

# The effects of “reduce” and “eliminate” appeals on individual meat consumption

October 2016

**Bobbie NJ Macdonald\***  
Animal Welfare Action Lab<sup>†</sup>  
Stanford University  
bmacdonald@awalab.org

**Krystal D Caldwell**  
Animal Welfare Action Lab  
kcaldwell@awalab.org

**Gregory D Boese**  
Simon Fraser University  
gboese@sfu.ca

## 1. INTRODUCTION

Meat consumption poses a major societal problem in the eyes of many environmentalists and health practitioners, alongside animal welfare advocates who have long drawn attention to the ethical problems of intensive livestock production. However, in contrast to the large bodies of experimental research that have been devoted to other health-related and environmental behaviors (e.g. smoking, physical exercise, electricity usage, recycling),<sup>1</sup> there is strikingly little research that examines the effectiveness of different interventions and messaging appeals aimed at encouraging individuals to reduce their meat consumption.

To address this problem, we conducted a three-wave survey experiment examining the effects of two diet change appeals on self-reported meat consumption and attitudes: a *reduce* appeal that encourages individuals to reduce their meat consumption but not necessarily eliminate it entirely, and an *eliminate* appeal that encourages individuals to completely give up eating meat. We find that both the *reduce* and *eliminate* appeals led to significant reductions in self-reported meat consumption five weeks after treatment exposure, on the order of 7.1% and 5.8%, respectively. In addition, both appeals led to shifts in attitudes towards factory farming and perceptions of social norms about meat-eating in the US. However, we find no evidence that a *reduce* is any more or less effective than an *eliminate* appeal.

These findings have important practical implications for health practitioners, environmentalists, and animal advocates, offering strong evidence that a short news article containing a simple appeal can influence individual diets and attitudes five weeks later. These are the first experimental results to our knowledge that demonstrate persistent effects of a simple anti-meat appeal over an extended period of time.

## 2. RELATED WORK

Vegetarianism, as a phenomenon of individual choice, has been the subject of a growing literature examining individual motivations for (and barriers to) going vegetarian, the general factors that predict the adoption of a vegetarian diet, reasons for vegetarian recidivism, attitudes towards meat, and the ways in which vegetarians and meat-eaters view one another (see Ruby, 2012; Loughnan et al., 2014). For instance, Piazza et al. (2015) demonstrate that individual justifications for eating meat fall into one of four main categories (the “4Ns”): it is normal, it is natural, it is nice, and it is necessary. In another study, Minson and Monin (2011) show that meat-eaters evaluate vegetarians more negatively when perceiving vegetarians as holding a “holier-than-thou” mentality.

However, the vast majority of the literature on the causes of vegetarianism is observational, failing to *experimentally* examine the effectiveness of interventions for influencing individual meat consumption. This is an important oversight, since environmentalists, health practitioners, and animal welfare advocates use a wide range of message appeals and other interventions for encouraging individuals to eat less meat, yet these advocates lack rigorous evidence on what works.

The effectiveness of messaging appeals has

---

\* Corresponding author. Media inquiries may be directed to Brian Kateman at [brian@reducetarian.org](mailto:brian@reducetarian.org). This study was pre-registered at [osf.io/44z7j](https://osf.io/44z7j). Funding for this study was generously provided by the Reducetarian Foundation. We thank Brian Kateman, Peter Hurford, and Kieran Greig for their helpful comments on survey design.

<sup>†</sup> <http://www.awalab.org/>

<sup>1</sup>See, for instance, Goode et al. (2012); Price (2014); Thomas and Sharp (2013); Cialdini (2003)

been examined extensively in nutrition and health education, where common goals are to encourage weight loss, exercise, and healthy eating habits. For instance, Gallagher and Updegraff (2012) summarize the results of 94 peer-reviewed studies in a meta-analysis of the effects of gain/loss message framings on prevention behaviors (e.g. smoking cessation, physical activity), showing that gain-framed messages – such as “Eating healthy will help you lose weight” – rather than loss-framed messages – such as “Not eating healthy will make you gain weight” – were more effective at promoting illness prevention behaviors (e.g. smoking cessation, skin cancer prevention, physical activity). Similarly, Goode et al. (2012) conduct a systematic review of telephone-delivered interventions for encouraging physical activity, while Noar et al. (2007) review the effects of tailored print health interventions on health behavior changes – finding that health information which has been tailored to individuals is more effective than un-tailored messages at changing health-related behaviors.

In animal advocacy, a small but growing number of studies have examined the effectiveness of persuasive messages. Most closely related to our study, Humane League Labs (2015b) examined whether a *reduce* or *eliminate* appeal is more effective at reducing individual meat consumption by comparing three pro-vegetarian flyers against one another (animal cruelty appeal versus abolitionist appeal versus environmental appeal), finding that a cruelty message is more effective than abolitionist and environmental messages at prompting intentions to change diet. However, this study suffers from several shortcomings. First, no control group was used. Second, the flyer text and images differed in many ways from one another, making it difficult to determine what aspect of the flyers were responsible for observed differences in outcomes. Third, this study measured intentions to reduce meat consumption immediately after treatment exposure, rather than measuring actual or self-reported dietary intake several weeks following exposure to the treatment. Similarly, in a study of public attitudes towards gestation stalls, Ryan et al. (2015) find that survey participants were less likely to support the use of gestation stalls for sows immediately after being exposed to information about the stalls, yet these authors only examine immediate effects and do not examine impacts on

self-reported diets.

A second study by Humane League Labs (2015a) compared four pro-vegetarian messages distributed via leaflets on college campuses. The leaflets either asked participants to eat vegan, eat vegetarian, eat less meat, or cut out/cut back on meat and animal products (the “combination” message). A control group that received no booklet. Oddly, the authors show that participants in the control group reduced their meat consumption more than any other group. In addition, this study was hindered by the fact that the control group (n=57) had half as many participants as the treatment groups, and nearly half of the participants in the control group contained missing data (n=25 with missing data). The study also suffered from a low response rate in the endline survey (37%), which raises the possibility that mean differences in self-reported diets reflects differences in group composition (due to self-selection) rather than messaging effects.

## 3. METHODS

### 3.1. Research Questions

In this study we address two main questions. First, does reading an article about factory farming inspire people to reduce their consumption of animal products? Second, is it more effective to ask readers to stop eating meat entirely, or to ask them to reduce their meat consumption without necessarily eliminating it from their diet altogether?

### 3.2. Participants

A total of 3,076 participants were recruited from Amazon Mechanical Turk (MTurk) in June 2016 to participate in a three-wave survey spread out over eight weeks.<sup>2</sup> The study was advertised as a “lifestyle and dietary choices” survey. 2,685 participants completed the second/treatment survey (87.29% response rate, one week after baseline) and 2,237 completed the endline survey (72.40% response rate, five weeks after baseline).

### 3.3. Data collection

Data was collected in three survey waves:

1. **Baseline survey:** Participants were asked about demographics, current levels of meat

---

<sup>2</sup>MTurk recruitment was restricted to respondents residing in the US with approval rates above 95%. Participants were paid \$0.50 for completing the baseline survey, \$0.50 for completing the treatment survey, and \$1.00 for completing the endline survey.

consumption, attitudes towards farmed animals and eating meat, and other potential moderators.

2. **Treatment survey:** One week after the baseline survey began, the same participants were contacted via MTurk and asked to complete a second survey. Participants were randomly assigned to one of three experimental arms: (1) control message; (2) *reduce* appeal; or (3) *eliminate* appeal. Participants in each arm were given a news article to read, followed by a short survey about their attitudes towards factory farming and whether they planned to change their meat consumption. Block randomization – based on self-reported meat consumption and other variables measured at baseline – was used to assign participants to experimental arms in order to minimize sampling noise.
3. **Endline survey:** Five weeks after the treatment was deployed, the same participants were again contacted via MTurk and asked to complete an endline survey on their current levels of meat consumption, attitudes towards farmed animals, and other outcome measures (see Section 3.4).

### 3.4. Experimental conditions

Participants were randomly assigned to one of three conditions:

- In the *reduce* condition, participants were shown a news article about factory farming that described a growing number of people who are reducing - but not entirely eliminating - their meat consumption and encouraged readers to do the same.
- In the *eliminate* condition, participants were shown a news article about factory farming that described a growing number of people who are eliminating meat from their diet and encouraged readers to do the same.
- In the *control* condition, participants were shown a news article outlining the benefits of walking as a form of exercise. It did not discuss diet or encourage readers to change their diet.

