



---

# The University of Georgia

---

**Center for Agribusiness and Economic Development  
College of Agricultural and Environmental Sciences**

---

## **A Survey of Pecan Sheller's Interest in Storage Technology**

---

**Prepared by: Kent Wolfe and John McKissick  
Center Report 05-08  
December, 2005**

---



# Table of Contents

Introduction .....	1
Sheller Volume .....	1
Table 1 .....	1
Table 2 .....	2
Table 3 .....	2
Table 4 .....	3
Table 5 .....	3
Table 6 .....	4
Table 7 .....	4
Table 8 .....	4
Table 9 .....	5
Table 10 .....	6
Conclusion .....	6

## Introduction

The Center for Agribusiness and Economic Development (CAED) conducted an interview with pecan shellers in the southeast to gauge interest in new preservation technology to retard rancidity. The CAED was able to identify 99 businesses throughout the south involved with pecan shelling. Each of these business was mailed a survey with a return envelope. The surveys were mailed in April and May of 2005, A total of 26 surveys were returned and the data analyzed.

## Sheller Volume

The information in Table 1 provides insight into the shelled pecan volume for the respondents. The companies were asked to estimate the total shelled volume of their total meat sales. The dispersion of the volume indicates that the data collected represents the views of small, medium, and large shellers. The respondents have an average shelling volume of 1.6 million pounds annually.

<b>Table 1. Pecan Shelling Volume</b>	
<b>Volume Shelled (pounds)</b>	<b>Percent (n=26)</b>
600	4%
3,000	4%
6,000	4%
9,000	4%
10,000	13%
15,000	4%
20,000	13%
22,000	4%
40,000	9%
60,000	4%
150,000	4%
210,000	4%
336,000	4%
600,000	4%
4,000,000	4%
5,000,000	4%
13,400,000	4%
15,000,000	4%
<b>Mean</b>	<b>1,694,852</b>

The respondents were then asked to provide information pertaining to their purchase of pecans. The data in Table 2 provide insight into where the companies purchase their pecans. The largest percentage of pecans are purchased directly from producers (31%) with an additional twenty percent purchasing pecans from accumulators or other shellers.

<b>Table 2. Where Pecans Are Purchased and Percentage Breakout</b>					
	Accumulator	Other Shellers	Direct from Producers	Own Production	Other
<b>Mean (%)</b>	20%	22%	31%	19%	8%

Table 3 provides information into the form the shellers sell their pecans once they have been shelled. The figures in Table 3 represent the average percentage of pecans by form. Over half (55%) of the shelled pecans are sold as halves were as 30% are sold as pieces. Interestingly, very little pecan meal or pecan granules are sold among this group of respondents.

<b>Table 3. Form of Pecan Sold and Percent Breakout by Consumer</b>					
	Halve	Pieces	Pecan meal	Granules	Other
<b>Mean (%)</b>	55%	30%	1%	1%	13%

The shellers were then asked to rank a list of factors they may or may not use in determining the value of the pecans they purchase. Each respondent ranked the factors in Table 4 from most to least important in determining the price they would pay for pecans.

Meat yield is the most important factor in determining the prices paid for pecans. Over one-half of the respondents indicated that meat yield is the most important factor. The least important factor is foreign material. Over one-third of the respondents indicated that minimal foreign material is the least important factor they consider when determining the price they will pay for pecans. Table 4 provides a complete list of factors the respondents were asked to rank and their ranking of each with regard to the importance in determining pecan prices.

<b>Importance</b>	<b>Count</b>	<b>Color</b>	<b>Meat yield</b>	<b>Minimal damage</b>	<b>Optimal moisture</b>	<b>Minimal foreign material</b>	<b>Other</b>
1= Most Important	5%	25%	55%	5%	0%	5%	0%
2	38%	30%	10%	5%	0%	10%	13%
3	24%	15%	5%	15%	20%	10%	13%
4	14%	10%	5%	40%	15%	10%	0
5	0%	10%	10%	20%	40%	15%	0%
6 = Least Important	14%	5%	10%	5%	20%	35%	13%
Don't Know	5%	5%	5%	10%	5%	15%	61%
<i>Mean</i>	<i>2.95</i>	<i>2.50</i>	<i>2.20</i>	<i>3.85</i>	<i>4.40</i>	<i>4.50</i>	<i>3.13</i>
<i>Median</i>	<i>3.00</i>	<i>2.00</i>	<i>1.00</i>	<i>4.00</i>	<i>5.00</i>	<i>5.00</i>	<i>2.50</i>

The respondents were then asked to consider a list of factors that impact pecan quality. The respondents were asked to rank the factors from most to least importance in their buyers determining the value of pecans by their buyers.

