazil	S. America ⁹	Cow	389	Online	DE	Health	A2 milk	20	Descriptive
12	Kitano et al., 2022	Japan	Asia	Cow	600	Online	DCE	Animal welfare	Animal welfare	10	Regression
13	Jensen et al., 2021	United States	N. America	Cow	817	Online	DCE	Safety	Pasteurised	16	RPL
14	Boaitey et al., 2022	United States	N. America	Cow	1020	Online	BWS ¹⁰	Animal welfare	Cow-calf contact	102	LCM & RPL
15	Abedullah et al., 2023	Pakistan	Asia	Cow	360	University	DCE	Safety	Aflatoxin free	238 (Outlier)	LCM
16	Waldrop & Roosen, 2021	Europe	Europe	Cow	3693	Online	DCE	Animal welfare	Animal welfare	0	LCM
17	Vroegindewey et al., 2021	Mali	Africa	Cow	215	Public places	DCE	Safety	Fresh	58	MNL ¹¹ & RPL
18	Ufer et al., 2021	United States	N. America	Cow	203	Supermarkets	Auction	Non-classified	Redundant	21	Regression
19	Tavárez & Álamo, 2021	Puerto Rico	S. America	Cow	134	Supermarkets	DCE	Animal welfare	Animal welfare	64	CLM ¹² & RPL
20	Kilders & Caputo, 2021	United States	N. America	Cow	1043	Online	DCE	Non-classified	Gene editing	66	RPL
21	Kaliyeva et al., 2021	Kazakhstan	Asia	Cow	272	Online	CVM	Non-classified	Cooperative	34	Regression
22	Grashuis, 2021	Netherlands	Europe	Cow	252	Online	DCE	Non-classified	Ownership	18	CLM
23	Cammarelle et al., 2021	Italy	Europe	Cow	260	Online	Direct	Environment	Packaging	7	SEM ¹³
24	Britwum et al., 2021	United States	N. America	Cow	128	Laboratory	Auction	Organic	Organic	36	Regression
25	Anjum et al., 2021	Pakistan	Asia	Cow	150	Homes	CVM	Safety	Pasteurised	8	Logit
26	Almarri & Al-Mahish, 2021	Saudi Arabia	Asia	Cow	500	Online	CVM	Organic	Organic	200 (Outlier)	P&NP ¹⁴
27	Zhao et al., 2020	China	Asia	Cow	282	University	Auction & DCE	Environment	Carbon footprint	3	P&NP
28	Zhang et al., 2019	China	Asia	Cow	357	Online	DCE	Environment	Sustainable	200 (Outlier)	Logit
29	Zhang et al., 2021	China	Asia	Cow	366	Supermarkets	Auction	Origin	Origin	59	Regression
30	Yormirzoev et al., 2021	Russia	Europe	Cow	608	Supermarkets	CVM	Organic	Organic	11	Regression
31	Scozzafava et al., 2020	Italy	Europe	Cow	1250	Online	DCE	Organic	Organic	17	RPL
32	Paterson & Clark, 2020	United States	N. America	Cow	100	Laboratory	Auction	Environment	Packaging	14	P&NP

33	Osburn et al., 2020	United States	N. America	Cow	6900	Online	DCE	Origin	Origin	147	RPL
34	Nam et al., 2020	Korea	Asia	Cow	450	Online	DCE	Environment	Mountain product	36	CLM
35	Merlinoet al., 2020	Italy	Europe	Cow	559	Supermarkets	DCE	Environment	Packaging	20	Logit
36	McCrickerd et al., 2020	Singapore	Asia	Soymilk	258	Laboratory	Hedonic	Health	Healthier Choice	40	P&NP
37	Gao et al., 2020	China	Asia	Cow	307	Supermarkets	CVM	Environment	Sustainable	40	Regression
38	DeLong et al., 2020	United States	N. America	Cow	352	Online	CVM	Origin	Origin	12	Probit
39	Canavari & Coderoni, 2019	Italy	Europe	Cow	393	Online	CVM	Environment	Carbon footprint	19	CLM
40	Bozoglu et al., 2019	Turkey	Asia	Cow	423	Public places	CVM	Safety	Safety	30	Double hurdle
41	Yin et al., 2018	China	Asia	Infant Formula	987	Supermarkets	DCE	Organic	Organic	126	MNL & CLM
42	Quan et al., 2018	China	Asia	Infant Formula	1362	Special stores	DCE	Origin	Imported	25	RPL
43	Markova-Nenova et al., 2018	Germany	Europe	Cow	1040	Online	DCE	Animal welfare	Animal welfare	32	LCM & RPL