The full text of all experimental conditions is provided in the supplementary materials.

### 3.5. Outcome measures

All variables described in this section were measured in both the baseline and endline surveys, except for the following: ratings of animal intelligence, number of discussions held about the negative aspects of meat consumption, and number of media items viewed about the negative aspects of meat consumption. Full details on all questions are provided in the supplementary materials.

**Self-reported meat consumption.** Participants were asked to complete a food frequency questionnaire (FFQ) for their diet over the past 30 days. Food items included dairy, eggs, meat (e.g., chicken, turkey, fish, pork, beef), fruits, vegetables, nuts, grains, beans, and vegetarian meats. Participants were also asked two single item questions, “How often do you eat meat?” (1-6 scale from *never* to *every day*) and “Do you intend to reduce your meat consumption over the next 30 days?” (1=*greatly decrease*, 7=*greatly increase*).

The main outcome measure used in the analyses below is “Total meat servings (FFQ)”, which sums all servings of meat across chicken, turkey, fish, pork, beef, and “other meats”. This variable does *not* include dairy or egg consumption.

**Attitudes towards factory farming.** We collected four attitudinal measures on meat consumption and factory farming using a 1-7 scale ranging from *strongly disagree* to *strongly agree*. Participants were asked to rate whether purchasing animal products contributes to animal suffering, whether most animals have a good standard of living, whether raising animals for food contributes to environmental degradation, and whether most people would be healthier if they ate less meat. Participants were also asked to select the two most important things they take into consideration when deciding what animal products to purchase, such as the price, nutritional content, welfare standards, and taste.

**Perceptions of social norms.** On a seven point scale, participants were asked whether they agreed or disagreed with the statement that more and more people in the US are reducing their meat consumption (1=*strongly disagree*, 7=*strongly agree*).

**Perceptions of vegetarians.** Participants were asked to locate their feelings towards vegetarians on a feeling thermometer, where a rating of 0 meant that they felt cold and negative towards vegetarians and 10 meant they felt warm and positive.

**Perceptions of animal intelligence.** Partici-

pants were asked to rate seven types of animals on a 1-7 scale in terms of perceived intelligence (1=*very unintelligent*, 7=*very intelligent*).

**Information exposure and discussions.** Participants were asked how many pieces of media they had read or watched and how many personal discussions they had in the past 30 days that related to the negative implications of meat consumption or the treatment of animals raised for food. These two measures range from 0 to “10 or more”.

**Difficulty of reducing meat consumption.** On a seven point scale ranging from *very difficult* (1) to *very easy* (7), participants were asked to rate how difficult it would be to completely eliminate meat from their diet over the next year and how difficult it would be to reduce their meat consumption 25% over the next year.

### 3.6. Specifications

To estimate the average treatment effects (ATE) of the *reduce* and *eliminate* appeals relative to the control group, we examine differences in group means by regressing each of the outcome measures (described in Section 3.4) on binary indicators for each appeal and a vector of binary indicators representing the 955 randomized block groups. For all outcomes that were measured in baseline and endline, we report treatment effects for both the *change* between baseline and endline, as well as treatment effects on the endline measure alone. To reduce the influence of outliers, all analyses below are reported after removing the top 2.5% and bottom 2.5% of responses. All figures below show estimated ATEs surrounded by 95% confidence intervals.

To address concerns about multiple hypothesis testing, we restrict the false discovery rate (FDR) using the weighted FDR control method proposed in Benjamini and Hochberg (1997).<sup>3</sup> Tables 1 and 2 in the Supplementary materials illustrate which hypothesis tests we still reject at the 95% level of significance after applying these corrections. These multiple hypothesis testing corrections do not alter the main findings described below.

<sup>3</sup>The weighted Benjamini and Hochberg (1997) method allows researchers to place greater weight on hypotheses that are more important. Since self-reported meat consumption is the primary outcome of interest in this study, we place 50% of all weight on the “Total meat servings (FFQ) (change)” and “Total meat servings (FFQ) (endline)” measures. The remaining 50% weight is evenly distributed across all other hypothesis tests.

## 4. RESULTS

### 4.1. Effects on meat consumption

Figure 1 illustrates the main results, showing mean differences for each treatment appeal relative to the control group in terms of total meat servings (FFQ). Specifically, the top panel of Figure 1 illustrates mean differences in total meat consumption measured at endline only, while the bottom panel of Figure 1 shows treatment effects on the *change* in total meat consumption between baseline and endline. Together, these figures show that the *reduce* and *eliminate* messages decreased self-reported meat consumption over the preceding 30 days, on the order of 1.1 servings of meat for the *reduce* appeal ( $p = 0.028$ ) and 0.90 servings of meat for the *eliminate* appeal ( $p = 0.002$ ). As shown in Figure 11 in the supplementary materials, these effects are similar when using a single-item measure of meat consumption (“how often do you eat meat?”). With an average of 15.39 servings of meat over the past 30 days in the control group, these effects equate to a 7.1% and 5.8% reduction in meat consumption, respectively.

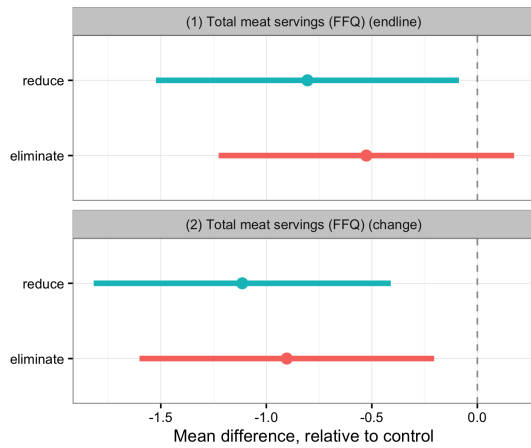
These effects do *not* significantly differ when disaggregating by gender or age, suggesting that these reductions in meat consumption are not being overwhelmingly driven by one gender or by individuals from a particular age group. Finally, while both appeals led to decreases in self-reported meat consumption relative to the control group, the difference in treatment effects between the *reduce* and *eliminate* conditions are not statistically significant. These similarities in the effectiveness of the two appeals are reflected across all analyses presented below.

### 4.2. What types of animal products were affected?

Figure 2 disaggregates the previous results, showing the effects of the two treatment appeals on eight categories of animal product consumption measured in the FFQ, as well as consumption of vegetarian meats. All categories of animal products shown in Figure 2 were included in the measurement of total meat consumption shown in Figure 1, with the exception of dairy (Panel 1), eggs (Panel 8), and vegetarian meats (Panel 9).

These results show that the effects on aggregate servings of meat consumed cannot be explained by individual shifts in a single category of animal products. Instead, the aggregate effects on meat

Figure 1: Treatment effects on total meat consumption (FFQ)



**Fig. 1.** This figure displays the estimated treatment effects of the *reduce* condition (green) and the *eliminate* condition (red) compared to the control group. Panels with the “(change)” suffix show treatment effects on the change between baseline and endline surveys, while Panels with the “(endline)” suffix show treatment effects on endline measures only. 95% confidence intervals are shown.

consumption appear to be driven by small reductions in various animal products, with weak evidence that participants in the *reduce* and *eliminate* conditions reported eating somewhat less pork, chicken, and fish in particular. There are no significant effects on self-reported consumption on dairy, eggs, or vegetarian meats.

