**Dataset associated with “Public perceptions of how to reduce carbon footprints of consumer food choices” (2018)**

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1. **General description of dataset**
   1. *Research questions*

1a. How many rules did participants generate for identifying produce, dairy, or protein-rich products with a low carbon footprint?

1b. What percent of participants generated the most effective rules for identifying produce, dairy, or protein-rich products with a low carbon footprint (as identified in existing life cycle analyses from climate and environmental sciences)?

2. How accurate were participants when estimating reductions in GHG emissions for pre-selected rules, in grams vs. percentages (as compared to life cycle analyses from climate and environmental sciences)?

*1.2 Method*

UK consumers were recruited online by the marketing company ResearchNow. They answered the online survey in January 2018. They received £3.30 upon completion. From the initial sample of N = 733, we excluded 60 consumers who did not finish the survey. The study followed a 3 (Type of product: Produce/ Dairy/ Protein) x 2 (Format: Percent / gram of GHG emissions savings)-between design. In order to answer Research Question 1a, participants were asked to generate rules they would use for estimating carbon footprints with food products. For answering Research Question 1b, these generated rules were compared to GHG emissions estimates from food life cycle analyses from climate and environmental sciences. For answering Research Question 2, participants were asked to make numerical estimates, in either percent savings or grams of GHG emissions. We additionally measured Environmental worldviews (Dunlap et al., 2000), Climate change knowledge (Shi et al., 2012), Numeracy (Cokely et al., 2012, adaptive Version), and Need for Cognition (Cacioppo et al., 1984). The document “Survey\_CarbonFootprint\_Food.docx” lists questions as used in this survey study. The SI of [Kause, Bruine de Bruin, Millward-Hopkins & Olsson, 2019](https://iopscience.iop.org/article/10.1088/1748-9326/ab465d) describes this survey.

1. **Description of Variables**
   1. **CarbonFootprint\_dataset**

# 1-17 StartDate - UserLanguage: Qualtrics user output

# 18-22: buy\_1 - buy\_5: “*How often do you buy food:* in a UK supermarket/ in an online supermarket/ in a local independent store/ in an organic foodstore/ other); 7-point scale from “Never”-“5-7 times per week”

# 23-25 diet\_1-diet\_3: *How often do you eat the following products*: Dairy products / Meat and fish/ Fresh fruit and vegetables.

# 26 Q320: W*hat is your age? \_\_\_\_*

# 27 Q321 *What is your gender*: Male/ female/ other\_\_\_\_\_\_

# 28 Q321\_text: Input for ‘other’

# 29 Q322 Education: *What is the highest level of education you have completed?* Sime schooling but no diploma or degree/ High school diploma or GED/ Some college/ College/ Some graduate school/ Graduate degree/ PhD / I do not want to share that information

# 30-44 C.1.4.cue\_1.1.1-.1.4.cue\_1.15.1: Cues 1-15 generated for Produce

# 45-59 C1.4\_cue.inf\_1 - C1.4\_cue.inf\_15: Informativeness ratings for each generated rules (1 “not informative at all” – 7 “very informative”)

# 60-63 C1.field\_1 - C1.local\_1: Numerical estimates for assessing savings associated with 4 preselected rules in grams of GHG emissions.

# 64-67 C1.1\_1-C.1.1\_4: Confidence ratings into each estimate (1 “not confident at all” – 7 “very confident”)

# 68-82 C.2.5.cue\_1.1.1-.2.5.cue\_1.15.1: Cues 1-15 generated for Produce

# 83-97 C2.5\_cue.inf\_1 - C2.5\_cue.inf\_15: Informativeness ratings for each generated rule (1 “not informative at all” – 7 “very informative”)

# 98-101 C2.field\_1 – C2.local\_1: Numerical estimates for assessing effectiveness of 4 preselected rules in grams of GHG emissions

# 102-105 C2.1\_1-C.2.1\_4: Confidence ratings into each estimate (1 “not confident at all” – 7 “very confident)

# 106-120 C.3.6.cue\_1.1.1-.3.6.cue\_1.15.1: Cues 1-15 generated for Protein products

# 121-135 C3.6\_cue.inf\_1 – C3.6\_cue.inf\_15: Informativeness ratings for each generated rule (1 “not informative at all” – 7 “very informative”)

# 136-139 C3.fish\_1 – C3.organic\_1: Numerical estimates for assessing effectiveness of 4 preselected rules in grams of GHG emissions

# 140-143 C3.1\_1-C.3.1\_4: Confidence ratings into each estimate (1 “not confident at all” – 7 “very confident)

# 144-147 60-63: C4.field\_1 – C4.local\_1: Numerical estimates for assessing effectiveness of 4 preselected rules in percent change