44	Kim et al., 2018	United States	N. America	Cow	946	Online	DCE	Organic	Organic	90	MNL & RPL
45	Fathi & Kargar, 2018	Iran	Asia	Cow	279	Not given	CVM	Health	Functional	19	Tobit
46	Britwum & Bernard, 2018	United States	N. America	Cow	148	Laboratory	Direct	Animal welfare	Cloned cow milk	-81 (Outlier)	Tobit
47	Yin et al., 2017	China	Asia	Infant Formula	1225	Public places	DCE	Safety	Traceability	49	RPL
48	Ahmad et al., 2017	Pakistan	Asia	Cow	98	Homes	Hedonic	Sensory	Aroma	3	Regression
49	Marette et al., 2017	France	Europe	Cow	134	Laboratory	Auction & DE	Environment	Linseed cow milk	85	P&NP
50	Lombardi et al., 2017	Italy	Europe	Cow	39	Supermarkets	DCE	Environment	Carbon footprint	65	MNL & CLM
51	Li et al., 2017	China	Asia	Cow	307	Supermarkets	CVM	Origin	Origin	37	Regression
52	Kühl et al., 2017	Germany	Europe	Cow	1065	Online	DCE	Animal welfare	Pasture-raised	74	RPL
53	Chancharoenchai, 2017	Thailand	Asia	Cow	540	Not given	CVM	Safety	100% Fresh	117	Probit
54	Bekele et al., 2017	Ethiopia	Africa	Cow	160	Laboratory	Auction	Safety	Pasteurised	4	Double hurdle
55	Wägeli et al., 2016	Germany	Europe	Cow	600	Supermarkets	DCE	Environment	Local feed	77	RPL
56	Schroeter et al., 2016	United States	N. America	Cow	304	Laboratory	Direct	Organic	Organic	71	Regression
57	Rajoa et al., 2016	Honduras	S. America	Cow	200	Market places	DCE	Non-classified	Education label	4	RPL
58	Neill & Williams, 2016	United States	N. America	Cow	245	Supermarkets	CVM	Environment	Packaging	19	Regression
59	Forbes-Brown et al., 2016	Canada	N. America	Cow	510	Online	DCE	Origin	Origin	81	MNL & RPL
60	Emberger-Klein et al., 2016	Europea	Europe	Cow	596	Online	Direct	Origin	Origin	10	Regression
61	Bekele et al., 2016	Ethiopia	Africa	Cow	160	Laboratory	Auction	Health	Fat content	3	Tobit
62	Yue et al., 2015	China	Asia	Cow	181	Market places	DCE	Non-classified	Improved	80	RPL
63	Schott & Bernard, 2015	United States	N. America	Cow	128	Laboratory	Auction	Organic	Organic	95	Tobit
64	Loke et al., 2015	United States	N. America	Cow	312	Supermarkets	Hedonic	Organic	Organic	25	Regression
65	Liaukonyte et al., 2015	United States	N. America	Cow	110	Laboratory	Auction	Non-classified	Irradiated	53	Tobit
66	Hasselbach & Roosen, 2015	Germany	Europe	Cow	720	Market places	DCE	Organic	Organic	75	RPL
67	Costanigro et al., 2015	United States	N. America	Cow	96	Laboratory	BWS	Organic	Organic	23	Regression

68	Cheng et al., 2015	China	Asia	Cow	360	Homes	Direct	Safety	Safety	5	OPM ¹⁵
69	Amirnejad & Tonakbar, 2015	Iran	Asia	Cow	450	Not given	CVM	Organic	Organic	91	Logit
70	Linhai et al., 2014	China	Asia	Infant Formula	1380	Market places	DCE	Organic	Organic	70	RPL
71	Xu et al., 2014	China	Asia	Cow	360	Not given	Direct	Organic	Organic	60	Logit
72	Scokkai et al., 2014	Italy	Europe	Cow	973	Online	DCE	Safety	Mycotoxin free	29	RPL
73	Marette, 2014	France	Europe	Cow	111	Laboratory	Auction	Brand	Brand	7	P&NP
74	Fadiga & Makokha, 2014	Kenya	Africa	Cow	287	Homes	DCE	Safety	Smell	3	OLM ¹⁶
75	Echeverria et al., 2014	Chile	S. America	Cow	774	Supermarkets	CVM	Environment	Carbon footprint	29	Probit
76	Denver & Christensen, 2014	Denmark	Europe	Cow	849	Online	DCE	Organic	Organic	35	RPL
