

Freshwater Shrimp Consumer Taste Panel

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Tim Woods¹ and Matt Ernst²

Introduction

In the late 1990s, freshwater shrimp production emerged as a viable source of income for Kentucky agriculture and aquaculture producers.³ A thriving, fledgling freshwater shrimp market has developed in Kentucky over the past five years. Income from freshwater shrimp production in Kentucky continues to expand as existing operations increase production and new producers enter the market.

This blind taste test was conducted in the Fall of 1998 as the freshwater shrimp market was emerging in Kentucky. Its purpose was to measure consumer acceptance of a freshwater shrimp product as compared to a frozen, commercial shrimp product. Panelists also evaluated frozen and fresh freshwater shrimp.

Methodology

Fresh freshwater shrimp and frozen freshwater shrimp were obtained from Kentucky freshwater shrimp producers. Commercial, frozen saltwater shrimp were obtained from a local retailer. Both whole shrimp and shrimp tails were contained on the panel. Shrimp were boiled at uniform times and temperatures and presented fresh to the panelists.

Panelists were recruited from the University of Kentucky community and through promotions conducted at local supermarkets. There were 79 total panelists who were each compensated \$25 for the time it took to conduct the taste panel and fill out a 9-page survey (see Appendix 1). The taste panel was held in the University of Kentucky Food Science test kitchen.

¹ Extension Associate Professor, University of Kentucky Department of Agricultural Economics

² Extension Associate, University of Kentucky Department of Agricultural Economics

³ See Woods et al. *Freshwater Shrimp Enterprise Cost and Return Estimates for Kentucky*, University of Kentucky Department of Agricultural Economics Extension Publication AEC-EXT 98-05, Dec. 1998.

Results

Panelists were first asked to identify the ease with which each shrimp could be peeled. Almost half of those responding ranked the whole, fresh freshwater shrimp as being “peeled with considerable difficulty” or “peeled with slight difficulty.” Many of the panelists were unfamiliar with peeling and eating whole shrimp; an additional question indicated that some had not eaten other, similar products such as lobster before.

Responses given to the ease of peeling different shrimp tails was a better indication of panelists’ overall preferences. Panelists were asked to peel a frozen saltwater shrimp sample and then a frozen freshwater shrimp sample. Figure 1 below illustrates that panelists found the saltwater shrimp easier to peel.

Panelists were also asked to compare peeling a frozen freshwater shrimp sample with a fresh freshwater shrimp sample. The fresh sample was preferred (Figure 2).

