FINAL REPORT
Consumer Perceptions of Trout as a Food Item
USDA/FSMIP Grant
University of Idaho
in Cooperation with the
Idaho Department of Agriculture

by

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A.E. Research Series No. 97-5

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Executive Summary

The execution of this research project involved the following steps: (1) distribution channel analysis, (2) taste test panels and (3) an in-depth consumer survey. 4 focus groups were conducted, 2 each in Los Angeles and Chicago. 405 consumer interviews were completed in Los Angeles, and 349 interviews were completed in Chicago.

In the focus groups, non-trout eaters associated trout with the whole fish (which evoked comments such as "snake-like skin," "evil eyes," and "bones, bones, BONES." Thus, the facilitators of the focus groups felt in their summary, that one of the biggest barriers to increased trout consumption is the presentation of the whole fish.

Some of the key findings of the consumer survey were: 1) filleted trout is a desirable item – both from a convenience standpoint and for those consumers that have concerns about the head, tail and eyes of whole fish; 2) trout steaks would also be a desired product form; 3) While white flesh colored trout continues to be the variety with dominant demand, there is a significant percentage of consumers who desire pink colored trout; 4) taste and freshness are two key qualities which are very important to the fish purchase decision; 5) farm raised trout is perceived as safer than wild trout by a majority of consumers.

The results reported in this manuscript are the majority of the key findings of the study. A full and complete report will be printed and distributed at a later date.

Objectives of the Study

The primary goal of this research was to provide the Idaho and U.S. trout industry with information useful in developing appropriate educational and marketing strategies. The long-range goal is to utilize this data to strengthen the Idaho and U.S. trout industry.

Methodology

The execution of this research project involved the following steps: (1) distribution channel analysis, (2) taste test panels and (3) an in-depth consumer survey.

Distribution Channel Analysis

The basis for the development of a valid survey questionnaire was an attempt to get a thorough understanding of the distribution channel for trout products, including producers/growers, processors, distributors and consumers.

Growers/Processers

In consultation and with assistance from the Idaho Aquaculture Association and the Idaho Department of Agriculture, interviews were conducted with growers, processors and distributors representing a diverse range of size and sophistication of operations.

Consumers

The consumer perspective was gathered in four 2-hour focus group interviews conducted by Beta Research West, Inc. of La Miranda, California. Two groups were done in each of the following cities: Chicago and Los Angeles, representing the east/midwest and western regions of the United States. Each of the regional focus groups was then broken into trout eaters and non-trout fish eaters. Topics discussed included taste, appearance, preparation characteristics, usage scenarios, product safety considerations, substitute products and price.

Taste Tests

In addition to the focus group interviews discussed above, 2 taste tests were conducted. As a result of limited funding, these taste tests were combined with the focus groups and were conducted by Charlene Martinsen of Consultants Northwest. Results from the taste tests will be reported in the full research report

Consumer Survey

The information from the distribution channel analysis, the focus groups and the taste tests was used to develop consumer questionnaires for several distinct groups: vegetarian, non fish or seafood eater, non-trout fish eaters, and trout eaters. The survey was implemented by the Social Survey Research Unit (SSRU) in the University of Idaho College of Agriculture. This group utilized a Computer Assisted Telephone Interview (CATI) system to collect the data. The survey was pretested on a group of sample respondents and modifications were made based on their feedback. The sample was selected by Survey Sampling, Inc. a company that maintains and distributes database information including phone number listings. They generated the phone numbers using a random digit dialing program which selected numbers in the sample area and screened businesses and government out. Multiple attempts were made to each telephone number before it was retired from the list.

Important Findings

Focus Groups

Several interesting findings were uncovered in the focus group interviews. Participants were intrigued by a possible new, thicker, "Steak-like" pink rainbow trout well suited "for a gourmet dinner party" where "you are not wanting to come across like grandma's home cooking." The steaklike thickness, combined with the salmonesque coloring translate into higher price expectations as well. In addition, strong support was found for trout fillets. Non-trout eaters associate trout with the whole fish (which evoked comments such as "snake-like skin," "evil eyes," and "bones, bones, BONES." Thus, the facilitators of the focus groups felt in their summary, that one of the biggest barriers to increased trout consumption is the presentation of the whole fish.