Interestingly, the pecan size was considered to be the most important factor in determining the value of pecans ( Table 5). Forty-five percent of the respondents ranked it as the most important factor in determining pecan value. Foreign material which was considered to be the least important factor by 90% of the respondents.

<b>Importance</b>	<b>Size</b>	<b>Color</b>	<b>Minimal Damage</b>	<b>Optimal Moisture</b>	<b>Minimal Foreign Material</b>
1= Most Important	45%	25%	5%	5%	5%
2	30%	35%	20%	15%	15%
3	10%	25%	30%	20%	30%
4	5%	10%	35%	40%	40%
5 = Least Important	10%	5%	10%	20%	90%
<i>Mean</i>	<i>2.05</i>	<i>2.350</i>	<i>3.25</i>	<i>3.55</i>	<i>4.05</i>
<i>Median</i>	<i>2.00</i>	<i>2.00</i>	<i>3.00</i>	<i>4.00</i>	<i>5.00</i>

The respondents were asked what they considered to be the most effective factor in advertising and promoting pecans. Nearly three-quarters of the respondents indicated that taste appeal is the most effective advertising and promotional tool available. Convenience and versatility are considered to be the least convenient.

The lack of focus on convenience may pose a problem as trends in the food industry highlight consumers' demand for convenience foods. Consumers are looking for foods that are easy to prepare, nutritious, and convenient. According to the results of the consumer study, pecans tend

to be purchased by older consumers (Table 6). To reverse this trend, it is important to package and market pecan products to younger consumers in a manner that is consistent with their needs and lifestyles.

<b>Table 6. Most Effective Pecan Attribute for Advertising and Promoting</b>						
<b>Importance</b>	<b>Eye Appeal</b>	<b>Taste Appeal</b>	<b>Desirability as a Snack Food</b>	<b>Desirability as a Health Food</b>	<b>Convenience</b>	<b>Versatility in Use</b>
1= Most Effective	24%	71%	0%	5%	0%	0%
2	27%	15%	4%	38%	0%	5%
3	4%	4%	15%	24%	14%	35%
4	8%	4%	31%	14%	19%	15%
5	19%	0%	23%	14%	24%	10%
6= Least Effective	5%	0%	8%	5%	43%	35%
<i>Mean</i>	2.90	1.42	4.19	3.10	4.95	4.35
<i>Median</i>	2.00	1.00	4.00	3.00	5.00	4.00

Only 29% of the respondents indicated that they shell pecans all year around, (Table 7). This may suggest that many of the shellers store their pecans after shelling in anticipation of future demand and/or higher prices.

<b>Table 7. Shell Pecans Year Round</b>	
<b>Response</b>	<b>Percent</b>
Yes	29%
No	71%

Only a quarter of the respondents indicated that they store pecans in anticipation of higher prices. This suggests there is not a need for storage technology to extend the shelf-life of pecan products.

<b>Table 8. Store Pecans in Anticipation of Higher Prices</b>	
<b>Response</b>	<b>Percent</b>
yes	26%
no	74%

The respondents indicated that pecans can generally be stored anywhere from 16 to 20 months before they start to deteriorate. However, using the median or most frequently mentioned time period, it appears that the respondents consider six (6) months to a year as the shelf-life of pecan products. Interestingly, the more processed products (meal and granules) have a shorter shelf-life than halves and pieces. This issue may have to be explored if there is a push to use more pecan meal and granules in confectionary and other value-added products.