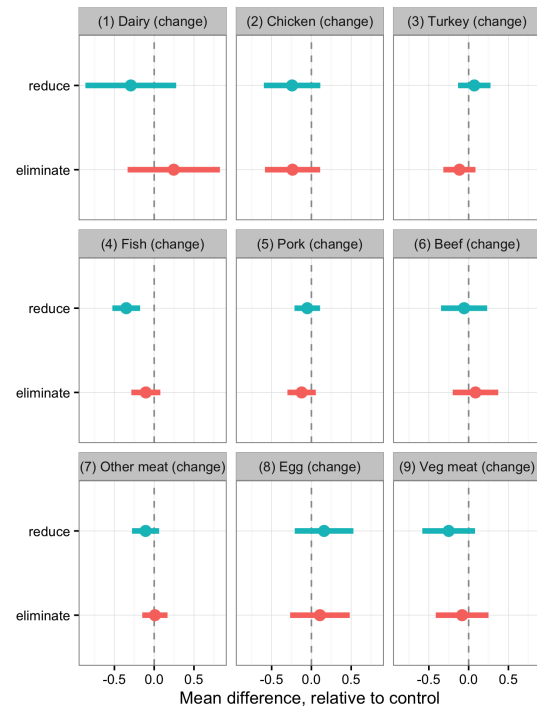
### 4.3. Effects on attitudes towards meat consumption

In Figure 3, Panels 1-4 illustrate the effects of the *reduce* and *eliminate* appeals on four measures of attitudes towards factory farming and meat consumption, showing significant effects (at the 95% level) across all four measures in the direction of more sympathy and awareness of the negative implications of meat consumption. These effects are similar for both appeals.

### 4.4. Effects on intentions

Figure 4 show little evidence that either treatment arm had a significant effect on *intentions* to change meat consumption. Although participants in both treatment arms were more likely to express an intent to decrease their meat consumption in the endline survey compared to baseline, control participants reported a similar trend. Given the discrepancy between this finding and the effects on self-reported meat consumption reported above, the conclusions of previous studies that use inten-

Figure 2: Treatment effects by servings of each type of animal product (change)



tions as a proxy for subsequent meat consumption may be misleading.

### 4.5. Effects on perceptions of social norms and warmth towards vegetarians

Panel 5 of Figure 3 shows that neither the *reduce* or *eliminate* appeal had any effect on respondent feelings of warmth towards vegetarians (*reduce* appeal:  $ATE = 0.062$ ,  $p = 0.478$ ; *eliminate*:  $ATE = -0.016$ ,  $p = 0.861$ ). Conversely, Panel 6 of Figure 3 shows that both appeals had a positive effect on perceptions of descriptive norms, such that participants in each treatment group were significantly more likely to perceive that more and more people in the US are reducing their meat consumption. These results are consistent with the content of the appeals, since the messages explicitly cited increasing numbers of Americans reducing their meat consumption but did not specifically encourage participants to alter their perceptions of the character traits of vegetarians.

### 4.6. Effects on perceptions of animal intelligence

Figure 5 shows no evidence that participants in either treatment arm were any more likely than participants in the control group to rate farmed an-

Figure 3: Treatment effects on attitudes (change)

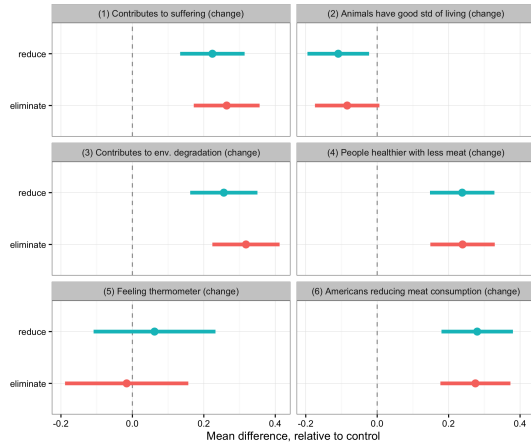
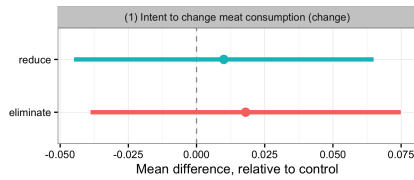
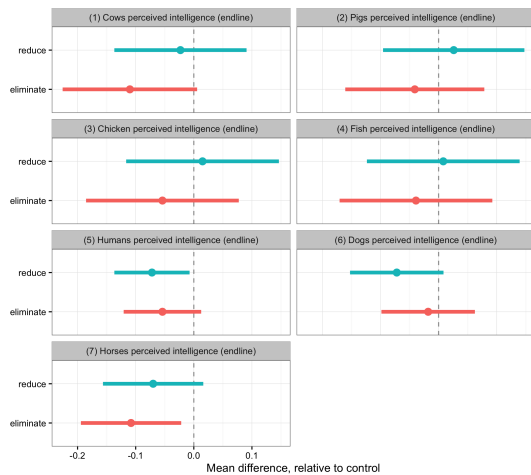


Figure 4: Treatment effects on intent to change meat consumption (change)



imals (cows, pigs, chicken, fish) as more intelligent. These results are consistent with the content of the appeals, since neither appeal made explicit references to the intelligence of farmed animals.

Figure 5: Treatment effects on perceptions of animal intelligence (endline)

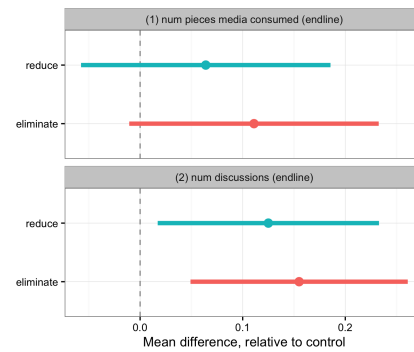


#### 4.7. Effects on information sharing and exposure

Figure 6 examines information sharing and exposure via media and personal discussions about the negative implications of meat consumption.

Both appeals led to an increase in the number of discussions that participants had over the past 30 days about the negative implications of meat consumption. Compared to an average of 0.85 discussions in the control group, participants in the *reduce* arm reported an additional 0.125 discussions on average ( $p = 0.023$ ), while participants in the *eliminate* arm reported an additional 0.155 discussions on average ( $p = 0.004$ ). Effects on the number of pieces of media that participants reported viewing were in the similar direction, but not significant at the 95% level.

Figure 6: Treatment effects on information exposure (endline)



#### 4.8. Effects on perceived difficulty of reducing meat consumption

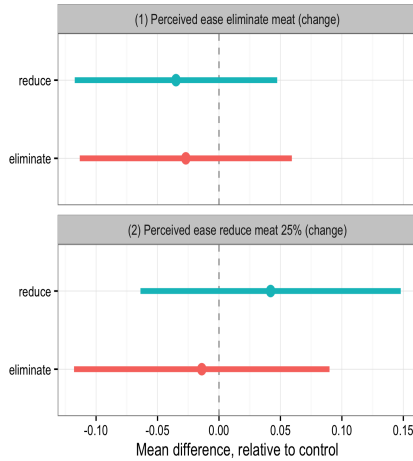
Finally, we examine participant perceptions of how difficult it would be to (a) entirely eliminate meat from their diet and (b) reduce meat consumption by 25%. Figure 7 shows that, over the course of the study, participants in both treatment arms did not update their perceptions of how difficult it would be to either eliminate meat from their diet entirely (Panel 1) or reduce their meat consumption by 25% (Panel 2).

#### 4.9. Limitations

Three potential limitations of this study are worth noting.

**Social desirability.** First, social desirability among respondents could explain a significant portion of the observed treatment effects. Specifically, respondents in the *reduce* and *eliminate* conditions could have reported less meat consumption in the endline survey *not* because they actually ate less meat, but because they inferred that the study authors wanted them to reduce their meat consumption, leading participants to intentionally or unintentionally deflate their self-

Figure 7: Treatment effects on perceived difficulty of reducing meat consumption (change)



reports. Although we cannot directly test for the confounding effects of social desirability, we believe this concern is minimal for three reasons. First, respondents completed the endline survey five weeks after being exposed to treatment, allowing for a long period of memory decay. In particular, since our participant pool consisted of M-Turk workers, many of whom complete a large number of surveys every day, it is unlikely that many of our participants made the conscious link between the treatment and endline survey five weeks later.

Second, if social desirability were a major concern, we would expect to observe large positive treatment effects on intentions to reduce meat consumption and perceptions of animal intelligence. However, as described above, neither appeal had significant effects on intentions to change meat consumption or perceived animal intelligence (despite reductions in self-reported meat consumption).

Third, if social desirability was driving the main results, we might expect to observe significant treatment effects on self-reported consumption of fruits and vegetables, since the entire study was framed as a “diet and lifestyle study” and the treatment appeals focused explicitly on diet choices (while the control discussed the benefits of walking). However, Figures 8 and 9 show that neither treatment appeal had significant effects on self-reported non-meat FFQ categories or on intentions to eat more fruit/vegetables. As a result, the main effects of the appeals on self-reported meat consumption and attitudes towards meat consumption are unlikely to be an artifact of the data or a result

of social desirability.