**Figure 1. Ease of Peeling--
Frozen Freshwater vs. Saltwater Shrimp Tails**

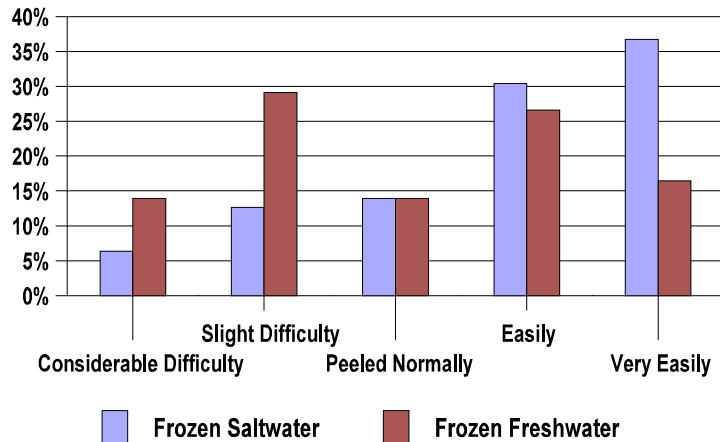
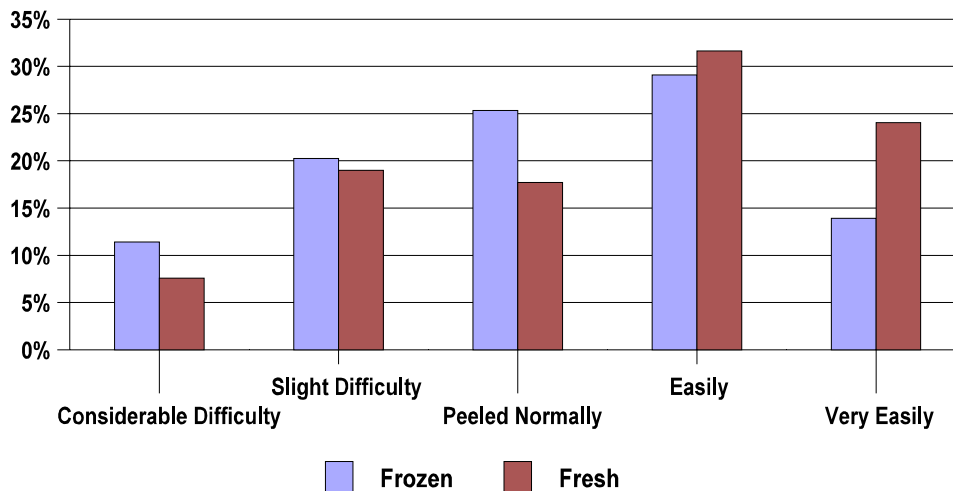
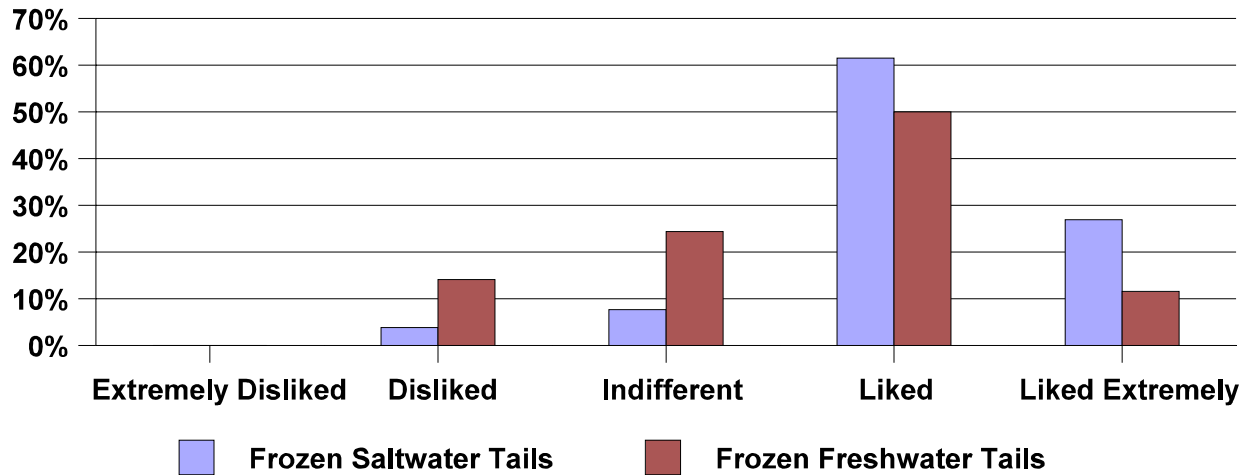


