

Food Labeling

Dynamics of Consumer Response

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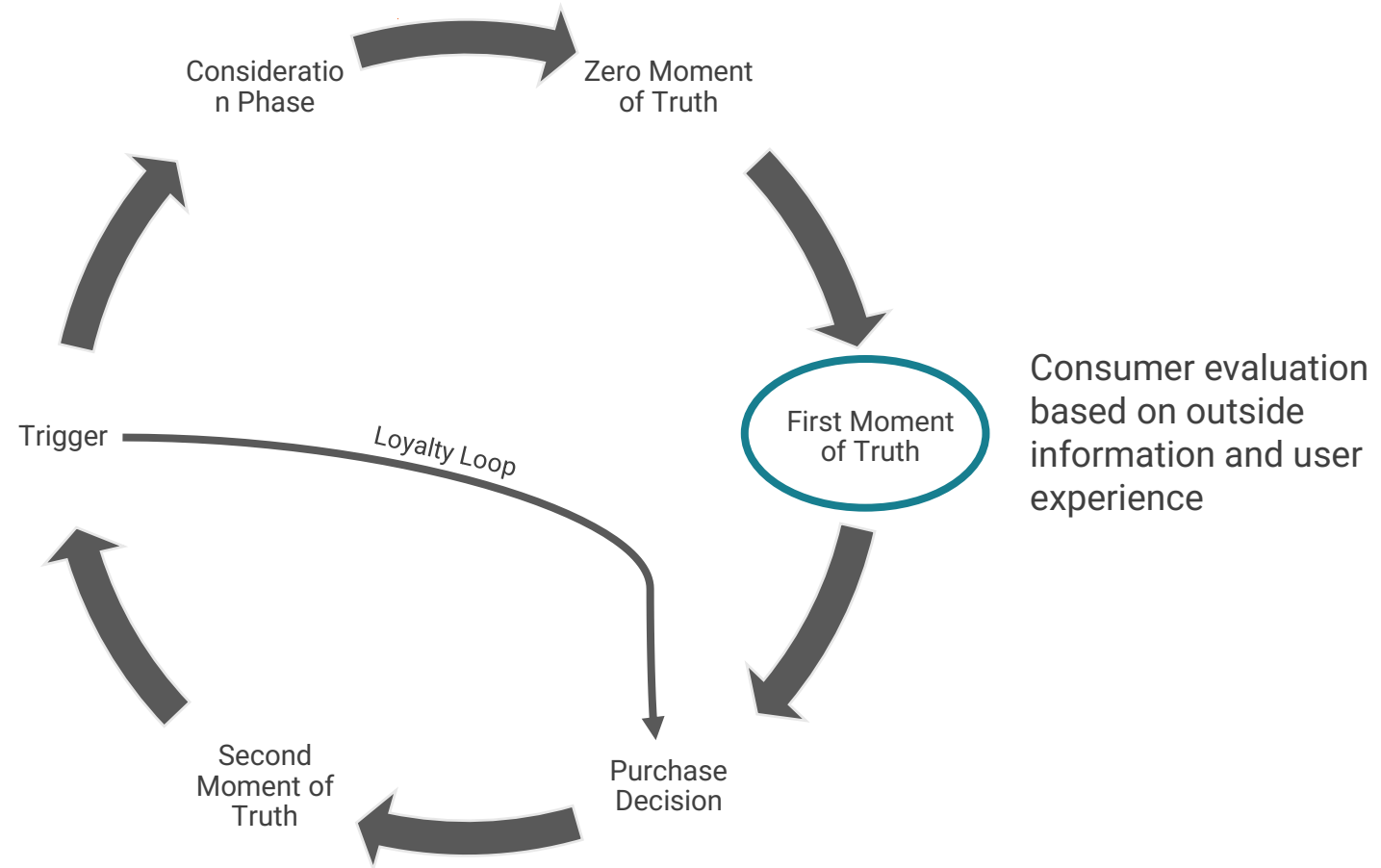
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Consumer Acceptance Cycle.



Choice Experiment Design.

Research Hypothesis #1

Can consumer purchase behavior be influenced by providing information?

