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**An ex-ante assessment of consumer response to proposed pecan  
Industry Federal Marketing Order initiatives**

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# An ex-ante assessment of consumer response to proposed pecan Industry Federal Marketing Order initiatives

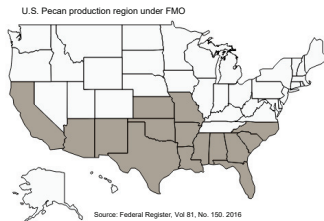
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## Pecan Industry Challenges Culminate in FMO Approval

A Federal Marketing Order (FMO) provides a custom-tailored regulatory tool for product promotion and to cooperatively address industry needs and challenges. Stakeholders in the \$560M+ U.S. pecan industry led the push for the 2016 FMO approval in the 15-state pecan production region.



The final FMO rule provides authority for:

- American Pecan Council formation
- Industry assessments, data collection and reporting
- Funding for research on health and nutrition
- Recommendations for uniform grade, size, quality and container standards

The motivation for the regulation includes an assertion of economic gain resulting from implementation, but how might consumers respond to the proposed actions to ensure the desired benefits?

## Understanding Consumer Response

Passage of the FMO underscores the need for a better understanding of consumer valuation of this native North American tree nut.

The U.S. is the world's largest producer of pecans – led by Georgia followed by New Mexico and Texas – yet pecans remain largely unexamined in terms of consumer preferences and willingness to pay for product attributes.

The consumer decision-making process is complex, with varying results among products and in competing purchase environments, but there is no direct evidence for pecan purchases relating to suggested standards.

## Research Questions and Methodology

1. When purchasing pecans, how might consumers respond to proposed FMO initiatives for consistency of standards?
2. Will consumer responses differ in the presence of other pecan attributes such as organic, geographic origin, freshness and health or nutrition claims?

**Methodology** – To address these questions, we assess preferences for shelled pecan halves with organic, geographic origin, freshness, grade, size, and health or nutrition attributes in a series of research sessions held in two Southeastern U.S. cities. Analyzing data from 218 adult consumers in a choice experiment, we employ mixed logit and latent class models, which highlight unobserved taste heterogeneity and differences in willingness to pay among consumers.

## Choice Experiment

### Data Collection

All participants receive \$50 in compensation and complete a questionnaire including basic demographics, pecan consumption, and buying habits. In addition, each is randomly assigned to a set of questions comprising the choice experiment involving the purchase of shelled pecan halves.

### Research Design

Participants complete a series of eight choice tasks to elicit their preferences for the purchase of a one-half pound bag of shelled pecan halves. In each task, the participant is presented with details of two alternative purchase choices and asked which they be most likely to purchase. Addition of the option to purchase neither is available to foster a more realistic purchase environment.

### Category Descriptions

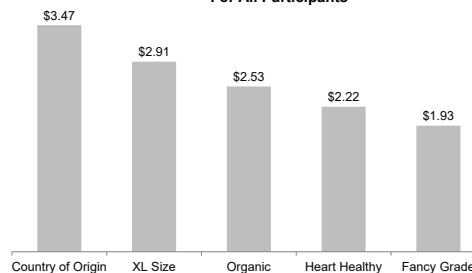
Pecan Attributes	Pecan Levels
Price	\$2.25, \$5.00, \$8.50
Organic	No, Yes
Expiration Date	3 months, 6 months, 12 months
Country of Origin	Mexico, United States
Size	None indicated, Small, Large, Extra Large, Jumbo, Mammoth
Grade	None indicated, Standard, Choice, Fancy
Health/Nutrient Claim	None indicated, Heart Healthy, Naturally High in Antioxidants

### Choice Set Question Example

The following questions represent different descriptions for the purchase of an 8 oz. bag of pecan halves. Please check the option which you would be most likely to purchase.

Product Attribute	Option A	Option B	Option C
Price	\$2.25	\$5.00	
Organic	Yes	No	
Expiration Date	6 Months	3 Months	
Country of Origin	U.S.A.	Mexico	Neither A nor B is preferred
Size	Jumbo Halves	Small Halves	
Grade	Choice	Standard	
Health/Nutrient Claim		Heart Healthy	
I would choose...	<input type="checkbox"/>	<input type="checkbox"/>	

Top Five Willingness to Pay Estimates for Pecan Attributes For All Participants

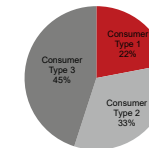
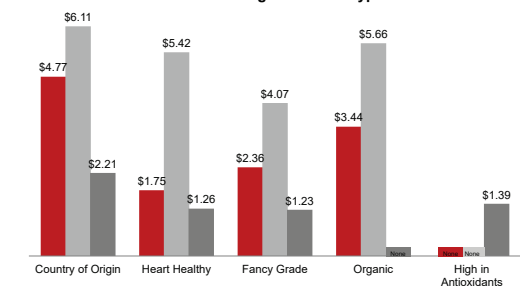


## Latent Class Analysis

Latent class analysis incorporates taste differences among consumers, classifying them into three underlying groups highlighting distinctiveness.

### Mean Willingness to Pay by Consumer Type

Select Willingness to Pay Estimates for Pecan Attributes Among Consumer Types



- Frequent organic purchasers and those with higher income more likely to be Type 1
- Consumers who more frequently purchase pecans and organic products more likely to be Type 2
- Type 3 is the largest group and notably the only group not willing to pay a premium for organic pecans

## Key Findings

Across respondents, consumers indicate a willingness to pay a premium and taste distinctions for select pecan attributes, including:

- \$3.47 for domestic U.S. pecans over those from Mexico
- \$2.53 for organic pecans over conventional
- \$2.22 for the Heart Healthy claim, greater than the antioxidant claim.

Inconsistency across responses for size, grade, and freshness categories reveal a potential lack of understanding of the terminology or an unfamiliarity with the distinctions between them.

## Conclusions

The choice experiment results indicate that...

- Committed, effective consumer education can assist in making sure that size, grade or freshness standards implemented following the FMO are meaningful to consumers and generate desired price premium. Despite potential misunderstanding, there is some evidence of preference for larger and fancy grade pecans and those with a heart healthy claim.
- Large segment of consumers value both heart healthy claims for pecans
- Consumers are most willing to pay a premium for pecans of U.S. origin over other attributes, though survey results show that few are aware of labeling rules. This echoes many studies in geographic origin tastes of consumers.