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PART THREE: A Closer Look at Performing Contingent Valuation

15. Contingent Valuation of Consumers' Willingness to Purchase Pork with Lower Saturated Fat

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Contingent Valuation of Consumers' Willingness to Purchase Pork with Lower Saturated Fat

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Since the 1950s, research has shown that the saturated fatty acid content of pork can be reduced by feeding swine diets higher in unsaturated fat (Brooks 1971). This is usually accomplished by the addition of unsaturated fat or oil to the animals' diet. Advances in genetic engineering provide opportunities to improve quality traits, such as increased levels of unsaturated fatty acids or lower levels of saturated fatty acid, in commercial feed grains. The incorporation of these new varieties of grains into swine diets may make it possible to produce pork lower in saturated fat without the addition of oil to the diet (Sterling et al. 1994).

This chapter examines the economic impacts of lower saturated fat (LSF) pork on market demand and price. Specifically, we address two objectives: (1) to estimate willingness to consume and (2) to estimate willingness to pay. To achieve these objectives, a nationwide telephone survey was conducted on consumers' current purchasing and consuming patterns, awareness and practices in regard to diet and health issues, and willingness to purchase and consume pork products with LSF. The analytical method used to evaluate product acceptance was effects-coding (EC) regression analysis, where willingness to pay and consume more were expressed as a function of socio-demographic variables.

Model Framework

The model framework for consumer acceptance of LSF pork is based on Lancaster's attribute model of consumer choice which builds on the traditional

model of consumer demand (Ratchford 1975). In Lancaster's model, utility is derived from the attributes or characteristics a good possesses which influence the quantity of the good consumed. In other words, a consumer maximizes utility from the consumption of a bundle of products with certain attributes. Thus, the consumer's choice problem is to select attributes that maximize utility under a budget constraint.

Van Ravenswaay et al. (1992) developed a willingness to pay model for a single product X_1. With initial attributes r_0 offered at equilibrium price P_1^0, the authors showed that if the demand function is linear or semialgorithmic for that product, willingness to pay (WTP) for a change in the level of one of its attributes from r_0 to r_1 can be expressed as:

$$WTP = \left(P_1^1 - P_1^0\right) X_1(r_1), \tag{1}$$

where P_1^1 is the willingness to pay price of X_1 after the attribute changes.

Studies have shown that households' preferences for goods are a function of socio-demographic characteristics in addition to price and attributes (Raunikar and Huang 1987). In these studies, the impact of socioeconomic and demographic variables on consumption of a good is often analyzed from cross-sectional data. Cross-sectional data usually exhibit minimal price variations. Typically, a traditional demand function with cross-sectional data is specified as a function of nonprice variables such as income, etc. Thus, in the absence of price variations and incorporating socio-demographic information, the demand function for any commodity for cross-sectional data can be specified as:

$$X_1 = X_1(S) \tag{2}$$

where S = a set of socioeconomic and demographic variables.

Combining equations 1 and 2, WTP can be expressed as:

$$WTP = \left(P_1^1 - P_1^0\right) X_1(S|r_1), \tag{3}$$

which implies that willingness to pay is a function of attributes of X_1, and the socioeconomic and demographic factors. In the same manner, the willingness to consume (WTC) X_1 for a change in the level of one of its attributes from r_0 to r_1 can be expressed as:

$$WTC = \left(X_1^1 - X_1^0\right) X_1\left(S|r_1, P_1^0\right) \tag{4}$$

where X_1^1 is the quantity that the respondent is willing to consume with the equilibrium price remaining at P_1^0 after the attribute changes.

Data Collection and Survey Administration

A national consumer survey was designed to collect data on willingness to pay and consume more fresh pork products with a 25 and 50 percent reduction in saturated fat content. Earlier studies have shown that the technology does exist to reduce the quantity of fat in pork carcasses by 59 percent (Hollis 1989). The survey was administered over the telephone by a staff of professional telephone interviewers. A total of 1,213 potential respondents were contacted from a nationwide random commercial telephone list. A total of 417 were successfully interviewed, resulting in a response rate of 35 percent. Of the nonrespondents, 397 refused to be interviewed, 249 could not be reached, and 150 were screened for various reasons.