Consumer Survey

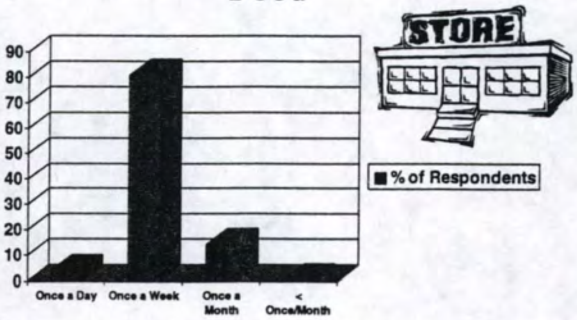
The consumer survey was done by telephone, utilizing software which branches to differing questions dependent upon the respondents response (CI3). This technique actually generated four distinct questionnaires: one each for vegetarians, non fish or seafood eaters, non trout eaters, and trout eaters.

The sample size for Los Angeles was 1400. Of this number, 406 were ineligible because the phone number was a business or government agency which hadn't been screened out, had been disconnected, the respondent was in poor health and could not complete the survey or spoke a language which our interviewers could not speak (interviewers were available who spoke Chinese, Spanish, Vietnamese and Russian). Thus there were 994 eligible for the survey. Of this number, 405 completed the interview for a response rate of 41 percent (405/994).

The sample size for Chicago was 1375, with 454 ineligible for the same reasons as mentioned above. This left 921 eligible respondents; 349 interviews were completed for a response rate of 38 percent (349/921).

The survey was initiated with general questions on food purchases and consumption. Figure 1 shows that the vast majority (80.8 percent) of Americans visit the grocery store once a week (unlike our European counterparts who tend to buy food on a biweekly or daily basis).

Fig. 1. Frequency of Visits to Buy Food



Respondents were asked about their purchasing behavior for meat, poultry and fish (Figures 2 - 6). Dairy products were consumed by 46 percent of the sample on a daily basis and by another 42.6 percent at least once a week. This contrasts with poultry (including eggs), which was eaten daily by only 21.1 percent of the sample, but eaten weekly by another 70.6 percent of the respondents. Few respondents (5.0 percent) ate beef daily, with a much larger percent (64.3) eating beef weekly. Pork and fish consumption were similar in nature: very few respondents ate these products daily (0.9 percent and 1.7 percent, respectively), with weekly and monthly consumption about equally split (31.2 percent and 43 percent for weekly pork and fish consumption, respectively and 32.8 percent and 39.5 percent for monthly consumption of the same items, respectively).