# 148-151 C4.1\_1-C.4.1\_4: Confidence ratings into each estimate (1 “not confident at all” – 7 “very confident)

# 152-155 C2.plant\_1 – C5.organic\_1: Numerical estimates for assessing effectiveness of 4 preselected rules in grams of GHG emissions

# 156-159 C5.1\_1-C.5.1\_4: Confidence ratings into each estimate (1 “not confident at all” – 7 “very confident)

# 160-163 C6.fish\_1-C6.organic\_1: Numerical estimates for assessing effectiveness of 4 preselected rules in grams of GHG emissions

# 164-167 C6.1\_1-C.6.1\_4: Confidence ratings into each estimate (1 “not confident at all” – 7 “very confident”)

# 168-175 NEP1\_2-NEP1\_8: New ecological paradigm (NEP)-scale; items 1-8 in randomized order

# 176-183 NEP1\_DO-1-NEP1\_DO\_8: Variables indicating randomized position of each NEP item

# 184-190 NEP2\_9-NEP2\_15: NEP-Scale items 9-15

# 191-197 NEP2\_DO\_9-NEP2\_\_DO\_15: Variables indicating randomized position of each NEP item

# 198-204 CC.know.physics\_1- CC.know.physics\_7: Climate Change knowledge–scale items 1-7 (physical knowledge)

# 199-211 CC.know.physics\_DO\_1- CC.know.physics\_DO\_7: Variables indicating randomized position of climate change knowledge-scale items 1-7

# 212-218 CC.know.causes\_9- CC.know.causes\_14: Climate Change knowledge–scale items 8-14 (causal knowledge)

# 219-225 CC.know.causes\_DO\_9- CC.know.causes\_DO\_14: Variables indicating randomized position of climate change knowledge-scale items 8-14

# 226-233 CC.know4-\_11- CC.know4\_16: Climate Change knowledge–scale items 15-22

# 234-241 CC.know4-\_DO\_11- CC.know4\_\_DO\_16: Variables indicating randomized position of climate change knowledge-scale items 15-22

# 242-249 CC.know.action\_15- CC.know.action\_17: Climate Change knowledge–scale items 23-31 (action)

# 250-257 CC.know.action\_DO\_15- CC.know.action\_DO\_17: Variables indicating randomized position of climate change knowledge-scale items 23-31

# 258-275 NfC\_1\_10-NfC2\_9: Need for Cognition-scale, items 1-18

# 276-279 Q105-Q109: Berlin Numeracy Test-scale

# 280 restriction: *Do you have any dietary restrictions? [*Yes/ No/ I do not want to share that information*]*

# 281 RestrictionType: [If Yes selected in previous question] *which one of the following dietary restrictions do you have?* [I am vegetarian/ I am vegan/ I don’t eat gluten/ I don’t eat dairy products/ Other \_\_\_\_

# 282 RestrictionType\_5\_TEXT: Input for 281

# 283-284 Q151\_1-Q152: *Would you like to receive the answers on carbon footprint questions after the study is over?* [No thanks, I don’t want to receive answers/ Yes, I do want to receive answers]

# 285 Q152: Text input for Q151

# 286: uid: Qualtrics ID

# 287 Condition: (1=Produce/ grams; 2=Dairy/ gram, 3=Protein/ grams, 4=produce/ percent, 5=Dairy/ percent, 6=Protein/percent)

# 288-299 FL\_26\_DO\_FL\_24 - FL\_27\_DO\_FL\_65: Qualtrics software output

# 300-353 Variables indicating randomized position of numerical estimates in all conditions

# 354-368 NEP\_1r - NEP15\_r: NEP items recoded to 1-5 scale

# 369 averageNEP: average NEP value across 15 items; per participant

# 370-397 CC.know.physics\_1.corr - CC.know.action\_18: Indicate whether participants have answered item correctly (1: correct, 0 false)

# 398: Sum of accurate items across climate change knowledge scale

# 399: Sum of overall scale values for climate change knowledge scale (Number of items- NAs)

# 400 ratio.knowledge: ratio of correct answers (398 / 399)

# 401 answers NfC: Sum of scale values given across all NfC scale items

# 402 count.answers.NfC: Sum of answers given on NfC scale

# 403 averageNfC: Average NFC value across 18 items

# 404 Q322a: Education (Q322) recoded as binary 1= college degree or higher, 0 = less than college degree

# 405 Numeracy value based on answers in 276-279 (see Cokely et al. 2012 for adaptive test version)

# 406 Condition2: (Produce/ Dairy/Protein)

407 format: (percent/ gram)