Figure 8: Effects on non-meat FFQ categories

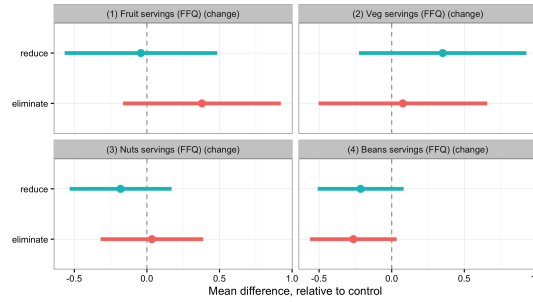
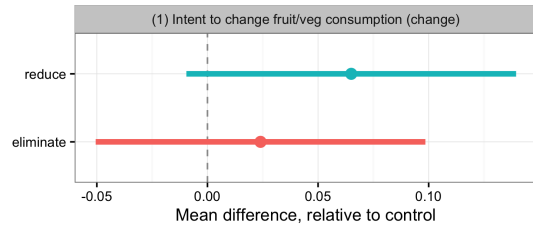


Figure 9: Effects on intentions to change fruit/veg consumption



**Lack of behavioral measures.** Second, although we improve on the existing literature by measuring self-reported meat consumption alongside a battery of attitudinal and intention measures, we have no way of verifying the self-reported consumption measures against actual meat consumption.

**Long-term effects.** Third, although we found no significant differences in effects between the *reduce* and *eliminate* treatments five weeks after exposure to the appeals, we do not know whether the treatment effects are likely to persist longer for one appeal over the other. Given the well-documented high rates of recidivism among vegetarians (Faunalytics, 2014), it is possible that respondents who were shown the *eliminate* appeal (and thus would have been more likely to adopt an “all-or-nothing” mindset) would be more likely to fail to retain their reductions in meat consumption than respondents who were shown the *reduce* appeal.

## 5. CONCLUDING REMARKS

In this study, we have shown that simple *reduce* and *eliminate* appeals in the form of news articles can lead to significant reductions in individual meat consumption five weeks later. These ap-

peals also influenced the attitudes of participants towards meat consumption and intensive livestock production, in addition to increasing the number of discussions participants had about these topics over the past 30 days. Overall, these effects are remarkably consistent across the *reduce* and *eliminate* appeals, with few differences in effectiveness between the two appeals. As a result, both messaging strategies appear to be effective tools for changing individual meat consumption and attitudes. However, the persistence of these effects for periods longer than five weeks remains to be examined.

This study raises several avenues for further research. First, as the number of messaging experiments in animal advocacy continues to grow, there is a need to directly test large numbers of messaging appeals against one another. Second, further work should examine the persistence of these effects for several months or more. Third, additional research should collect behavioral measures and examine the external validity of these results in real-world settings through the use of field experiments.

## REFERENCES

- Benjamini, Y. and Y. Hochberg (1997). Multiple Hypotheses Testing with Weights. *Scandinavian Journal of Statistics* 24(3), 407–418.
- Cialdini, R. B. (2003, aug). Crafting normative messages to protect the environment. *Current Directions in Psychological Science* 12(4), 105–109.
- Faunalytics (2014). Study of Current and Former Vegetarians and Vegans. *Report*.
- Gallagher, K. M. and J. A. Updegraff (2012). Health Message Framing Effects on Attitudes, Intentions, and Behavior: A Meta-analytic Review. *Annals of Behavioral Medicine* 43(1), 101–116.
- Goode, A. D., M. M. Reeves, and E. G. Eakin (2012). Telephone-Delivered Interventions for Physical Activity and Dietary Behavior Change. *American Journal of Preventive Medicine* 42(1), 81–88.
- Humane League Labs (2015a). Report: Does Encouraging The Public To Eat Vegan, Eat Vegetarian, Eat Less Meat, or Cut Out Or Cut Back On Meat And Other Animal Products Lead To The Most Diet Change? (August).
- Humane League Labs (2015b). Report: Is Animal Cruelty, Environmental or Purity (Abolitionist) Messaging More Effective At Inspiring People To Change Their Diet?
- Loughnan, S., B. Bastian, and N. Haslam (2014). The Psychology of Eating Animals. *Current Directions in Psychological Science*.
- Minson, J. a. and B. Monin (2011, jul). Do-Gooder Derogation: Disparaging Morally Motivated Minorities to Defuse Anticipated Re-proach. *Social Psychological and Personality Science* 3(2), 200–207.
- Noar, S. M., C. N. Benac, and M. S. Harris (2007). Does tailoring matter? Meta-analytic review of tailored print health behavior change interventions. *Psychological bulletin* 133(4), 673–693.
- Piazza, J., M. B. Ruby, S. Loughnan, M. Luong, J. Kulik, H. M. Watkins, and M. Seigerman (2015). Rationalizing meat consumption. The 4Ns. *Appetite* 91, 114–128.
- Price, M. K. (2014). Using field experiments to address environmental externalities and resource scarcity: major lessons learned and new directions for future research. *Oxford Review of Economic Policy* 30(4), 621–638.
- Ruby, M. B. (2012, feb). Vegetarianism. A blossoming field of study. *Appetite* 58(1), 141–50.
- Ryan, E. B., D. Fraser, and D. M. Weary (2015). Public Attitudes to Housing Systems for Pregnant Pigs. *Plos One* 10(11), e0141878.
- Thomas, C. and V. Sharp (2013, oct). Understanding the normalisation of recycling behaviour and its implications for other pro-environmental behaviours: A review of social norms and recycling. *Resources, Conservation and Recycling* 79, 11–20.



## SUPPORTING INFORMATION

**Note on table interpretation.** Tables 1 and 2 show that treatment and control groups are well balanced on pre-treatment outcomes, as expected in a randomized experiment.

All other tables contain point estimates of the treatment effects from the figures shown in the Results section (Section 3.6). These tables show treatment and control group means, as well as estimated treatment effects, robust standard errors, and p-values. The estimated treatment effects shown in these tables differ slightly from a simple difference in means because of the inclusion of block covariates, which purge noise from the parameter estimates and increase statistical power.

Figure 10: Distribution of FFQ total sum meat, by experimental condition

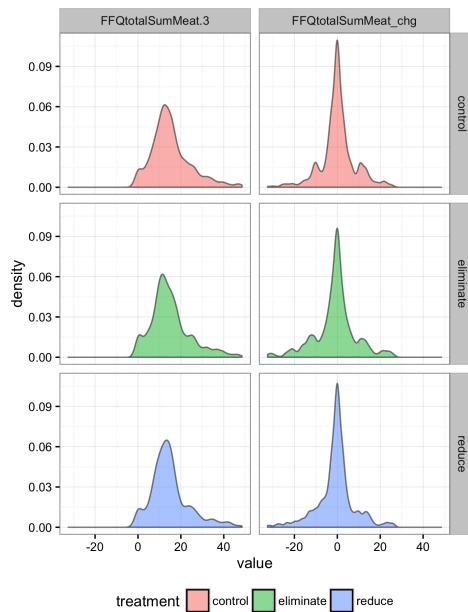


Figure 11: Treatment effects on “how often eat meat”