Fig. 2. Frequency of Beef Consumption

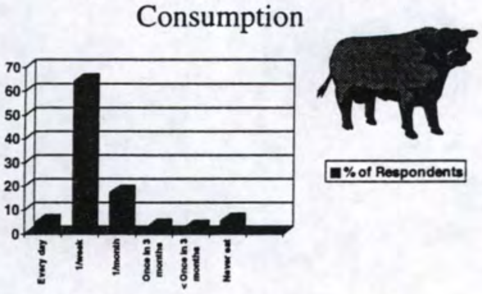


Fig. 3. Frequency of Pork Consumption

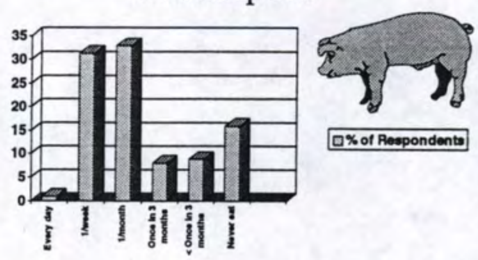


Fig. 4. Frequency of Dairy Products Consumption

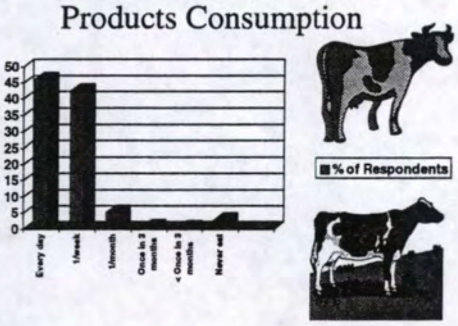


Fig. 5. Frequency of Poultry Products Consumption

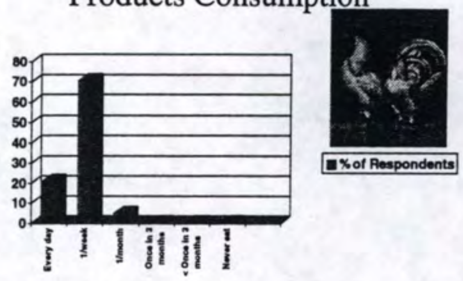
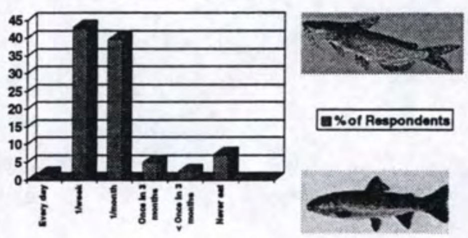


Fig. 6. Frequency of Fish Consumption



Following the general questions, the survey then became more focused on fish consumption. Figure 7 summarizes those survey respondents who have tried different fish and/or seafood in the past five years. The largest portion of the sample (76.4%) had tried tuna. This was followed by shrimp at 76 percent, salmon at 59 percent, and crab at 50.4 percent. Forty-one percent of the respondents had eaten trout in the past five years.

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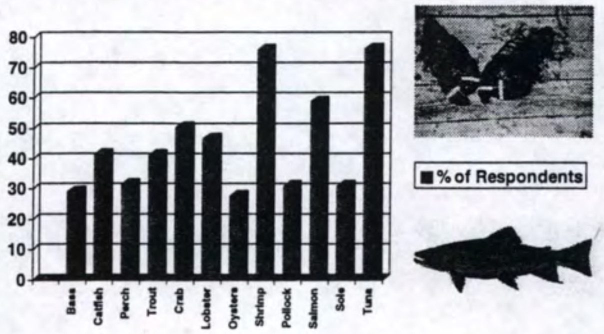
portion of the sample (76.4%) had tried tuna. This was followed by shrimp at 76 percent, salmon at 59 percent, and crab at 50.4 percent. Forty-one percent of the respondents had eaten trout in the past five years.

Fig. 7. Percentage of Respondents Trying Different Fish and Seafood in Past 5 Years



Interviewees were then questioned regarding the importance they placed on differing attributes which might influence their decision to purchase fish and/or seafood (Figures 8 - 11). Taste placed highest in terms of that item having the largest percentage of people (91.0%) stating that it was a "very important" attribute influencing their fish purchase decision. This was followed by freshness at 90.8% and then appearance and smell at 84.2 and 83.5 percent, respectively.

