

2022

## Impact of Disclosing Labeling Information on Consumer Sensory Evaluation of Ground Beef From a Similar Source

K. M. Harr  
*Kansas State University, keaylah@k-state.edu*

E. S. Beyer  
*Kansas State University, erbeyer@ksu.edu*

K. J. Farmer  
*Kansas State University, kjfarmer@ksu.edu*

*See next page for additional authors*

Follow this and additional works at: <https://newprairiepress.org/kaesrr>



Part of the [Beef Science Commons](#), and the [Meat Science Commons](#)

---

### Recommended Citation

Harr, K. M.; Beyer, E. S.; Farmer, K. J.; Davis, S. G.; Chao, M. D.; Vipham, J. L.; Zumbaugh, M. D.; and O'Quinn, T. G. (2022) "Impact of Disclosing Labeling Information on Consumer Sensory Evaluation of Ground Beef From a Similar Source," *Kansas Agricultural Experiment Station Research Reports*: Vol. 8: Iss. 1. <https://doi.org/10.4148/2378-5977.8236>

This report is brought to you for free and open access by New Prairie Press. It has been accepted for inclusion in Kansas Agricultural Experiment Station Research Reports by an authorized administrator of New Prairie Press. Copyright 2022 the Author(s). Contents of this publication may be freely reproduced for educational purposes. All other rights reserved. Brand names appearing in this publication are for product identification purposes only. No endorsement is intended, nor is criticism implied of similar products not mentioned. K-State Research and Extension is an equal opportunity provider and employer.



---

## Impact of Disclosing Labeling Information on Consumer Sensory Evaluation of Ground Beef From a Similar Source

### Authors

K. M. Harr, E. S. Beyer, K. J. Farmer, S. G. Davis, M. D. Chao, J. L. Vipham, M. D. Zumbaugh, and T. G. O'Quinn

## Impact of Disclosing Labeling Information on Consumer Sensory Evaluation of Ground Beef From a Similar Source

*K.M. Harr, E.S. Beyer, K.J. Farmer, S.G. Davis, M.D. Chao,  
J.L. Vipham, M.D. Zumbaugh, and T.G. O'Quinn*

### Abstract

The objective of this study was to determine the effect of providing labeling information prior to evaluation on consumers' palatability ratings of ground beef from a similar source. Ground beef (80% lean/20% fat) chubs ( $n = 15$ ) were procured from the same production lot and day and fabricated into patties. Prior to fabrication, each chub was assigned randomly to one consumer panel session. Pairs of patties were then randomly assigned to different labeling terms: all natural, animal raised without antibiotics (WA), animal raised without added hormones (WH) fresh never frozen (FNF), grass-fed, locally sourced, premium quality, organic (ORG) and a blank sample (NONE). Each sample was evaluated by consumers ( $n = 105$ ) for tenderness, juiciness, flavor liking, texture liking, overall liking, and purchasing intent on 0-to-100-point line scales, as well as was rated as either acceptable or unacceptable for each trait. Additionally, consumers were provided with labeling information about each of the samples prior to evaluation. No differences ( $P > 0.05$ ) were found by consumers for tenderness, juiciness, texture liking, overall liking, tenderness acceptability, flavor acceptability, and texture acceptability across the samples evaluated for all 8 treatments. When evaluating flavor liking, samples labeled as grass-fed had a larger increase ( $P < 0.05$ ) in ratings than samples labeled as WA, WH, and premium quality. Moreover, when products were labeled as all natural, WA, WH, FNF, locally sourced, premium quality and ORG there was a large increase ( $P < 0.05$ ) in the overall liking ratings from consumers. Labeling samples as WA resulted in a larger decrease ( $P < 0.05$ ) in the percentage of samples rated as acceptable overall when compared to all other treatments. Ultimately, adding production claims that consumers recognize improves the palatability experience perceived by the consumer.

### Introduction

Now more than ever consumers are tasked to choose products with numerous labels and marketing terms, compared to when products were just marketed on the commodity itself with minimal labeling and marketing surrounding them. Previous meat science research evaluating various labeling and production practices has all been conducted in manners in which actual product quality differences existed. However, little information exists regarding how the consumer's eating experience is impacted by the information utilized to purchase their products. Therefore, the objective of

this study was to evaluate the impact of providing additional labeling information on consumers' palatability ratings of ground beef from the same source.