Figure 2. Ease of Peeling--Frozen and Fresh Freshwater



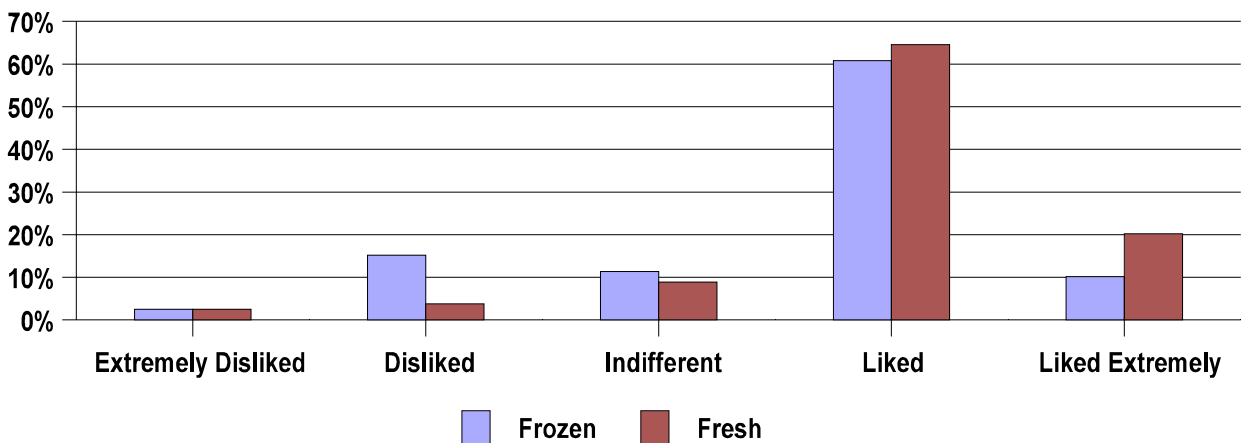
Panelists were asked to evaluate their overall preferences between frozen saltwater and frozen freshwater shrimp tails. The overall preference was toward frozen saltwater shrimp (Figure 3).

**Figure 3. Overall Rating--
Frozen Saltwater vs. Frozen Freshwater Tails**



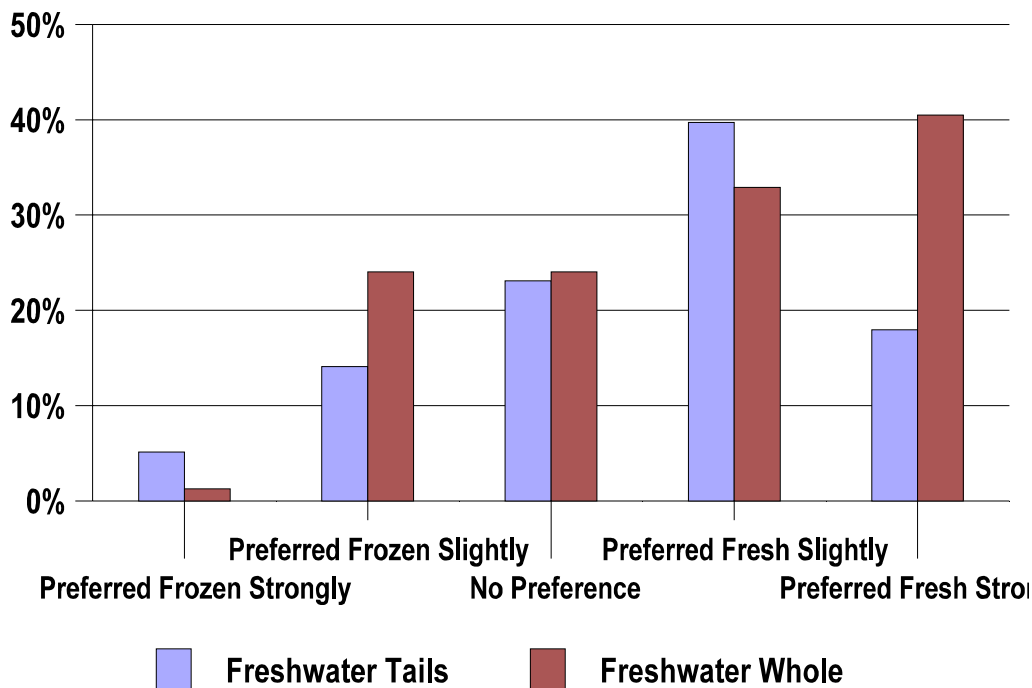
Panelists were asked the same question in the trial between frozen and fresh freshwater shrimp. In this instance, the fresh product ranked slightly higher in overall preference than the frozen product (Figure 4). The fresh product ranked much higher in desirability before the shrimp were peeled, and slightly higher in desirability after the shrimp were peeled. As would be expected, there was virtually no difference in the texture or saltiness rankings between the two freshwater products.

Figure 4. Overall Rating--Frozen vs. Fresh Freshwater Tails



In the last comparison, panelists were asked to evaluate their preferences between various samples of whole shrimp. The chart below combines the overall response to whole freshwater shrimp samples (frozen and fresh) with the overall response to the freshwater tail samples.