<b>Number of Months</b>	<b>Halves</b>	<b>Pieces</b>	<b>Meal</b>	<b>Granules</b>
Mean (months)	20.79	20.68	16.35	16.26
Median (months)	12.00	12.00	6.00	6.00

The information found in Table 10 provides insight into the problems and issues associated with pecan rancidity. The respondents were asked if they tested their pecans for rancidity and surprisingly, 43% of the respondents do not. This may be justified by the shellers belief that rancidity is not a problem which was reported by over eight in ten of the respondents.

The problem of pecan shelf life does appear to be a limiting factor in increasing the consumption of pecans. Interestingly, 72% of the respondents reported that shelf-life issues limit the increase in consumption and value-added manufacturing of pecans and pecan products. This appears to contradict the findings that rancidity is not a problem (82%).

The respondents (86%) are interested in exploring new technologies that will retard rancidity. In addition, the respondents indicated a snack bag of pecans would appeal to consumers and would compete with other snack products. The results of the pecan consumer survey created a profile of pecan consumers who tend to be significantly older than the general population. The creation of a snack pecan product that provides the convenience demanded by consumers would allow the product to be more readily accessible and appealing to a younger group of consumers. This new market may lead to an increase in pecan consumption.

<b>Table 10. Rancidity and Associated Issues</b>	
<b>Test for Rancidity</b>	
<b>Response</b>	<b>Percent</b>
Yes	57%
No	43%
<b>Is Rancidity a Problem?</b>	
<b>Response</b>	<b>Percent</b>
Yes	18%
No	82%
<b>Does Shelf Life Issue Retard Increasing Consumption?</b>	
<b>Response</b>	<b>Percent</b>
Yes	78%
No	22%
<b>Shelf Live Retarding Manufacturing Demand</b>	
<b>Response</b>	<b>Percent</b>
Yes	73%
No	27%
<b>Willing to Look at New Rancidity Retarding Technology</b>	
<b>Response</b>	<b>Percent</b>
Yes	86%
No	14%
<b>Think snack bags of pecan product would sell</b>	
<b>Response</b>	<b>Percent</b>
Yes	83%
No	17%
<b>Could Pecan Convenience Product Compete with Other Snack Nuts?</b>	
<b>Response</b>	<b>Percent</b>
Yes	77%
No	18%
Don't Know	5%

**Conclusion:**

The results of the sheller survey are based on a limited sample and the results should be interpreted with caution. However, they do provide insight into the industry. The results reveal that the shellers think that taste and eye appeal are important factors in both purchasing pecans from other shellers and on selling pecans to customers. They are also willing to try new technology to address the issue of pecan rancidity which appears to be a problem once the pecan has been shelled and turned into a consumer-ready product. The development of a process that would permit the creation of a snack product would allow pecan producers to access a more convenience-driven market and hopefully increase pecan consumption overall.

# The Center for Agribusiness and Economic Development



The Center for Agribusiness and Economic Development is a unit of the College of Agricultural and Environmental Sciences of the University of Georgia, combining the missions of research and extension. The Center has among its objectives:

- ▶ To provide feasibility and other short term studies for current or potential Georgia agribusiness firms and/or emerging food and fiber industries.
- ▶ To provide agricultural, natural resource, and demographic data for private and public decision makers.

To find out more, visit our Web site at: <http://www.caed.uga.edu>

**Or contact:**

**John McKissick, Director**  
**Center for Agribusiness and Economic Development**  
**Lumpkin House**  
**The University of Georgia**  
**Athens, Georgia 30602-7509**  
**Phone (706)542-0760**  
**[caed@agecon.uga.edu](mailto:caed@agecon.uga.edu)**

The University of Georgia and Fort Valley State University, and the U.S. Department of Agriculture and counties of the state cooperating. The Cooperative Extension Service offers educational programs, assistance and materials to all people without regard to race, color, national origin, age, sex or disability.

An equal opportunity/affirmative action organization committed to a diverse work force.

---

**Center Report 05-08**

**December, 2005**

---

Issued in furtherance of Cooperation Extension Acts of May 8 and June 30, 1914, the University of Georgia College of Agricultural and Environmental Sciences, and the U.S. Department of Agriculture cooperating.

**J. Scott Angle, Dean and Director**