The survey consisted of four parts (for the text of the survey see Appendix 15.A). The first part of the questionnaire concerned diet and health issues which may influence consumption patterns. The second part collected data on consumers' current consumption patterns. Part three explored consumers' potential willingness to pay for and consume pork products with reduced levels of saturated fat. This part began with an explanation of "Good Grain," a new variety of grain developed to be lower in saturated fat. Specifically, the respondents were asked: Knowing that for a serving of cooked pork (not ham) there are about 8 grams of saturated fat, if "Good Grain" can reduce the amount of saturated fat in pork from 8 grams to 6 grams, which is a 25 percent reduction, how much more per pound would you be willing to pay, and how much more would you be willing to consume? Finally, part four collected socio-demographic data on the respondents. The survey was subjected to focus group analysis for clarity and understanding. It was also pretested by phone on a group of respondents before data collection began.

Profile of Respondents

Data were collected to represent the U.S. population. Table 15.1 shows the profile of the respondents, who are primary food shoppers. The greatest number of responses came from the Midwest and South. Forty-three percent of the responding households were comprised of only two members. Over 56 percent of those responding had household incomes less than $45,000. An overwhelming majority (79.1 percent) of the respondents were female indicating that females do the majority of the primary food shopping. Of particular interest is the ethnic background of the respondents, where the sample skewed in favor of a majority of white Americans (91.6 percent). A large majority (71.4 percent)

TABLE 15.1 Profile of Respondents

	Number of Respondents	Percent	
		Survey	U.S.
Region[a]			
Midwest	131	31.4	24.0
Northeast	89	21.3	21.0
South	123	29.5	34.0
West	74	17.8	21.0
Household Size			
1	63	15.1	25.0
2	181	43.4	32.0
3	63	15.1	17.0
4	70	16.8	15.0
5-6	33	7.9	9.0
7 or more	7	1.7	1.7
Income (000)			
< 15	58	13.91	24.3
15-24	53	12.72	17.5
25-34	73	17.51	15.8
35-44	51	12.23	11.9
45-54	41	9.83	11.0
55-64	22	5.27	5.9
> 65	33	7.91	9.5
Refused	86	20.62	–
Gender			
Female	330	79.14	53.0
Male	87	20.86	47.0
Ethnic			
Black	25	5.99	12.0
White	382	91.61	75.0
Asian	3	0.72	3.4
American Indian	1	0.24	0.5
Hispanic	3	0.72	9.1
Other	3	0.72	–

(continues)

TABLE 15.1 *(continued)*

	Number of Respondents	Percent	
		Survey	U.S.
Marital Status			
Married	297	71.39	71.0
Unmarried	119	28.61	29.0
Age			
18-24	19	4.56	26.0
25-34	73	17.51	21.2
35-44	82	19.66	18.3
45-54	63	15.10	12.1
55-64	75	17.99	9.8
65 and over	101	24.22	12.3
Refused	4	0.96	–
Education			
Below 12th Grade	38	9.87	24.8
High School Graduate	155	40.26	30.0
Some College	104	27.01	24.9
College Graduate	56	14.55	13.1
Postgraduate	32	8.31	7.2

[a]Regions defined according to U.S. Department of Labor regional classification for their Consumer Expenditure Diary Surveys.

of the respondents indicated they were married. The age group of 65 and over had the greatest representation (24.2 percent).

Slightly less than half (49.9 percent) of those responding had attained an educational level beyond that of high school, with less than 23 percent completing college or higher. In general, the survey respondents' profiles fitted the U.S. Census population profile quite well (see Table 15.1). The discrepancies in some areas are due to the focus of the survey which only targets pork consumers and primary shoppers.

Results

In the telephone survey, respondents were asked a number of questions concerning diet and health awareness, which could influence their consumption patterns (for a complete text of the questionnaire, see Appendix 15.A). A number

of consumer surveys provide evidence that nutrition and wholesomeness are major concerns of the meat-buying public (Breidenstein and Carpenter 1983, Putler and Frazao 1988). Respondents were asked to identify their primary source of diet and health information. The media served as the principal source of information for a large number of respondents with 17.9 percent indicating their information came from a magazine, 17.6 percent referred to the newspaper, and 10.2 percent considered TV/radio as their primary source of health and diet information. Respondents also relied on the medical profession for health-related information with 40.6 percent reporting their information came from a doctor.

When asked if they knew their serum cholesterol level, the majority (55.5 percent) of the respondents said they did not. Of the 44.5 percent who did, 154 respondents gave an actual level which ranged from 66-347 mg/dl. These cholesterol levels were divided into categories associated with the degree of risk for heart disease (National Institutes of Health 1987). Thirty-nine percent of the respondents were in the low risk category (< 200 mg/dl), 38.3 percent were in the borderline-high risk category (200-239 mg/dl), and 22.7 percent were in the high risk category (> 240 mg/dl).