## Experimental Procedures

Prior to fabrication of ground beef into 0.25 lb patties, chubs ( $n = 15$ ) of 80% lean/20% fat ground beef were procured from a commercial purveyor to be from the same production lot and day and were transported to the Kansas State University Meat Lab. Chubs were randomly assigned to one consumer panel session, in order to keep samples as identical as possible to each other. Patties were kept in pairs and were randomly labeled with the labeling terms: all natural, animal raised without added antibiotics (WA), animal raised without added hormones (WH), fresh never frozen (FNF), grass-fed, locally sourced, premium quality, U.S. Department of Agriculture organic (ORG), and a blank sample (NONE). Consumers ( $n = 105$ ) were recruited, offered each sample, and they completed a digital survey during the evaluation of samples. For each sample, consumers rated the tenderness, juiciness, flavor liking, texture liking, overall liking, and purchasing intent on 0-to-100-point line scales. Additionally, each trait was rated as acceptable or unacceptable by consumers. Prior to sample evaluation, consumers were informed about the labeling information and no information was provided for the NONE sample.

## Results and Discussion

When labeling ground beef as locally sourced, there was an increase in consumer ratings across all of the palatability traits evaluated (Figure 1). The events of 2020 and 2021 have set the stage for consumers to be more adapted to wanting foods that are locally sourced, which are likely a direct cause of the results we found. Previous research looking at other food products labeled as being locally sourced has found a perceived quality “halo” around locally sourced products despite there being no differences in product quality (Kumpulainen et al., 2018; Bacig and Young, 2019). Similarly, other authors also report there being a perceived health halo around products labeled as organic, grass-fed, and all natural (Van Loo et al., 2010; Dominick et al., 2018).

Consumers in the current study rated grass-fed, ORG, and all natural as similar ( $P > 0.05$ ) for flavor liking and purchasing intent. They rated a similar ( $P > 0.05$ ) percentage of those samples as acceptable for juiciness, and overall. We hypothesize along with other authors, that consumers group these three labeling terms into a similar category and therefore, expect there to be minimal differences in taste and quality among them despite the differences in what products can be labeled as such (Ellison et al., 2017; Carabante et al., 2018). Alternatively, of the ground beef evaluated by consumers, labeling ground beef as being from an animal raised without added antibiotics tended to have a negative perception associated with it (Figure 2). In an initial assessment of consumers in this study, they rated antibiotic usage as being similar in importance to other production claims evaluated; however, they did not carry this over into their eating experience.