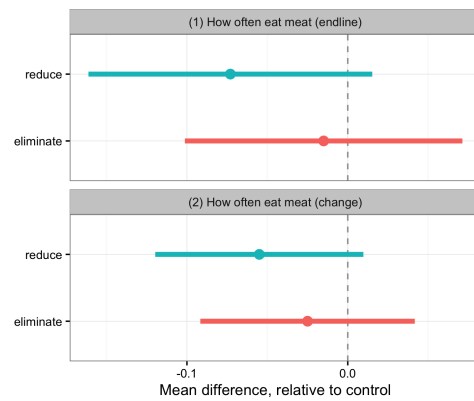


Table 1: Balance table for reduce appeal

	Treatment		Control		Difference	
	Mean	N	Mean	N	Mean diff.	p-value
Dairy servings (FFQ) (baseline)	9.64	739	9.50	741	0.14	0.70
Chicken servings (FFQ) (baseline)	4.53	728	4.46	729	0.08	0.72
Turkey servings (FFQ) (baseline)	2.21	735	2.18	734	0.03	0.87
Fish servings (FFQ) (baseline)	2.14	735	2.15	735	−0.02	0.90
Pork servings (FFQ) (baseline)	2.21	737	2.18	741	0.03	0.83
Beef servings (FFQ) (baseline)	3.54	729	3.45	736	0.09	0.64
Other meat servings (FFQ) (baseline)	1.42	732	1.19	734	0.22	0.12
Egg servings (FFQ) (baseline)	4.07	729	4.52	734	−0.45	0.04
Veg meat servings (FFQ) (baseline)	1.70	725	1.68	736	0.02	0.91
Total meat servings (FFQ) (baseline)	15.55	719	15.37	726	0.17	0.74
How often eat meat (baseline)	5.11	739	5.06	742	0.05	0.51
Contributes to suffering (baseline)	4.09	737	4.13	741	−0.04	0.68
Animals have good std of living (baseline)	3.09	723	3.01	732	0.08	0.28
Contributes to env. degradation (baseline)	4.12	738	4.13	742	−0.02	0.85
People healthier with less meat (baseline)	4.44	738	4.38	742	0.06	0.48
Feeling thermometer (baseline)	6.42	671	6.59	655	−0.18	0.19
Americans reducing meat consumption (baseline)	4.24	720	4.23	726	0.01	0.84
Intent to change meat consumption (baseline)	3.80	716	3.83	715	−0.03	0.29
Perceived ease eliminate meat (baseline)	2.25	738	2.32	742	−0.07	0.42
Perceived ease reduce meat 25% (baseline)	4.04	738	4.08	742	−0.05	0.62
Intent to change fruit/veg consumption (baseline)	4.88	737	4.97	737	−0.09	0.05
Fruit servings (FFQ) (baseline)	8.88	737	9.04	742	−0.16	0.67
Veg servings (FFQ) (baseline)	9.81	734	10.61	737	−0.80	0.03
Nuts servings (FFQ) (baseline)	3.66	723	3.79	726	−0.13	0.55
Beans servings (FFQ) (baseline)	3.27	731	3.07	737	0.20	0.29
Grain servings (FFQ) (baseline)	10.83	731	10.35	732	0.48	0.20

Table 2: Balance table for eliminate appeal

	Treatment		Control		Difference	
	Mean	N	Mean	N	Mean diff.	p-value
Dairy servings (FFQ) (baseline)	9.37	754	9.50	741	−0.13	0.73
Chicken servings (FFQ) (baseline)	4.60	737	4.46	729	0.14	0.51
Turkey servings (FFQ) (baseline)	2.28	748	2.18	734	0.09	0.54
Fish servings (FFQ) (baseline)	2.19	753	2.15	735	0.03	0.80
Pork servings (FFQ) (baseline)	2.48	751	2.18	741	0.29	0.05
Beef servings (FFQ) (baseline)	3.41	750	3.45	736	−0.04	0.82
Other meat servings (FFQ) (baseline)	1.27	748	1.19	734	0.08	0.55
Egg servings (FFQ) (baseline)	4.41	745	4.52	734	−0.11	0.62
Veg meat servings (FFQ) (baseline)	1.67	748	1.68	736	−0.01	0.96
Total meat servings (FFQ) (baseline)	15.95	738	15.37	726	0.58	0.28
How often eat meat (baseline)	5.11	756	5.06	742	0.05	0.51
Contributes to suffering (baseline)	4.09	755	4.13	741	−0.04	0.67
Animals have good std of living (baseline)	3.02	747	3.01	732	0.01	0.89
Contributes to env. degradation (baseline)	4.08	753	4.13	742	−0.05	0.55
People healthier with less meat (baseline)	4.36	754	4.38	742	−0.02	0.78
Feeling thermometer (baseline)	6.64	698	6.59	655	0.04	0.74
Americans reducing meat consumption (baseline)	4.24	739	4.23	726	0.01	0.87
Intent to change meat consumption (baseline)	3.81	730	3.83	715	−0.02	0.49
Perceived ease eliminate meat (baseline)	2.27	755	2.32	742	−0.05	0.57
Perceived ease reduce meat 25% (baseline)	4.10	756	4.08	742	0.02	0.86
Intent to change fruit/veg consumption (baseline)	4.91	742	4.97	737	−0.06	0.19
Fruit servings (FFQ) (baseline)	8.70	754	9.04	742	−0.34	0.35
Veg servings (FFQ) (baseline)	10.35	745	10.61	737	−0.26	0.49
Nuts servings (FFQ) (baseline)	3.80	743	3.79	726	0.01	0.95
Beans servings (FFQ) (baseline)	3.35	748	3.07	737	0.28	0.14
Grain servings (FFQ) (baseline)	10.39	741	10.35	732	0.04	0.92

Table 3: Reduce appeal effects on main outcomes (with blocking)

	Control mean	Treated mean	Effect	SE	p-value
Total meat servings (FFQ) (endline)	15.39	15.11	−0.80	0.37	0.03
Total meat servings (FFQ) (change)	0.30	−0.79	−1.11	0.36	0.00

Table 4: Eliminate appeal effects on main outcomes (with blocking)

	Control mean	Treated mean	Effect	SE	p-value
Total meat servings (FFQ) (endline)	15.39	14.94	−0.53	0.36	0.14
Total meat servings (FFQ) (change)	0.30	−0.70	−0.90	0.36	0.01

Table 5: Reduce appeal effects on main check outcomes (with blocking)

	Control mean	Treated mean	Effect	SE	p-value
How often eat meat (endline)	5.10	5.10	−0.07	0.04	0.11
How often eat meat (change)	0.02	−0.03	−0.06	0.03	0.09

Table 6: Eliminate appeal effects on main check outcomes (with blocking)

	Control mean	Treated mean	Effect	SE	p-value
How often eat meat (endline)	5.10	5.03	−0.02	0.04	0.74
How often eat meat (change)	0.02	−0.07	−0.02	0.03	0.46

Table 7: Reduce appeal effects on meat breakdown outcomes (with blocking)

	Control mean	Treated mean	Effect	SE	p-value
Dairy (endline)	9.45	9.36	−0.26	0.31	0.39
Chicken (endline)	4.58	4.52	−0.22	0.17	0.18
Turkey (endline)	2.26	2.15	−0.30	0.12	0.01
Fish (endline)	2.38	2.32	−0.25	0.12	0.04
Pork (endline)	2.28	2.19	−0.24	0.10	0.02
Beef (endline)	3.35	3.38	−0.14	0.14	0.31
Other meat (endline)	1.09	1.30	0.01	0.11	0.91
Egg (endline)	4.29	4.18	−0.35	0.18	0.06
Veg meat (endline)	1.66	1.70	−0.15	0.15	0.33
Dairy (change)	−0.05	0.01	−0.29	0.29	0.31
Chicken (change)	0.20	−0.23	−0.24	0.18	0.18
Turkey (change)	−0.03	−0.18	0.07	0.10	0.50
Fish (change)	0.37	0.25	−0.35	0.09	0.00
Pork (change)	−0.21	−0.40	−0.05	0.08	0.53
Beef (change)	−0.04	0.03	−0.06	0.15	0.70
Other meat (change)	−0.09	−0.05	−0.11	0.09	0.21
Egg (change)	−0.27	−0.13	0.16	0.19	0.40
Veg meat (change)	−0.36	−0.35	−0.25	0.17	0.14

Table 8: Eliminate appeal effects on meat breakdown outcomes (with blocking)

	Control mean	Treated mean	Effect	SE	p-value
Dairy (endline)	9.45	9.56	−0.13	0.31	0.66
Chicken (endline)	4.58	4.34	−0.08	0.17	0.66
Turkey (endline)	2.26	2.07	−0.15	0.12	0.22
Fish (endline)	2.38	2.12	−0.04	0.12	0.72
Pork (endline)	2.28	2.00	−0.10	0.11	0.36
Beef (endline)	3.35	3.34	−0.07	0.14	0.63
Other meat (endline)	1.09	1.23	0.14	0.11	0.21
Egg (endline)	4.29	3.93	−0.08	0.18	0.67
Veg meat (endline)	1.66	1.56	0.12	0.15	0.43
Dairy (change)	−0.05	−0.19	0.25	0.30	0.41
Chicken (change)	0.20	−0.18	−0.24	0.18	0.18
Turkey (change)	−0.03	−0.02	−0.12	0.10	0.26
Fish (change)	0.37	0.04	−0.10	0.09	0.26
Pork (change)	−0.21	−0.28	−0.12	0.09	0.18
Beef (change)	−0.04	−0.12	0.09	0.15	0.56
Other meat (change)	−0.09	−0.16	0.01	0.08	0.91
Egg (change)	−0.27	−0.08	0.11	0.19	0.57
Veg meat (change)	−0.36	−0.48	−0.08	0.17	0.63