77	Yue et al., 2013	China	Asia	Soymilk	300	Market places	DCE	Organic	Organic	75	RPL
78	Tempesta & Vecchiato, 2013	Italy	Europe	Cow	400	Market places	DCE	Origin	Origin	36	MNL & LCM
79	Liu et al., 2013	United States	N. America	Cow	148	Laboratory	Auction	Organic	Organic	132	P&NP
80	Chen et al., 2013	China	Asia	Cow	318	Homes	CVM	Safety	Gap certified	19	Logit
81	Zhang et al., 2012	China	Asia	Cow	260	Homes	CVM	Safety	Traceability	22	Logit
82	Akaichi et al., 2012	Spain	Europe	Cow	80	Laboratory	Auction	Non-classified	Units purchased	62	Tobit
83	Tonsor & Wolf, 2011	United States	N. America	Cow	800	Online	CVM	Organic	Organic	7	P&NP
84	Van Tra et al., 2011	Vietnam	Asia	Cow	235	Online	CVM	Health	Diabetes milk	300 (Outlier)	OPM
85	Wolf et al., 2011	United States	N. America	Cow	1007	Online	DCE	Safety	rBST ¹⁷ free	43	RPL
86	Ortega et al., 2011	China	Asia	Cow	420	Supermarkets	DCE	Safety	Certification	89	RPL
87	Zhou et al., 2010	China	Asia	Cow	214	Not given	DCE	Safety	Traceability	217 (Outlier)	CLM
88	Wong et al., 2010	United States	N. America	Cow	297	Telephone	Direct	Organic	Organic	17	Probit
89	Brooks & Lusk, 2010	United States	N. America	Cow	500	Online	DCE	Animal welfare	Non-cloning	93	MNL
90	Rodriguez et al., 2009	Argentina	S. America	Cow	301	Supermarkets	CVM	Organic	Organic	14	Logit
91	Kanter et al., 2009	United States	N. America	Cow	148	Laboratory	Auction	Organic	Organic	87	Tobit
92	Goldberg et al., 2009	Germany	Europe	Infant Formula	84	Not given	Auction	Safety	Quality	85	P&NP
93	Bernard & Bernard, 2009	United States	N. America	Cow	154	Not given	Auction	Organic	Organic	100	Tobit
94	Wang et al., 2008	China	Asia	Cow	590	Supermarkets	Direct	Safety	HACCP ¹⁸	10	Regression
95	Schnettler et al., 2008	Chile	S. America	Cow	400	Supermarkets	DCE	Brand	Brand	45	Regression
96	Managi et al., 2008	Japan	Asia	Cow	809	Online	DCE	Organic	Organic	40	RPL
97	Conner & Oppenheim, 2008	United States	N. America	Cow	63	Online & lab	Auction & CVM	Environment	Pasture-raised	48	P&NP
98	Bernard et al., 2006	United States	N. America	Cow	336	University	Direct	Organic	Organic	19	Tobit
99	Maynard & Franklin, 2003	United States	N. America	Cow	111	Food store	CVM	Health	CLA ¹⁹	73	P&NP
100	Wang et al., 1997	United States	N. America	Cow	702	Telephone	Direct	Safety	rBST free	14	Tobit
101	Fox et al., 1994	United States	N. America	Cow	300	Laboratory	Auction	Safety	rBST free	26	P&NP
102	Bentivoglio et al., 2020	Italy	Europe	Cow	1277	Online	CVM	Health	A2 milk	11	P&NP
103	Wu et al., 2020	China	Asia	Cow	878	Online	DCE	Organic	Organic	21	LCM
104	Xu et al., 2020	China	Asia	Cow	310	Not given	DCE	Health	Nutrition	470 (Outlier)	RPL
105	Höhler & Schreiner, 2020	Germany	Europe	Cow	550	Online	DCE	Animal welfare	Fairmilk & grazing	32	RPL

106	Li et al., 2019	China	Asia	Infant Formula	450	Public places	DCE	Safety	Quality	88	RPL
107	Bai et al., 2013	China	Asia	Cow	803	Supermarkets	DCE	Safety	Traceability	400 (Outlier)	CLM
108	Ding & Veeman, 2019	China	Asia	Cow	1213	Market places	DCE	Brand	Brand	76	RPL
109	Laassal & Kallas, 2019	Spain	Europe	Soy, oats & rice milk	343	Supermarkets	DCE	Sensory	Flavour	45	Regression
110	Chaya et al., 2019	Sri Lanka	Asia	Cow	391	Public places	CVM	Safety	Pasteurised	112	Regression