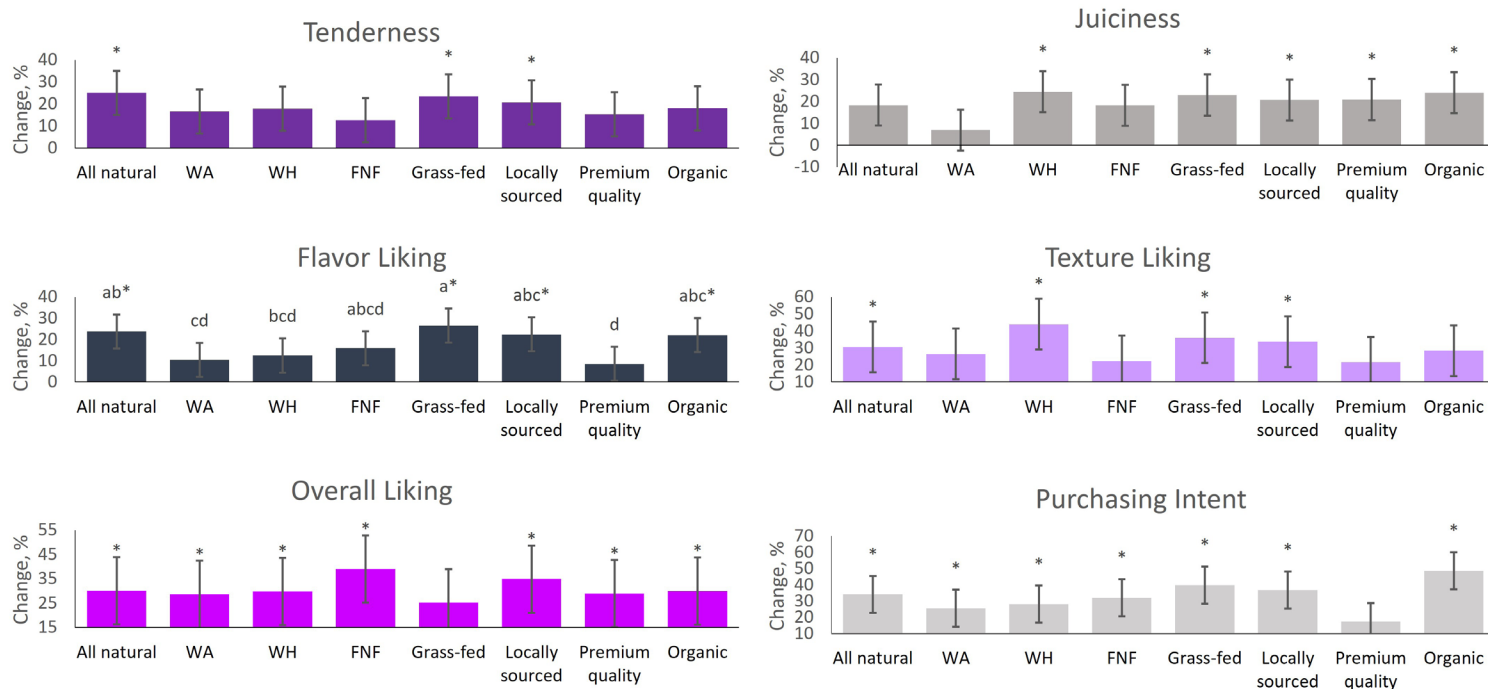
## Implications

The entire beef industry has focused heavily on the marketing and branding of the beef products offered to consumers. Results from this study indicate that consumers' eating experiences are swayed by the labeling terms found on packages. Ultimately, those

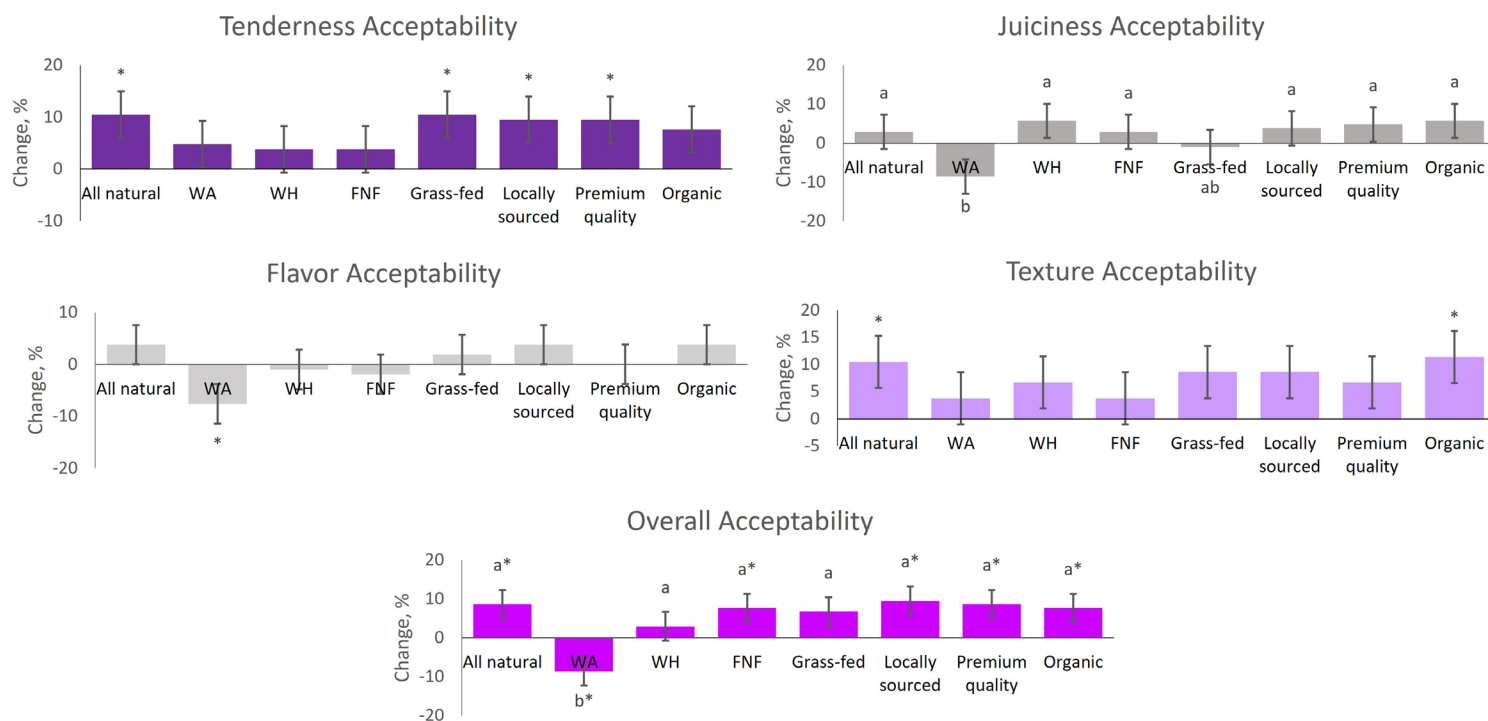
marketing products to consumers need to carefully select and consider what information is being put on the labeling and marketing that surrounds products as the information has an impact on consumers palatability experience.