Table 9: Reduce appeal effects on attitude outcomes (with blocking)

	Control mean	Treated mean	Effect	SE	p-value
Contributes to suffering (endline)	4.20	4.49	0.20	0.06	0.00
Animals have good std of living (endline)	3.06	2.95	-0.08	0.05	0.12
Contributes to env. degradation (endline)	4.23	4.53	0.31	0.06	0.00
People healthier with less meat (endline)	4.45	4.63	0.30	0.06	0.00
Feeling thermometer (endline)	6.75	6.76	-0.07	0.10	0.48
Americans reducing meat consumption (endline)	4.46	4.65	0.22	0.05	0.00
Contributes to suffering (change)	0.10	0.35	0.22	0.05	0.00
Animals have good std of living (change)	0.01	-0.09	-0.11	0.04	0.01
Contributes to env. degradation (change)	0.16	0.44	0.26	0.05	0.00
People healthier with less meat (change)	0.10	0.29	0.24	0.05	0.00
Feeling thermometer (change)	0.25	0.22	0.06	0.09	0.48
Americans reducing meat consumption (change)	0.02	0.26	0.28	0.05	0.00

Table 10: Eliminate appeal effects on attitude outcomes (with blocking)

	Control mean	Treated mean	Effect	SE	p-value
Contributes to suffering (endline)	4.20	4.36	0.29	0.06	0.00
Animals have good std of living (endline)	3.06	2.98	-0.07	0.05	0.18
Contributes to env. degradation (endline)	4.23	4.52	0.31	0.06	0.00
People healthier with less meat (endline)	4.45	4.69	0.26	0.06	0.00
Feeling thermometer (endline)	6.75	6.65	-0.05	0.10	0.64
Americans reducing meat consumption (endline)	4.46	4.61	0.22	0.05	0.00
Contributes to suffering (change)	0.10	0.33	0.26	0.05	0.00
Animals have good std of living (change)	0.01	-0.14	-0.08	0.05	0.07
Contributes to env. degradation (change)	0.16	0.42	0.32	0.05	0.00
People healthier with less meat (change)	0.10	0.29	0.24	0.05	0.00
Feeling thermometer (change)	0.25	0.33	-0.02	0.09	0.86
Americans reducing meat consumption (change)	0.02	0.24	0.28	0.05	0.00

Table 11: Reduce appeal effects on intent outcomes (with blocking)

	Control mean	Treated mean	Effect	SE	p-value
Intent to change meat consumption (endline)	3.75	3.72	-0.07	0.03	0.01
Intent to change meat consumption (change)	-0.09	-0.08	0.01	0.03	0.72

Table 12: Eliminate appeal effects on intent outcomes (with blocking)

	Control mean	Treated mean	Effect	SE	p-value
Intent to change meat consumption (endline)	3.75	3.70	-0.03	0.03	0.32
Intent to change meat consumption (change)	-0.09	-0.09	0.02	0.03	0.54

Table 13: Reduce appeal effects on intelligence outcomes (with blocking)

	Control mean	Treated mean	Effect	SE	p-value
Cows perceived intelligence (endline)	4.49	4.46	−0.02	0.06	0.70
Pigs perceived intelligence (endline)	5.04	5.09	0.03	0.06	0.67
Chicken perceived intelligence (endline)	3.71	3.70	0.02	0.07	0.82
Fish perceived intelligence (endline)	3.34	3.33	0.01	0.07	0.91
Humans perceived intelligence (endline)	6.49	6.48	−0.07	0.03	0.03
Dogs perceived intelligence (endline)	5.87	5.87	−0.07	0.04	0.08
Horses perceived intelligence (endline)	5.61	5.56	−0.07	0.04	0.11

Table 14: Eliminate appeal effects on intelligence outcomes (with blocking)

	Control mean	Treated mean	Effect	SE	p-value
Cows perceived intelligence (endline)	4.49	4.48	−0.11	0.06	0.06
Pigs perceived intelligence (endline)	5.04	5.04	−0.04	0.06	0.50
Chicken perceived intelligence (endline)	3.71	3.72	−0.05	0.07	0.42
Fish perceived intelligence (endline)	3.34	3.33	−0.04	0.07	0.56
Humans perceived intelligence (endline)	6.49	6.46	−0.05	0.03	0.11
Dogs perceived intelligence (endline)	5.87	5.79	−0.02	0.04	0.66
Horses perceived intelligence (endline)	5.61	5.49	−0.11	0.04	0.02

Table 15: Reduce appeal effects on exposure outcomes (with blocking)

	Control mean	Treated mean	Effect	SE	p-value
num pieces media consumed (endline)	1.06	1.21	0.06	0.06	0.30
num discussions (endline)	0.85	1.02	0.12	0.06	0.02

Table 16: Eliminate appeal effects on exposure outcomes (with blocking)

	Control mean	Treated mean	Effect	SE	p-value
num pieces media consumed (endline)	1.06	1.13	0.11	0.06	0.08
num discussions (endline)	0.85	0.95	0.16	0.05	0.00

Table 17: Reduce appeal effects on difficulty outcomes (with blocking)

	Control mean	Treated mean	Effect	SE	p-value
Perceived ease eliminate meat (endline)	2.35	2.32	-0.01	0.06	0.80
Perceived ease reduce meat 25% (endline)	4.05	4.07	0.11	0.06	0.07
Perceived ease eliminate meat (change)	0.05	0.01	-0.04	0.04	0.40
Perceived ease reduce meat 25% (change)	-0.03	-0.05	0.04	0.05	0.44

Table 18: Eliminate appeal effects on difficulty outcomes (with blocking)

	Control mean	Treated mean	Effect	SE	p-value
Perceived ease eliminate meat (endline)	2.35	2.27	0.00	0.06	0.92
Perceived ease reduce meat 25% (endline)	4.05	4.12	0.03	0.06	0.64
Perceived ease eliminate meat (change)	0.05	0.00	-0.03	0.04	0.54
Perceived ease reduce meat 25% (change)	-0.03	0.03	-0.01	0.05	0.79

Table 19: Results of multiple hypothesis testing corrections using weighted FDR

	pvalue	rejected
Contributes to suffering (endline)	0.000	Yes
Contributes to env. degradation (endline)	0.000	Yes
People healthier with less meat (endline)	0.000	Yes
Americans reducing meat consumption (endline)	0.000	Yes
Contributes to suffering (change)	0.000	Yes
Contributes to env. degradation (change)	0.000	Yes
People healthier with less meat (change)	0.000	Yes
Americans reducing meat consumption (change)	0.000	Yes
num discussions (endline)	0.004	Yes
Total meat servings (FFQ) (change)	0.011	Yes
Horses perceived intelligence (endline)	0.015	Yes
Cows perceived intelligence (endline)	0.062	No
Animals have good std of living (change)	0.068	No
num pieces media consumed (endline)	0.075	No
Beans servings (FFQ) (change)	0.083	No
Humans perceived intelligence (endline)	0.110	No
Total meat servings (FFQ) (endline)	0.141	No
Fruit servings (FFQ) (change)	0.172	No
Pork servings (FFQ) (change)	0.176	No
Chicken servings (FFQ) (change)	0.179	No
Animals have good std of living (endline)	0.181	No
Other meat servings (FFQ) (endline)	0.207	No
Turkey servings (FFQ) (endline)	0.221	No
Intent to change fruit/veg consumption (endline)	0.254	No
Turkey servings (FFQ) (change)	0.260	No
Fish servings (FFQ) (change)	0.260	No
Intent to change meat consumption (endline)	0.324	No
Pork servings (FFQ) (endline)	0.364	No
Veg servings (FFQ) (endline)	0.367	No
Nuts servings (FFQ) (endline)	0.370	No