Safety/shelf-life/convenience

eBeam processed/eBeam irradiated

Number	Definition	Group #1	Group #2	Shorthand
H01	Safety information affects respondents' WTP for eBeam processed meals	Control	Treatment 1	$WTP^{\text{Treatment 1}} > WTP^{\text{Control}}$
H02	Safety information affects respondents' WTP for eBeam irradiated meals	Control	Treatment 4	$WTP^{\text{Treatment 4}} > WTP^{\text{Control}}$
H03	Shelf-life information affects respondents' WTP for eBeam processed meals	Control	Treatment 2	$WTP^{\text{Treatment 2}} > WTP^{\text{Control}}$
H04	Shelf-life information affects respondents' WTP for eBeam irradiated meals	Control	Treatment 5	$WTP^{\text{Treatment 5}} > WTP^{\text{Control}}$
H05	Convenience information affects respondents' WTP for eBeam processed meals	Control	Treatment 3	$WTP^{\text{Treatment 3}} > WTP^{\text{Control}}$
H06	Convenience information affects respondents' WTP for eBeam irradiated meals	Control	Treatment 6	$WTP^{\text{Treatment 6}} > WTP^{\text{Control}}$

Choice Experiment Design.

Research Hypothesis #2

Is there a difference in consumer response when the word “irradiation” is used versus when “processing” is used?

Research Hypothesis #3

What kind of information is most beneficial in swaying consumer opinion?

H07	Consumer evaluations for eBeam <i>processed</i> meals differ when safety information vs. shelf-life information was provided	Treatment 1	Treatment 2	$WTP^{\text{Treatment 1}} > WTP^{\text{Treatment 2}}$
H08	Consumer evaluations for eBeam <i>irradiated</i> meals differ when safety information vs. shelf-life information was provided	Treatment 4	Treatment 5	$WTP^{\text{Treatment 4}} > WTP^{\text{Treatment 5}}$
H09	Consumer evaluations for eBeam <i>processed</i> meals differ when safety information vs. convenience information was provided	Treatment 1	Treatment 3	$WTP^{\text{Treatment 1}} > WTP^{\text{Treatment 3}}$
H010	Consumer evaluations for eBeam <i>irradiated</i> meals differ when safety information vs. convenience information was provided	Treatment 4	Treatment 6	$WTP^{\text{Treatment 4}} > WTP^{\text{Treatment 6}}$
H011	Consumer evaluations for eBeam <i>processed</i> meals differ when sensory information vs. convenience information was provided	Treatment 2	Treatment 3	$WTP^{\text{Treatment 2}} > WTP^{\text{Treatment 3}}$
H012	Consumer evaluations for eBeam <i>irradiated</i> meals differ when shelf-life information vs. convenience information was provided	Treatment 5	Treatment 6	$WTP^{\text{Treatment 5}} > WTP^{\text{Treatment 6}}$
H013	Consumer evaluations for eBeam <i>processed</i> meals differ from eBeam <i>irradiated</i> meals when <i>safety</i> information was provided	Treatment 1	Treatment 4	$WTP^{\text{Treatment 1}} > WTP^{\text{Treatment 4}}$
H014	Consumer evaluations for eBeam <i>processed</i> meals differ from eBeam <i>irradiated</i> meals when <i>shelf-life</i> information was provided	Treatment 2	Treatment 5	$WTP^{\text{Treatment 2}} > WTP^{\text{Treatment 5}}$
H015	Consumer evaluations for eBeam <i>processed</i> meals differ from eBeam <i>irradiated</i> meals when <i>convenience</i> information was provided	Treatment 3	Treatment 6	$WTP^{\text{Treatment 3}} > WTP^{\text{Treatment 6}}$

Informational Message Treatments & Benefits

Treatment 1

Safety Benefits +
"Processing"

Treatment 2

Quality & Shelf-Life Benefits +
"Processing"

Treatment 3

Convenience Benefits +
"Processing"

Treatment 4

Safety Benefits +
"Irradiation"

Treatment 5

Quality & Shelf-Life Benefits +
"Irradiation"

Treatment 6

Convenience Benefits +
"Irradiation"



Informational Message Scripts

CONTROL MESSAGE

Electron beam (eBeam) is a technology commonly used to process food for safety and quality reasons. This form of processing involves sped-up electrons that can penetrate the food product and serves as a non-thermal method of food treatment that can be applied to a wide range of products. This feature is especially important when it comes to raw or fragile food products that have not, or cannot, undergo conventional processing methods that utilize heat treatments.