## References

- Bacig, M., and C. A. Young. 2019. The halo effect created for restaurants that source food locally. *Journal of Foodservice Business Research* 22:209-238. doi:10.1080/15378020.2019.1592654.
- Carabante, K. M., R. Ardoin, G. Scaglia, F. Malekian, M. Khachaturyan, M. E. Janes, and W. Prinyawiwatkul. 2018. Consumer Acceptance, Emotional Response, and Purchase Intent of Rib-Eye Steaks from Grass-Fed Steers, and Effects of Health Benefit Information on Consumer Perception. *J. Food Sci.* 83:2560-2570. doi:10.1111/1750-3841.14324.
- Dominick, S. R., C. Fullerton, N. J. O. Widmar, and H. Wang. 2018. Consumer Associations with the “All Natural” Food Label. *J. Food Prod. Mark.* 24:249-262. doi:10.1080/10454446.2017.1285262.
- Ellison, B., K. Brooks, and T. Mieno. 2017. Which livestock production claims matter most to consumers? *Agric. Hum. Values* 34:819-831. doi:10.1007/s10460-017-9777-9.
- Kumpulainen, T., A. Vainio, M. Sandell, and A. Hopia. 2018. The effect of gender, age and product type on the origin induced food product experience among young consumers in Finland. *Appetite* 123:101-107. doi:10.1016/j.appet.2017.12.011.
- Van Loo, E., V. Caputo, R. M. Nayga Jr, J. F. Meullenet, P. G. Crandall, and S. C. Ricke. 2010. Effect of organic poultry purchase frequency on consumer attitudes toward organic poultry meat. *J. Food Sci.* 75:S384-S397. doi:10.1111/j.1750-3841.2010.01775.x.



**Figure 1. Change in sensory scores due to labeling information disclosure prior to sample evaluation.** <sup>abcd</sup> Least square means within the same trait lacking a common superscript differ ( $P < 0.05$ ). \* Mean differs from zero ( $P < 0.05$ ). WA = without antibiotics. WH = without added hormones. FNF = fresh never frozen.



**Figure 2. Change in the percentage of samples rated as acceptable by consumers due to labeling information disclosure prior to sample evaluation.** <sup>ab</sup> Least square means within the same trait lacking a common superscript differ ( $P < 0.05$ ). \* Mean differs from 0 ( $P < 0.05$ ). WA = without antibiotics. WH = without added hormones. FNF = fresh never frozen.