Fig. 8. Importance of TASTE to Fish/Seafood Purchase Decision

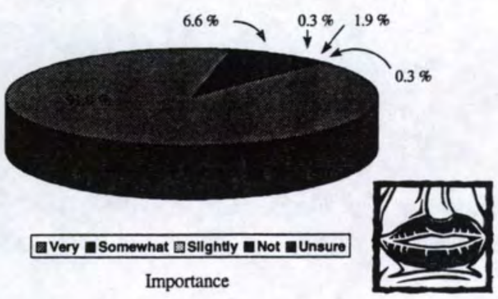


Fig. 9. Importance of FRESHNESS to Fish/Seafood Purchase Decision

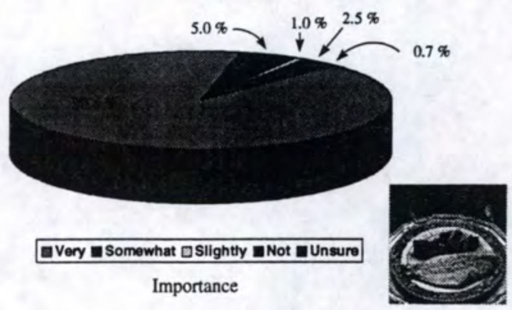
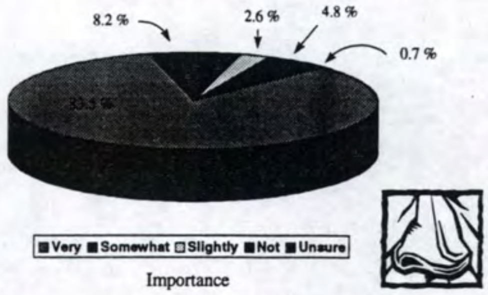


Fig. 10. Importance of APPEARANCE to Fish/Seafood Purchase Decision

Fig. 11.Importance of SMELL to Fish/Seafood Purchase Decision



As lifestyles have changed, consumers are increasingly desiring foods that are more convenient to prepare. As discussed in the relevant literature section regarding findings in Europe, this study also found support for consumer demand for filleted trout. Almost fifty-three percent of the respondents indicated that they would be "very likely" to purchase fresh trout filets (Figure 12). In addition, another 31.9 percent of those surveyed indicated that they would be "somewhat likely" to purchase trout in this form. Again, following the trend toward more convenience -- the second ranking product form in terms of those indicating a "very likely" probability of purchase, was fresh trout steaks with 44.9 percent of the sample indicating a "very likely" probability of purchase of this product (Figure 13). Almost thirty five percent of the sample indicated that they would "very likely" purchase fresh whole trout (Figure 14).

Fig. 12. Trout Form Preference
Fresh Trout Filet

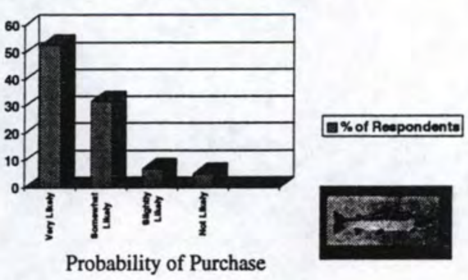


Fig. 13. Trout Form Preference
Fresh Trout Steaks

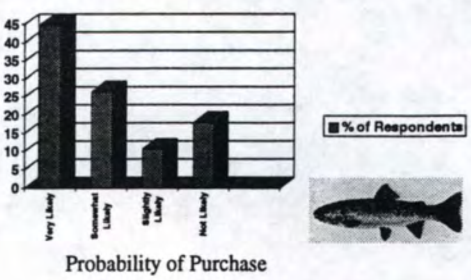
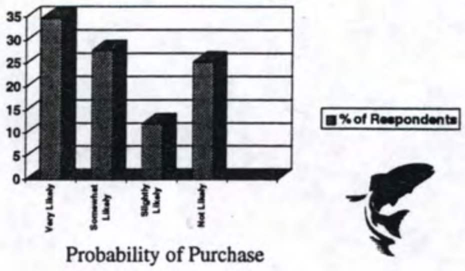
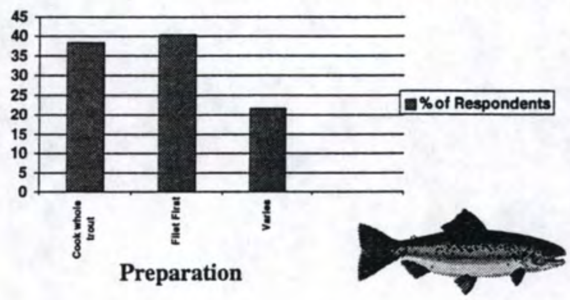


