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Taste Panel to Evaluate the Consumer Acceptance of Paddlefish

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Introduction

The paddlefish is one of the largest fish in the United States; full grown, it may weigh over 200 pounds. It is a filter feeder that consumes zooplankton from the water. Paddlefish have been harvested for years for their roe (eggs), which are used to make high value caviar. More recently, paddlefish have been raised through reservoir ranching and polyculture with catfish.

The University of Kentucky Department of Agricultural Economics and the Kentucky State University Aquaculture Department have been working on the production and marketing aspects of this unique fish. This ongoing project commenced in 1999. As concerns about the future of Kentucky's tobacco production industry mount, numerous alternative enterprises are being explored. Paddlefish production has the potential to be profitable for Kentucky farmers if adequate markets exist. The goal of this study was to measure consumer acceptance of paddlefish meat.

Methodology

One June 19th and 20th 2001, a taste panel was held at the University of Kentucky to measure the consumer acceptance of paddlefish meat. Both "wild caught" and "farm raised" paddlefish were compared to catfish purchased from a grocery store. A consumer panel of 61 and a trained panel of 7 participated in the evaluation.

The consumer panel was composed of various people working at the University of Kentucky. Most panelists were employees of the College of Agriculture, although several people came from across campus. The consumers who participated were asked to evaluate the three products by choosing the sample that they liked most based on juiciness, flavor, and texture. Lastly, they were asked to choose the sample that they like best overall.

The trained panel was composed of people who had been trained in methods of evaluating foods, detecting off-flavors, etc. Instead of choosing which product they preferred, they were asked to rate each product on a Likert scale of 1 through 8. An 8 was considered extremely desirable, while a 1 was considered extremely undesirable. They evaluated each product based on the same characteristics as the consumer panel.

In all cases, cooking was done in a way that would alter the taste of the meat as little as possible. All three products were prepared in a convection oven and served to participants hot. Participants were encouraged to taste each product separately, rinsing their mouth with apple juice between samples. This was a blind taste test, as panelists were not told which product was paddlefish and which were catfish.

Results

Consumer panelists chose the product that they preferred based on juiciness, flavor, texture, and overall acceptability. Responses to these questions were quite varied and many participants indicated that they did not like any of the fish products. This may have been due to the style of preparation.

Catfish was considered to be juiciest with the wild caught paddlefish a close second. Farm-raised paddlefish was rated considerably lower in this area. Respondents preferred the flavor of wild caught paddlefish by a large margin over both catfish and farm-raised paddlefish. Texture preferences were very much split, but both paddlefish samples were preferred to the catfish. Overall, the wild-caught paddlefish was the preferred fish, with grocery store catfish second. The results of the consumer panel are depicted in the chart below.

% of panelists preferring each sample by attribute

	Juiciness	Flavor	Texture	Overall
KY Farm Raised Paddlefish	18.6%	22.4%	37.3%	26.8%
Wild Caught Paddlefish	37.3%	48.3%	35.6%	42.9%
Store bought Catfish	44.1%	29.3%	27.1%	30.3%

Consumer panelists preferred the juiciness of store bought catfish, the flavor of wild caught paddlefish, and the texture of farm raised paddlefish. However, when asked which product they liked best overall, panelists showed relatively strong preference for the "wild caught" paddlefish. Perhaps this is explained best by correlation coefficients. In the case of all three samples, flavor was most highly correlated with the overall most acceptable. Texture was considered to be the second most important trait while juiciness was the least most important trait of the three.

Seven trained panelists took part in tasting the fish products. By using a Likert scale (1-8), the trained panelists were not only able to indicate preference, but also the level of preference for one sample over another. This provides more detailed information, allowing us to consider acceptability rather than preference alone.

The trained panelists preferred the juiciness of the catfish and the wild-caught paddlefish by a considerable margin over the farm raised paddlefish. There was little flavor difference detected between the three samples, although the wild caught paddlefish was slightly preferred. The texture of the two paddlefish products was preferred over the catfish. Overall, trained panelists preferred the farm raised catfish slightly, followed by the wild paddlefish and then the catfish (see chart below).

Average Response by category

	Juiciness	Flavor	Texture	Overall
KY Farm Raised Paddlefish	5	4.14	6	5.29
Wild Caught Paddlefish	6.43	4.43	6.14	5
Store bought Catfish	6.43	4.14	4.57	4.86

An especially interesting observation from the data was that trained panelists chose "farm raised" paddlefish as the most acceptable sample overall. However, "farm raised" paddlefish was not preferred based on any of the three attributes (juiciness, flavor, texture). This indicates that the product may have another attribute that was not asked about directly.

Conclusions and Implications

This taste panel provided some interesting insight into consumer acceptance of paddlefish. Great variation was found among panelist responses as they evaluated the three samples. When compared to catfish, a consumer panel of 61 preferred "wild caught" paddlefish by a moderate margin. Based on these results, it appears that paddlefish would be acceptable to consumers. One should note that cooking method could have affected this result.

The trained panel responded with less variation than the consumer panel. It was apparent that "farm raised" catfish lacked juiciness in comparison to the other two samples and the texture of the two paddlefish product was found to be superior to the catfish. Little difference was found on flavor or overall acceptablility.

The fact that paddlefish was rated favorably in a comparison with catfish is quite promising. However, those interested in marketing the fish should be most interested in the acceptability of "farm raised" paddlefish. Why did such a difference exist between "farm raised" and "wild caught"? Why was "farm raised" rated so low in the areas of juiciness and flavor? Taste panelists clearly preferred the texture of the paddlefish meat, but it was also clear that texture will not substitute for flavor and juiciness. If "farm raised" paddlefish is to become a viable enterprise for Kentucky farmers, these questions must be answered.

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