TREATMENT 1/TREATMENT 4 MESSAGE

Electron beam (eBeam) *processing/irradiation* is a technology commonly used to process food for safety and quality reasons. This form of processing involves sped-up electrons that can penetrate the food product and serves as a non-thermal method of food treatment that can be applied to a wide range of products. This feature is especially important when it comes to raw or fragile food products that have not, or cannot, undergo conventional processing methods that utilize heat treatments. When the electrons enter the food, they can collide with the genetic material of harmful bacteria, which ultimately kills them. Therefore, eBeam *processing/irradiation* plays an important role in food safety by ensuring the destruction of organisms that are harmful to human health.

Cheap Talk Script

This script included an instruction to picture themselves shopping in the grocery store and to make their choices as they normally would in such a situation.

Choice Experiment Attributes.

Price

4 levels = \$10.00

\$10.50

\$11.00

\$11.50



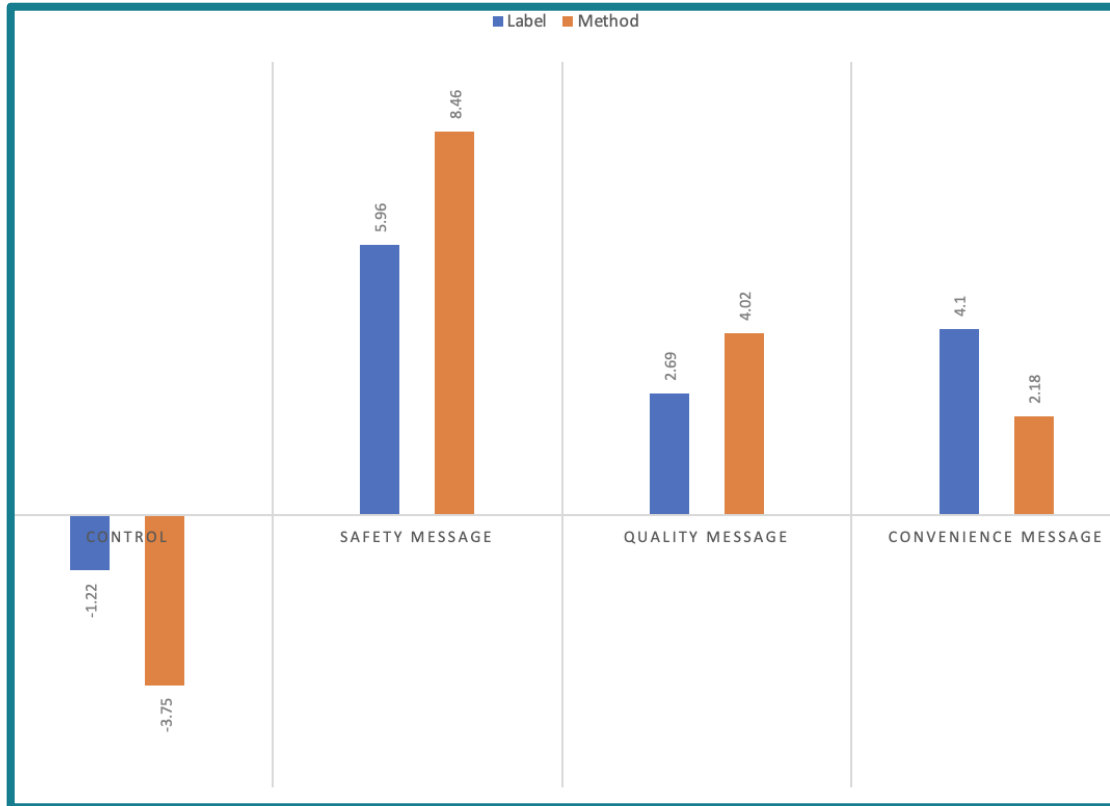
Processing Method