Fig. 14. Trout Form Preference
Fresh Whole Trout



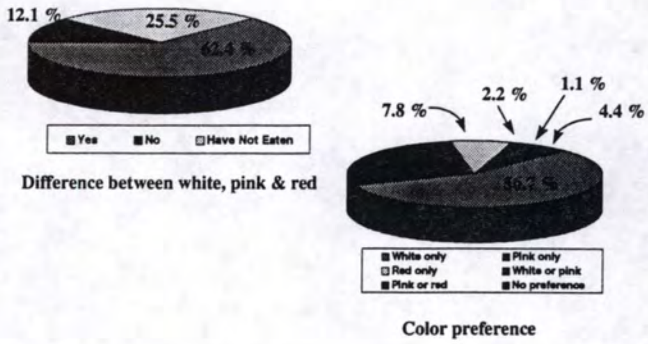
Given that the market as it appears today (at least as far as the way processors and grocery stores sell trout) is largely fresh whole trout, the survey asked consumers what they do with whole trout (Figure 15). The largest percent (40.4%) indicated that they filet the whole trout first. This was followed fairly closely with 38 percent of the respondents who said that they cook the trout whole. Given the above comments regarding the probability of purchase of trout filets, it is interesting to note that many consumers already filet the whole trout that they buy.

Fig. 15. What Consumers Do
With Whole Trout



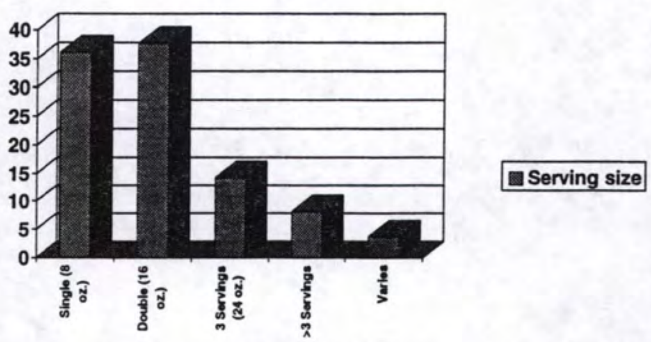
Trout producers have the opportunity to raise trout with pink colored flesh through the feeding of different feedstuffs. The survey attempted to ascertain whether consumers felt there was a difference between white, pink and red fleshed trout. Sixty-two percent of the respondents felt that there was a flavor difference between different colored trout, with 56.7 percent indicating a preference for white-colored flesh and 27.8 percent indicating a preference for pink-colored flesh (Figure 16). These findings indicate that there is an opportunity for pink colored trout.

Fig. 16. Perceived Flavor Difference and Preference for Various Trout Flesh Colors



Regarding serving size, consumers were about evenly split, with 36.1 percent indicating a preference for a single 8 ounce serving and 37.7 percent desiring a double or 16 ounce serving for purchase (Figure 17).

Fig. 17. Trout Serving Size Preference



Percentage of Respondents

Tradition continued to carry through in terms of packaging/presentation as a large majority (79.6%) of the respondents wanted trout presented on ice (as it has historically been presented in the fish case) (Figure 19). Trout also would appear to be an impulse item for most shoppers as 53.8 percent of those surveyed said it was not necessarily on their shopping list (Table 16). This has definite implications for marketers -- whether it be grocery stores or processors. Eye catching slogans, in-store advertising, coupons and other methods need to be employed to do one of two things: make the consumer decide to buy trout when they pass the fish counter, and/or get them to add trout to their shopping list through the use of coupons or newspaper/magazine advertising.