Table 20: Results of multiple hypothesis testing corrections using weighted FDR

	pvalue	rejected
Fish servings (FFQ) (change)	0.000	Yes
Contributes to suffering (endline)	0.000	Yes
Contributes to env. degradation (endline)	0.000	Yes
People healthier with less meat (endline)	0.000	Yes
Americans reducing meat consumption (endline)	0.000	Yes
Contributes to suffering (change)	0.000	Yes
Contributes to env. degradation (change)	0.000	Yes
People healthier with less meat (change)	0.000	Yes
Americans reducing meat consumption (change)	0.000	Yes
Total meat servings (FFQ) (change)	0.002	Yes
Intent to change meat consumption (endline)	0.012	Yes
Turkey servings (FFQ) (endline)	0.012	Yes
Animals have good std of living (change)	0.014	Yes
Pork servings (FFQ) (endline)	0.018	Yes
num discussions (endline)	0.023	Yes
Total meat servings (FFQ) (endline)	0.028	Yes
Humans perceived intelligence (endline)	0.030	Yes
Fish servings (FFQ) (endline)	0.039	No
Egg servings (FFQ) (endline)	0.056	No
Perceived ease reduce meat 25% (endline)	0.072	No
Dogs perceived intelligence (endline)	0.079	No
Intent to change fruit/veg consumption (change)	0.088	No
How often eat meat (change)	0.094	No
How often eat meat (endline)	0.108	No
Horses perceived intelligence (endline)	0.112	No
Animals have good std of living (endline)	0.120	No
Veg meat servings (FFQ) (change)	0.137	No
Beans servings (FFQ) (change)	0.155	No
Chicken servings (FFQ) (endline)	0.178	No
Chicken servings (FFQ) (change)	0.179	No

---

# Rise of people pledging to become “reducetarian”

PUBLISHED: 18 June 2016

---



---

*Latest campaign encourages people to go “reducetarian” with respect to their own diets*

---

You can't help feeling that eating less meat is becoming unavoidably mainstream, with more and more people choosing to become “reducetarians” by reducing their consumption of red meat, poultry, and seafood without cutting these products out of their diets entirely. Recent research from data analysts at Mintel has shown that one in eight adults in the US are eating less meat, including up to one in five young adults. In the US, over six million people have reduced their meat intake, and that number is rising.

To learn more, I reached out to Jack Thompson, host of a *Future of Food* talk entitled “Why I’m a Reducetarian” and the founder of a new campaign to encourage Americans to reduce their meat intake. A 25-year-old New Yorker who grew up eating a standard American diet, Thompson shared his thoughts with me on why he’s urging people to join the movement and pledge to become reducetarian.

“Some people feel that eating meat is an ‘all-or-nothing’ choice: you either stop eating meat entirely or continue eating it as usual,” said Thompson. “Our campaign encourages people to take the middle road and go ‘reducetarian’ by reducing their meat consumption without entirely cutting it out of their diets.”

So take the pledge to live a reducetarian lifestyle and make yourself, your cardiologist, and a whole lot of farm animals very happy,” Thompson added. “Some people think that changing their diet is difficult, but the truth is that there are so many alternatives to meat available today that it’s never been easier to eat less of it.”

According to Thompson, the unsustainability of today’s animal agriculture system is what inspired him to create the reducetarianism campaign. “For one thing, our passion for meat has an enormous negative impact on the environment. Of the 40% of the earth’s surface used for agriculture, a whopping third is used just to grow animal (not people) food. In the United States, studies show, raising livestock accounts for 55 percent of land erosion, 37 percent of pesticide use, and 50 percent of antibiotic consumption. Globally, livestock are responsible for about 18 percent of greenhouse gas emissions—farting cows are doing the atmosphere no good—and food animals, collectively, slurp up about a third of the world’s fresh water,” he said in his Future of Food Talk.



*Jack Thompson during his Future of Food talk.*



*Pig on a factory farm in a gestation crate.*

“On a purely personal level, there’s also the issue of our own health and well-being. A wealth of medical evidence shows that people whose diets are low in saturated fats—as found in meat and high-fat dairy products—and high in fruits and vegetables tend to lead healthier, longer lives,” he added.

Finally, since many of the animals we eat are raised in wretched conditions on factory farms, eating meat forces us to contend with the moral issue of animal cruelty. Because of over-crowded and poor sanitary conditions, infections run rampant and the animals cannot engage in many of their natural social behaviors. Hens, for example, typically live out their entire lives in crowded cages, while female pigs are forced into crates which are so restrictive that they cannot even turn around. Every year, over 60 billion animals are killed in factory farms where they are subject to severe abuse and suffering for most of their short lives.

The good news, according to Thompson, is that people are beginning to do something about it. Thanks to a growing number of undercover investigations that expose the suffering of these animals, more and more consumers are thinking about reducing their meat consumption. “Increasingly, Americans now consider ‘factory farming’ to be a dirty word and are taking action by becoming a reducetarian,” said Thompson.

“Since we’ve started this campaign, we have only received positive feedback from people who have taken the pledge to become a reducetarian,” said Thompson. “They feel better physically, and feel great about the choices they’re making to help the environment and animals.”

---

---

# Rise of people pledging to become vegetarian

PUBLISHED: 18 June 2016

---



*Latest campaign encourages people to go vegetarian with respect to their own diets*

---

You can't help feeling that eliminating meat is becoming unavoidably mainstream, with more and more people choosing to become vegetarians by cutting out red meat, poultry, and seafood from their diets. Recent research from data analysts at Mintel has shown that one in eight adults in the US have stopped eating meat, including up to one in five young adults. In the US, over six million people have eliminated meat from their diets, and that number is rising.

To learn more, I reached out to Jack Thompson, host of a *Future of Food* talk entitled "Why I'm a Vegetarian" and the founder of a new campaign to encourage Americans to leave meat off their plates. A 25-year-old New Yorker who grew up eating a standard American diet, Thompson shared his thoughts with me on why he's urging people to join the movement and pledge to become vegetarian.

"Pledge to live a vegetarian lifestyle and make yourself, your cardiologist, and a whole lot of farm animals very happy," said Thompson. "Some people think that changing their diet is difficult, but the truth is that there are so many alternatives to meat available today that it's never been easier to cut it out."

According to Thompson, the unsustainability of today's animal agriculture system is what inspired him to create the vegetarianism campaign. "For one thing, our passion for meat has an enormous negative impact on the environment. Of the 40% of the earth's surface used for agriculture, a whopping third is used just to grow animal (not people) food. In the United States, studies show, raising livestock accounts for 55 percent of land erosion, 37 percent of pesticide use, and 50 percent of antibiotic consumption. Globally, livestock are responsible for about 18 percent of greenhouse gas emissions—farting cows are doing the atmosphere no good—and food animals, collectively, slurp up about a third of the world's fresh water," he said in his *Future of Food* Talk.



*Jack Thompson during his Future of Food talk.*



*Pig on a factory farm in a gestation crate.*

"On a purely personal level, there's also the issue of our own health and well-being. A wealth of medical evidence shows that people whose diets are low in saturated fats—as found in meat and high-fat dairy products—and high in fruits and vegetables tend to lead healthier, longer lives," he added.

Finally, since many of the animals we eat are raised in wretched conditions on factory farms, eating meat forces us to contend with the moral issue of animal cruelty. Because of over-crowded and poor sanitary conditions, infections run rampant and the animals cannot engage in many of their natural social behaviors. Hens, for example, typically live out their entire lives in crowded cages, while female pigs are forced into crates which are so restrictive that they cannot even turn around. Every year, over 60 billion animals are killed in factory farms where they are subject to severe abuse and suffering for most of their short lives.

The good news, according to Thompson, is that people are beginning to do something about it. Thanks to a growing number of undercover investigations that expose the suffering of these animals, more and more consumers are thinking about eliminating meat from their diet. "Increasingly, Americans now consider 'factory farming' to be a dirty word and are taking action by becoming a vegetarian," said Thompson.

"Since we've started this campaign, we have only received positive feedback from people who have taken the pledge to become a vegetarian," said Thompson. "They feel better physically, and feel great about the choices they're making to help the environment and animals."