**Figure 5. Freshwater Preferences--
Tails and Whole Shrimp**



Conclusions and Implications for Freshwater Shrimp Production in Kentucky

Panelists generally preferred the fresh product overall. Apparently, panelists were not used to peeling a whole shrimp, and preferred eating the freshwater shrimp tails over the whole product by a wide margin. When compared with a frozen saltwater product, consumers preferred the saltwater shrimp slightly. The difference in consumer preference toward saltwater shrimp in this panel appeared to be minimal; consumers are overall receptive to a freshwater shrimp product.

This taste panel indicates that Kentucky freshwater shrimp producers may benefit from seeking additional retail outlets with their product, especially when the shrimp head and body are removed and the tails are presented either fresh or frozen to consumers. The friendlier freshwater shrimp appear to the consumer (i.e. without the head), the more likely consumers will purchase a Kentucky-grown product. The positive production of the recent past, combined with positive consumer response, bode well for Kentucky freshwater shrimp production.

Enumeration Code _____

Please rinse your mouth with water before beginning to sample. Before you are two samples labeled 1 and 2.

BEFORE SAMPLING....

Comparing the two samples, rate the relative **desirability according to the appearance** by checking the box that best corresponds to your preference.

sample 1

sample 2

preferred strongly

preferred slightly

no preference

preferred slightly

preferred strongly

Peel BUT DO NOT EAT sample 1. Set peeled sample on the plate.

Indicate the **ease of peeling sample 1**.

sample 1

peeled with
considerable
difficulty

peeled very easily

Peel BUT DO NOT EAT sample 2. Set peeled sample on the plate.

Indicate the **ease of peeling sample 2**.

sample 2

peeled with
considerable
difficulty

peeled very easily

Compare **ease of peeling** sample 1 versus sample 2 by checking the box that best corresponds to your preference.

sample 1

sample 2

preferred strongly

preferred slightly

no preference

preferred slightly

preferred strongly

Compare again the **desirability according to the appearance** of the PEELED SHRIMP by checking the box that best corresponds to your preference.

sample 1

sample 2

preferred strongly

preferred slightly

no preference

preferred slightly

preferred strongly

EAT SAMPLE ONE

Indicate the **degree of saltiness** of sample one by checking the appropriate box below

sample 1

bland, no salt
detected

very salty

Indicate the **texture** corresponding with sample one by checking the appropriate box below.

sample 1

mushy

firm

EAT SAMPLE TWO

Indicate the **degree of saltiness** of sample two by checking the appropriate box below.

sample 2

bland, no salt
detected

very salty

Indicate the **texture** corresponding with sample two by checking the appropriate box below.

sample 2

mushy

firm

Indicate an **overall rating** for sample 1 below.

sample 1

extremely
disliked

disliked

indifferent

liked

liked extremely

Indicate an **overall rating** for sample 2 below.

sample 2

extremely
disliked

disliked

indifferent

liked

liked extremely

Please provide an **overall rating** comparing your preference for sample one versus sample two

sample 1

sample 2

preferred strongly

preferred slightly

no preference

preferred slightly

preferred strongly

Did you notice a mud vein, a black digestive line in one of the samples?

No

Yes

Did it affect your overall rating?

No

Yes

Please rinse your mouth with water before beginning to sample. Before you are two samples labeled 3 and 4.

BEFORE SAMPLING...

Comparing the two samples, rate the relative **desirability according to the appearance** by checking the box that best corresponds to your preference.

sample 3

sample 4

preferred strongly

preferred slightly

no preference

preferred slightly

preferred strongly

Peel BUT DO NOT EAT sample 3. Set peeled sample on the plate.

Indicate the **ease of peeling sample 3.**

sample 3

peeled with
considerable
difficulty

peeled very easily

Peel BUT DO NOT EAT sample 4. Set peeled sample on the plate.