Fig. 19. Trout Grocery Store Presentation Preference

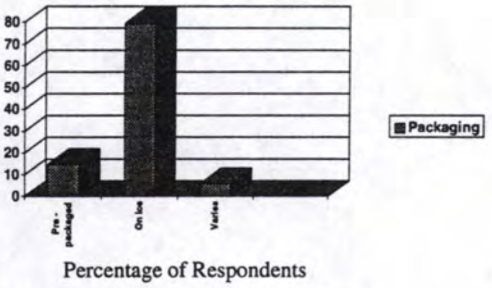
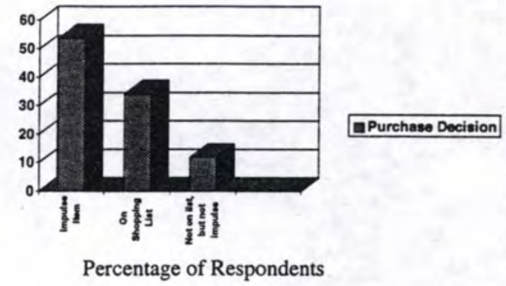
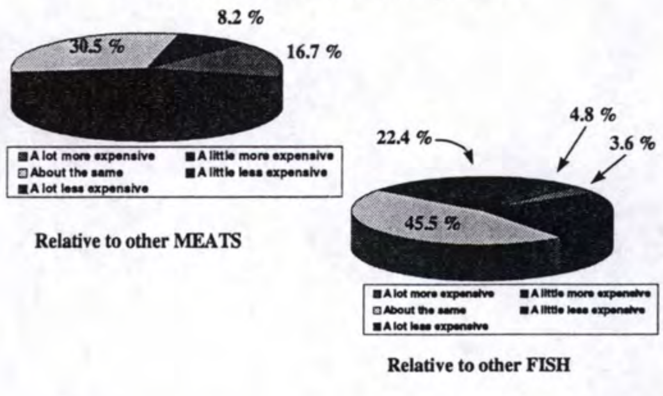


Fig. 20. Trout Purchase Decision



One of the important determinants of demand for any product is the price of that product. This study elicited responses from consumers as to how they viewed the price of trout relative to other meats and other fish (Figure 21). Respondents seemed to feel that trout was somewhat more expensive than other meats, as 16.7 and 44.2 percent indicated that trout was either "A Lot More Expensive," or "A Little More Expensive," respectively. However, relative to other fish trout fared much better, as the majority of respondents (45.5%) felt that trout was "About the Same" price as other fish.

Fig. 21. Price Comparison of Trout Versus Other Meats and Other Fish



Non-trout consumers were afforded the opportunity to indicate what about the appearance of trout would influence them NOT to buy it. This was an "open-ended" question, meaning they could "fill-in-the-blank" with their own response. Of those that answered this question, almost nine percent said that the "whole fish" is what turns them off to buying trout, while another seven percent indicated "color" as a reason not to buy, followed by 6.3 percent indicating "skin" as a non-purchase reason. An equal percent (4.7%) stated that "bones, eyeballs and head" caused them not to purchase trout. In addition to the "convenience factor" mentioned above regarding consumers desire for quicker and easier meals, there is the concern mentioned in the focus groups that some consumers do not like to have to deal with the whole fish -- the head and bones turn them off. Many consumers today do not want to be reminded about where the meat comes from -- they would like to disassociate the filet of fish from the fish, or the pork chop from the pig -- it is somehow neater and more acceptable to them. As society becomes further removed from the farm or place of production, we don't have to slaughter and cut up our own chickens or pigs -- the same applies to trout. Now, this is not true for everyone, as those consumers who fish, and eat what they catch, must gut, clean and perhaps filet their catch.

Consumers in the survey were asked what types of food they serve with trout. The largest percentage of respondents stated that they served rice (12.2%) followed by lettuce/spinach salad (10.2%) and then lemon (9.9%) (Figure 22). Producers of another Idaho commodity -- potatoes -- will be glad to note that 9.5 percent of the sample serve potatoes with trout.

Fig. 22. Foods Served with Trout

Type of Food	**% of Respondents**
Rice	12.2
Lettuce/spinach salad	10.2
Potatoes	9.5
Lemon	9.9
Mixed vegetables	8.8
Brocolli	6.8

Trout producers are concerned about how their fish compare in relation to wild trout. Consumers in the survey were asked to compare farm raised trout to wild trout on several attributes. In the key area of safety, farm trout was ranked as "better" by 49.7 percent of the respondents (Figure 23). This is a key findings, that trout producers should be able to use to their advantage, and likely comes about because of consumer concerns regarding polluted waters that wild trout may inhabit. On the other attributes of taste, freshness, nutritional value and texture, farm raised trout was rated "about the same" by the majority of the respondents (though there was variability in the responses as can be seen in Figures 24 - 28).