---

---

# The Simple Yet Potent Exercise That Benefits Everyone

*PUBLISHED: 18 June 2016*

---



Walking. We all know it's good for us. But why? Not only is walking great for our health, but it has a profound socioeconomic impact on our communities. Due to its widespread benefits, the Surgeon General has declared a call to action to promote walking and increase walkability in our communities. But, what really makes walking so great?

Regular physical activity is essential for good health. It reduces the risk of chronic diseases (like heart disease, stroke, certain cancers and type 2 diabetes), promotes healthy weight, reduces the risk for depression, lowers blood pressure and decreases stress. All it takes is 30 minutes a day. Moderate walking is a terrific form of exercise, as it doesn't over-stress that body like some more intense activities can. Walking is good for your body, plain and simple — but you already knew that...



What you may not have considered is the socioeconomic effect walking can have on communities. The 2nd National Walking Summit, held this past fall in Washington D.C., focused on the sometimes shocking correlations between zip code and overall health. Individuals from communities with less walkability were significantly more likely to be obese or suffer from chronic disease than those from very walkable, well-designed communities. If a community isn't designed with walking in mind, its citizens are less likely to do it due to the inconvenience and inherent danger. This encourages a more sedentary, unhealthy lifestyle.

Walkable communities are associated with healthy citizens. If kids are able to walk or bike to school safely, they are already accomplishing most of their required minimum of physical activity by simply getting to and from school. Safe modes of pedestrian transportation are essential in the battle against childhood obesity, and are beneficial for adults as well.

Communities with sidewalks, lighting, access to water, greenery, parks and playgrounds generally fare better, with healthier, happier and more economically successful citizens. And keeping permanent affordable housing options can reduce widespread gentrification, allowing the low-income to stay rooted in the community as real estate prices may rise due to revitalization of the neighborhood. To walk in safety should be a basic human right in every community, no matter what age, race, religion or wealth pervades there.

The promotion of walking is perhaps the intersection of improved health, social justice, land conservation and neighborhood revitalization. It's important that no American is denied access to safe walking. With more and more Americans starting to get moving and walking each year, it's important for our communities to keep up.

Join the Call to Action. Start walking more and promote daily walking in your community. Work to make small changes in your community so that we can ensure health and basic rights for all.

---

## 1. Self-Reported Meat Consumption

Thinking about your diet over the past 30 days, please select the responses that best describe how often you eat each of the following types of food. *[The image below shows the approximate size of a single serving for different categories of food.]*

	Frequency				
	never	less than 1 time per week	1-6 times per week	1-3 times per day	4 or more times per day
Dairy (cheese, milk, yogurt, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Chicken (fried chicken, in soup, grilled chicken, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Turkey (turkey dinner, turkey sandwich, in soup, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fish and seafood (tuna, shrimp, crab, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pork (ham, pork chops, ribs, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Beef (steak, meatballs, in tacos, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other meat (duck, lamb, venison, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Eggs (omelet, in salad, in baked goods, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Fruit (apples, bananas, oranges, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vegetables (carrots, mushrooms, potatoes, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nuts (almonds, cashews, walnuts, peanuts, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Beans (soy, chickpeas, chili, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Veggie meats (tofu, veggie dogs, veggie burgers, tempeh, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Grains (breads, pasta, rice, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How often do you eat meat? By "meat", we are referring to red meat (e.g. beef, pork), white and other meat (e.g. eggs, chicken, turkey, duck), and fish and seafood (e.g. tuna, shrimp, crab).

- ☐ Every day
- ☐ Every other day
- ☐ 2-3 Times a Week
- ☐ Once a Week
- ☐ Less than once a week
- ☐ Never

Do you intend to change your meat consumption over the next month (30 days)? Meat includes chicken, turkey, beef, pork, duck, fish, seafood, etc. "I intend to \_\_\_\_\_ my meat consumption over the next month."

- ☐ Greatly decrease
- ☐ Decrease
- ☐ Somewhat Decrease
- ☐ Maintain current levels
- ☐ Somewhat increase
- ☐ Increase
- ☐ Greatly increase



## 2. Attitudes Towards Factory Farming

Please indicate the extent to which you agree or disagree with the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Purchasing animal products (like meat, eggs, dairy) contributes to the suffering of animals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Most animals that are raised for food have a good standard of living	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Raising animals for food contributes to environmental degradation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Most people would be healthier if they ate less meat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What are the TWO most important things that you take into consideration when deciding what meat, eggs, and dairy to purchase at the grocery store? This includes chicken breasts, ground beef, pork chops, eggs, fish fillets, shrimp, etc. You may select up to TWO of the criteria below.

- ☐ Price of the product
- ☐ Nutritional content of the product
- ☐ Whether the product is antibiotic and/or hormone free
- ☐ Whether the animals had a good standard of living
- ☐ How the product tastes
- ☐ The environmental impacts of the product
- ☐ Other (please specify): \_\_\_\_\_

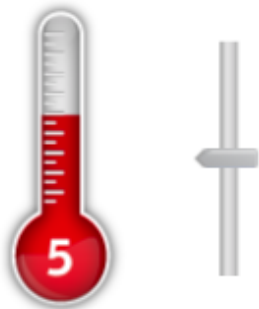
### 3. Perceptions of Social Norms

Please indicate the extent to which you agree or disagree with the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
More and more people in the US are reducing their meat consumption	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### 4. Perceptions of Vegetarians

We would like to get your feelings toward people who eat a vegetarian diet on a "feeling thermometer." A rating of 0 means you feel as cold and negative as possible toward people who eat a vegetarian diet. A rating of 10 means you feel as warm and positive as possible toward people who eat a vegetarian diet. You would rate people who eat a vegetarian diet at 5 if you do not feel particularly positive or negative toward this group.





## 5. Perceptions of Animal Intelligence and Suffering

Please rate each of the following according to the extent that you think they are intelligent or unintelligent:

	Very unintellige nt	Unintellige nt	Somewhat unintellige nt	Neither intelligent nor unintellige nt	Somewha t intelligen t	Intelligen t	Very intelligen t
Cows	○	○	○	○	○	○	○
Pigs	○	○	○	○	○	○	○
Chicke n	○	○	○	○	○	○	○
Fish	○	○	○	○	○	○	○
Human s	○	○	○	○	○	○	○
Dogs	○	○	○	○	○	○	○
Horses	○	○	○	○	○	○	○

Please rate each of the following according to the extent that you think they are capable of experiencing pain/suffering:

	Not capable of experiencing pain/suffering at all	(2)	(3)	(4)	(5)	(6)	Highly capable of experiencing pain/suffering
Cows	○	○	○	○	○	○	○
Pigs	○	○	○	○	○	○	○
Chicken	○	○	○	○	○	○	○
Fish	○	○	○	○	○	○	○
Humans	○	○	○	○	○	○	○
Dogs	○	○	○	○	○	○	○
Horses	○	○	○	○	○	○	○

## **6. Information Exposure and Discussions**

In the past 30 days, how many separate pieces of media (e.g. news stories, blogs, documentaries, books, ...) have you read/watched that discuss the negative implications of meat consumption or the treatment of animals raised for food?

- ☐ 0 pieces of media
- ☐ 1 piece of media
- ☐ 2 pieces of media
- ☐ 3 pieces of media
- ☐ 4 pieces of media
- ☐ 5 pieces of media
- ☐ 6 pieces of media
- ☐ 7 pieces of media
- ☐ 8 pieces of media
- ☐ 9 pieces of media
- ☐ 10 or more pieces of media

In the past 30 days, with how many people have you discussed meat consumption or the treatment of animals raised for food? This could include friends, family, co-workers, acquaintances, strangers, etc.

- ☐ 0 people
- ☐ 1 person
- ☐ 2 people
- ☐ 3 people
- ☐ 4 people
- ☐ 5 people
- ☐ 6 people
- ☐ 7 people
- ☐ 8 people
- ☐ 9 people
- ☐ 10 or more people

## 7. Difficulty of Reducing Meat Consumption

Imagine you decided to become vegetarian, and thus quit eating meat entirely. How do you think your friends and family would respond?

	Definitely not	Probably not	Maybe	Probably yes	Definitely yes
My friends and family would be supportive if I decided to quit eating meat.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My friends and family would think or say negative things about me behind my back if I decided to quit eating meat.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please rate the following according to how difficult you think each goal would be for you. Think about how much effort it would take, whether you feel like it is something you could possibly do, and whether it is something you could stick with over time.

[illegible]