Indicate the **ease of peeling sample 4.**

sample 4

peeled with
considerable
difficulty

peeled very easily

Compare **ease of peeling** sample 3 versus sample 4 by checking the box that best corresponds to your preference.

sample 3

sample 4

preferred strongly

preferred slightly

no preference

preferred slightly

preferred strongly

Compare again the **desirability according to the appearance** of the PEELED SHRIMP by checking the box that best corresponds to your preference.

sample 3

sample 4

preferred strongly

preferred slightly

no preference

preferred slightly

preferred strongly

EAT SAMPLE THREE

Indicate the **degree of saltiness** of sample THREE by checking the appropriate box below

sample 3

bland, no salt
detected

very salty

Indicate the **texture** corresponding with sample THREE by checking the appropriate box below.

sample 3

mushy

firm

EAT SAMPLE FOUR

Indicate the **degree of saltiness** of sample FOUR by checking the appropriate box below.

sample 4

bland, no salt
detected

very salty

Indicate the **texture** corresponding with sample FOUR by checking the appropriate box below.

sample 4

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
mushy				firm

Indicate an **overall rating** for sample 3 below.

sample 3

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
extremely disliked	disliked	indifferent	liked	liked extremely

Indicate an **overall rating** for sample 4 below.

sample 4

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
extremely disliked	disliked	indifferent	liked	liked extremely

Please provide an **overall rating** comparing your preference for sample three versus sample four below.

sample 3

sample 4

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
preferred strongly	preferred slightly	no preference	preferred slightly	preferred strongly

Please rinse your mouth with water before beginning to sample. Before you are two samples labeled 5 and 6.

Comparing the two samples, rate the relative **desirability according to the appearance** by checking the box that best corresponds to your preference.

sample 5

sample 6

preferred strongly

preferred slightly

no preference

preferred slightly

preferred strongly

Peel BUT DO NOT EAT sample 5. Set peeled sample on the plate.

Indicate the **ease of peeling sample 5.**

sample 5

peeled with
considerable
difficulty

peeled very easily

Peel BUT DO NOT EAT sample 6. Set peeled sample on the plate.

Indicate the **ease of peeling sample 6.**

sample 6

peeled with
considerable
difficulty

peeled very easily

Compare **ease of peeling** sample 5 versus sample 6 by checking the box that best corresponds to your preference.

sample 5

sample 6

preferred strongly

preferred slightly

no preference

preferred slightly

preferred strongly

Compare again the **desirability according to the appearance** of the PEELED SHRIMP by checking the box that best corresponds to your preference.

sample 5

sample 6

preferred strongly

preferred slightly

no preference

preferred slightly

preferred strongly

EAT SAMPLE FIVE

Indicate the **degree of saltiness** of sample FIVE by checking the appropriate box below

sample 5

bland, no salt
detected

very salty

Indicate the **texture** corresponding with sample FIVE by checking the appropriate box below.

sample 5

mushy

firm

EAT SAMPLE SIX

Indicate the **degree of saltiness** of sample SIX by checking the appropriate box below.

sample 6

bland, no salt
detected

very salty

Indicate the **texture** corresponding with sample SIX by checking the appropriate box below.

sample 6

mushy

firm

Indicate an **overall rating** for sample FIVE below.

sample 5

extremely
disliked

disliked

indifferent

liked

liked extremely

Indicate an **overall rating** for sample SIX below.

sample 6

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
extremely disliked	disliked	indifferent	liked	liked extremely

Please provide an **overall rating** comparing your preference for sample FIVE versus sample SIX below.

sample 5

sample 6

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
preferred strongly	preferred slightly	no preference	preferred slightly	preferred strongly

Finally, we would like for you to compare the desirability of whole shrimp versus tails.

Compare the shrimp presented as sample SEVEN to those presented as sample EIGHT. **Assume the retail price for each sample was the same.**

Please provide an **overall rating** comparing your preference for sample SEVEN versus sample EIGHT below.

sample 7

sample 8

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
preferred strongly	preferred slightly	no preference	preferred slightly	preferred strongly

THIS COMPLETES THE SURVEY. THANK YOU VERY MUCH FOR YOUR PARTICIPATION.

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University of Kentucky
Department of Agricultural Economics
400 Charles E. Barnhart Bldg.
Lexington, KY 40546-0276

Phone: 859-257-5762

Fax: 859-323-1913

URL: <http://www.uky.edu/Ag/AgEcon>