Fig. 24. Comparison of Farm Raised Trout to Wild Trout
SAFETY

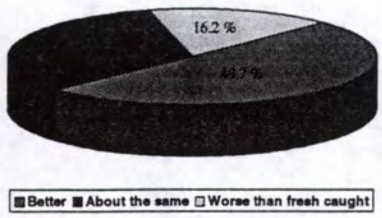


Fig. 25. Comparison of Farm Raised Trout to Wild Trout
TASTE

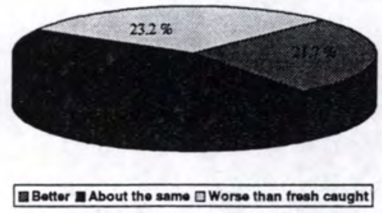


Fig. 26. Comparison of Farm Raised Trout to Wild Trout
FRESHNESS

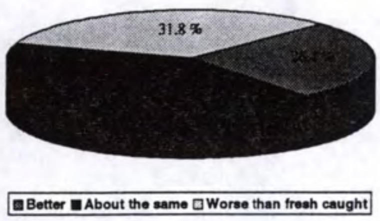


Fig. 27. Comparison of Farm Raised Trout to Wild Trout
NUTRITIONAL VALUE

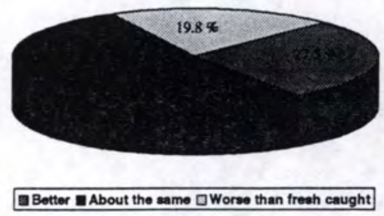
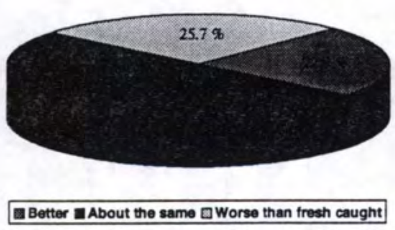


Fig. 28. Comparison of Farm Raised Trout to Wild Trout
TEXTURE



The final area investigated by the survey were reasons people gave for not eating trout. Responses were separated by group: non-fish/non-seafood eaters and non-trout eaters. Figure 29 summarizes some of the responses of these groups. Taste was a more important reason why non-trout eaters did not eat trout than it was for non-fish/non-seafood eaters, as 64.7 percent said this was a "very important" reason as to why they did not eat trout, relative to 51.1 percent of the non-fish/non-seafood eaters. Concerns about safety was an additional area where there was a considerable difference between these two groups. 61.8 percent of the non-trout eaters stated that concern about fish safety was "very important" to them compared to 40.4 percent of the non-fish/non seafood eaters.

Fig. 29. Reasons for NOT Eating Trout: Non-Fish Seafood Eaters and Non-Trout Eaters

Reason	Importance			
	Very important	Somewhat important	Slightly important	Not important
Taste	51.1/64.7	4.3/10.1	2.1/2.3	42.6/22.8
Price	17.0/25.0	10.6/35.6	8.5/5.0	63.8/34.4
Appearance	37.0/41.1	8.7/16.7	4.3/5.6	50.0/36.7
Fish odor	61.7/57.3	4.3/11.9	4.3/4.1	29.8/26.7
Concern about fish safety	40.4/61.8	6.4/15.6	4.3/1.4	48.9/21.2

Concluding Comments

The findings from this study should assist the trout industry in preparing for the future in terms of attributes and other characteristics that consumers are looking for when they consume trout. Some of the key findings were: 1) filleted trout is a desirable item – both from a convenience standpoint and for those consumers that have concerns about the head, tail and eyes of whole fish; 2) trout steaks would also be a desired product form; 3) While white flesh colored trout continues to be the variety with dominant demand, there is a significant percentage of consumers who desire pink colored trout; 4) taste and freshness are two key qualities which are very important to the fish purchase decision; 5) farm raised trout is perceived as safer than wild trout by a majority of consumers.