2 levels = eBeam Treated or Untreated

Clean Label

2 levels = Labeled or Unlabeled

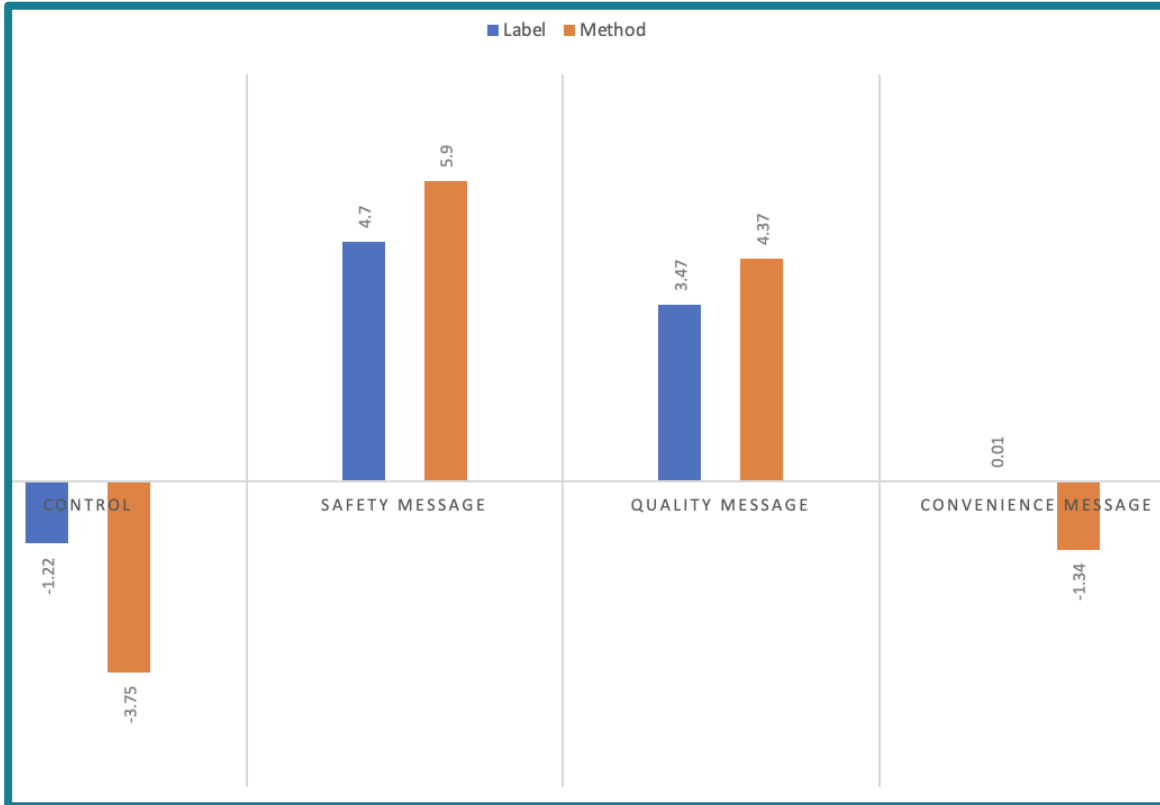




Message Impact eBeam “Processing”

“Electron Beam processing” and clean label increased consumers’ valuation





Message Impact eBeam “Irradiation”

“Irradiation” coupled with **safety and quality** enhanced consumers’ valuation

Interestingly, **convenience** was not valued high





Consumer WTP Irradiation vs. Processing.

Information is Power!

- All messages increased consumer valuation of eBeam and clean label to some degree
- Safety message most impactful, regardless of wording
- Processing method valuation =

Safety > Quality/Shelf-Life > Convenience



Shelf-Stable Meals Applications.

Airline Catering

To extend product shelf-life and long-term quality

Supermarkets

To minimize food waste at the retail level



Space Travel Catering

As an alternative to the thermostabilization process

Hospital Meals

For the protection of vulnerable populations

Meal Kit Delivery Services

To minimize food waste at the consumer level



Thanks.

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