111	Profeta & Hamm, 2019	Germany	Europe	Cow	1602	Supermarkets	Direct	Environment	Local feed	41	Logit
112	Akaichi et al., 2012	Spain	Europe	Cow	80	Laboratory	Auction	Organic	Organic	49	Tobit
113	Robbins et al., 2019	USA	N. America	Cow	802	Online	Direct	Animal welfare	Ban tie stall	68	P&NP
114	Kazi et al., 2022	USA	N. America	Cow	883	Online	CVM	Health	Fat content	12	Regression
115	Li & Huang, 2021	China	Asia	Infant Formula	99	Not given	DCE	Brand	Brand	33	MNL
116	Oyekale et al., 2013	Nigeria	Africa	Cow	260	Not given	CVM	Safety	Pasteurised	92	Probit
117	Schroder et al., 2005	Germany	Europe	Cow	361	Supermarkets	CVM	Origin	Local	24	P&NP
118	Tong et al., 2021	Vietnam	Asia	Soymilk	100	Laboratory	Auction	Safety	GMO ²⁰ free	84	Regression
119	Vandermersch & Mathijs, 2004	Belgium	Europe	Cow	626	Supermarkets	Direct	Origin	Origin	15	Logit
120	Wayua et al., 2009	Kenya	Africa	Cow	31	Laboratory	Auction	Sensory	Enhanced sensory	19	P&NP
121	Yokessa & Marette, 2019	France	Europe	Cow & Soy	122	Laboratory	Auction	Organic	Organic	83	P&NP
122	Emukule et al., 2011	Kenya	Africa	Camel	108	Homes	Direct	Non-classified	Type of milk	7	Logit
123	Xia & Zeng, 2013	China	Asia	Cow	420	Supermarkets	CVM	Environment	Green	7.5	Logit

¹Mean WTP-mean willingness to pay of the attribute and this was the attribute with the highest consumers' willingness to pay compared to other attributes considered in the study, ²DCE- discrete choice experiment, ³LCM-latent class model also known as latent class analysis, ⁴RPL- random parameter logit also known as the mixed logit model and in this study the term RPL has been used to replace mixed logit model for the sake of analysis, ⁵CVM- contingent valuation method, ⁶N. America- North America, ⁷D.E- Direct Elicitation, ⁸Exp- Experiment, ⁹S. America- South America, ¹⁰BWS- Best Worst Scaling, ¹¹MNL-multinomial logit model, ¹²CLM- conditional logit model, ¹³SEM-structural equation model, ¹⁴P&NP-parametric and non-parametric refers to the comparisons of means and group means using statistical t-tests for parametric or the non-parametric measurements such as the Kruskal-Wallis, ¹⁵OPM- ordered probit model, ¹⁶OLM- Ordered logit model, ¹⁷rBST- recombinant somatotrophin, ¹⁸HACCP-Hazard Analysis and Critical Control Point, ¹⁹CLA- Conjugated Linoleic Acid, ²⁰GMO- Genetically Modified Organism.

Table S2: Search terms

Database and Search	Search string
Web of Science	
(Topic)	"Milk" OR "soymilk"
(All fields)	"WTP" OR "willingness-to-pay" OR "willingness to pay" OR "willing to pay" OR "WTA" OR "willingness-to-accept" OR "willingness to accept" OR "willing to accept" OR "stated pref*" OR "revealed pref*"
(All fields)	"consumer*" OR "buyer*" OR "customer*" OR "purchaser*" OR "shopper*" OR "household*"
Scopus	
(TITLE-ABS-KEY)	"Milk" OR "soymilk"
(ALL)	"WTP" OR "willingness-to-pay" OR "willingness to pay" OR "willing to pay" OR "WTA" OR
(ALL)	"willingness-to-accept" OR "willingness to accept" OR "willing to accept" OR "stated pref*" OR "revealed pref*"
	"consumer*" OR "buyer*" OR "customer*" OR "purchaser*" OR "shopper*" OR "household*"
AgEcon Search	"consumer*", "willingness to pay", "milk"
Limits	Language: English Original articles