408-422 cue1-cue15: cue list for each participant, merging 30-44, 60-63 and 68-83 into a list of 1-15 generated rules per participant

423-512 rules.coded.Airfreight.1.3 - rules.coded.Don.t.kow.3.6.position: Binary variables indicating whether participant has generated a specific rule, and if variable name ends on ‘position’ if it was generated as first, second, third, .. .etc rule

513 rules.coded.data.raw.Condition2: Condition

514 count.rules.mf: Number of meaningful rules (anything that could potentially be used as a rule and is no nonsense text)

515 count.rules.nmf: Number of rules (anything that is non-meaningful text in text input fields)

516 count.rules: Number of rules generated overall

517 count.rules.dk: 1=participant indicates “don’t know”, else 0

518 perc.rules.mf: Sum of meaningful rules per participant

519-533 c1.inf-c15.inf: Informativeness ratings for cues 1-15 (1-7 scale)

534-574 Airfreight.1.3.w.inf-Uncategorizable.3.6.w.inf: XXX

575 sum.inf.true.cont: Sum of true GHG emissions saved by rules generated by each participant, according to life cycle analyses from climate and environmental sciences

576 mean.inf.cont: Average informativeness of rules generated, based on 576/ 514

577 most.informative: 1=participant generated most informative rule in food group and identified it as the most informative rule, 0 participant did not generate it or rated it as less informative than other rules generated

578-601 C1.field.true – C6.organic.true: Estimates for GHG emissions saved by applying each pre-selected rule that participants made an estimate for. Values were based on life cycle analyses from climate and environmental sciences (see SI of [Kause, Bruine de Bruin, Millward-Hopkins & Olsson, 2019](https://iopscience.iop.org/article/10.1088/1748-9326/ab465d))

602-625 C1.field.true.z – C6.organic.true: z standardised estimates for GHG emissions saved by applying each rule that participants made an estimate for. Values were based on life cycle analyses from climate and environmental sciences (see SI of [Kause, Bruine de Bruin, Millward-Hopkins & Olsson, 2019](https://iopscience.iop.org/article/10.1088/1748-9326/ab465d))

629-649 C1.field.n-C6.organic.n: Participants’ numerical estimates about how many GHG emissions were saved by applying each of the pre-selected rules (transformed into numerical format in R).

650-673 C6.field.dev - C6.organic.dev: Deviation between estimates made by participants (629-649) and estimates according to life cycle analyses from climate and environmental sciences (578-601)

674-697 C6.field.dev.abs - C6.organic.dev.abs: Absolute deviation between estimates made by participants (629-649) and estimates according to life cycle analyses from climate and environmental sciences (578-601)

698-721 C1.field.z - C6.organic.z: z-standardized numerical estimates about how many GHG emissions were saved by applying each of the pre-selected rules (629-649)

722-745 C1.field.dev.z - C6.organic.dev.z: z-standardized Deviation between estimates made by participants and estimates according to life cycle analyses from climate and environmental sciences (650-673)

746-757 C4.field.gram-C6.organic.gram: Estimates made in % condition, transformed into gram

759-769 C4.field.gram.dev-C6.organic.gram.dev: Deviation between estimates made by participants and estimates according to life cycle analyses from climate and environmental sciences (see SI of [Kause, Bruine de Bruin, Millward-Hopkins & Olsson, 2019](https://iopscience.iop.org/article/10.1088/1748-9326/ab465d))

770-781 C4.field.gram.dev.abs-C6.organic.gram.dev.abs: Absolute deviation between estimates made by participants and estimates according to life cycle analyses from climate and environmental sciences (see SI of [Kause, Bruine de Bruin, Millward-Hopkins & Olsson, 2019](https://iopscience.iop.org/article/10.1088/1748-9326/ab465d))

782-785 Q1.estimates-Q4.estimates: Numerical estimates from all conditions merged into four variables

786-809 c1.conf.field-c6.conf.organic: Confidence into each numerical estimate (1-7 scale).

810 averageConfidence: Average of confidence ratings, for all four estimates made in each condition.

811 est.missing.any: 0 if none is missing, 1 if 1 or more estimates are missing

812 count.missings: Continuous. Number of estimates missing.

813 proportion.missings: 4 divided by count.missings (812)

* 1. complete-compl: Unknown.

1. **Description of analysis file**

**R Code for Analysis**

The codefile reports all models used for the analysis reported in [Kause, Bruine de Bruin, Millward-Hopkins & Olsson (2019)](https://iopscience.iop.org/article/10.1088/1748-9326/ab465d)