Respondents were asked if they had heard of saturated and unsaturated fat. Less than one percent of the respondents indicated they had not heard of saturated and unsaturated fat. Regardless of their answers, respondents were given a standard definition (see Appendix 15.A) of saturated and unsaturated fat before WTC and WTP questions were asked. Respondents were also asked questions on how often they read information provided on food labels. Seventy-eight percent of the respondents said they usually read the label for information on fat, and 10 percent said they sometimes read for fat information. When asked about reading labels for information on cholesterol, 59.1 percent said they usually did, and 12.5 percent did sometimes. Respondents were asked if they read the labels of meat products for information on fat content. Nearly 51 percent indicated they usually did, 13.7 percent said they sometimes did, and 35.5 percent said they never read the labels of meat products for information on fat content.

Respondents were asked if they had reduced their consumption of fresh pork or processed pork products in the last five years. Fifty-nine percent of the respondents said they had reduced their consumption of fresh pork and 56 percent had reduced their consumption of processed pork. When asked if concern about fat intake was the reason for the reduction in consumption of pork products, 68 and 77 percent said it was the reason for their reduced consumption of fresh and processed pork, respectively.

Fifty-four percent of the respondents indicated they were willing to increase their consumption of fresh pork if the saturated fat content was reduced. Respondents were also asked how many more times per month they would eat pork if saturated fat levels were decreased by 25 percent and 50 percent. Direct results from the survey indicate that for fresh pork products with 25 percent less

saturated fat, 27 percent of the respondents would pay 10 cents more, 14 percent would pay 25 cents more, and 11 percent of the respondents said they would pay 50 cents more per pound (see Table 15.2). Thirty-six percent said they would not pay any more for pork with a 25 percent fat reduction. If the saturated fat level of fresh pork products was reduced by 50 percent, 15 percent of the respondents said they would pay 10 cents more, 18 percent would pay 25 cents more, 10 percent would pay 50 cents more, and 8 percent indicated they would be willing to pay 75 cents more per pound. Twenty-seven percent of respondents said they would not pay any more for pork with a 50 percent saturated fat reduction.

Impact of Socio-Economic and Demographic Factors on WTC and WTP for LSF Pork

The impact of socio-economic and demographic factors on willingness to consume and pay more for LSF fresh pork was analyzed using effects coding (EC) regression. The EC dummy variable technique was used to code the qualitative socio-demographic variables of the regression model (Cohen and Cohen 1983). The models for willingness to consume and pay more were expressed as follows:

TABLE 15.2 Willingness to Pay for LSF Pork

	Reduction in Saturated Fat	
Price Increase in Cents	25%	50%
	% of Respondents	
0	36	27
10	27	15
15	1	5
20	4	4
25	14	18
30	1	3
40	1	1
45	0	1
50	11	10
75	3	8
100	1	3
> 100	2	4

Note: There were 417 total responses.

$$WTC,\ WTP = \beta_0 + \beta_{1i}(Reg) + \beta_{2i}(Size) + \beta_{3i}(Edu) + \beta_{4i}(Eth) + \beta_{5i}(Age) + \beta_{6i}(Inc) + \beta_{7i}(Rdl) + \beta_{8i}(Gend) \quad (5)$$

where i represents the number of categories within the variable, Reg = region, Size = household size, Edu = education level, Eth = ethnic background, Age = age, Inc = income, Rdl = those who read labels, and Gend = gender (see Table 15.1 for categories). The intercept β_0 represents WTC and WTP without the effects of demographic variables.

The value of using effects coding instead of traditional dummy variable coding is the ability to easily obtain coefficients for all (k) levels of all attributes. In effects coding, the kth base level is represented as -1 instead of 0. This coding technique constrains the levels of each feature to sum to 0. The coefficient for the base level is easily calculated as the negative sum of the (k -1) level coefficients. The intercept becomes the mean willingness to pay/ consume, and socio-demographic coefficients measure deviation from the mean (Wirth 1989).

Results of the EC regression models are summarized in Table 15.3. The empirical model specifies increase in consumption and price as a function of various socio-demographic factors. The results are shown for two levels of fat reduction, 25 percent and 50 percent. Table 15.3 shows that if the saturated fat content of fresh pork is reduced by 25 and 50 percent, the average consumption of this product without socio-demographic effects will increase an average of 3.9 and 4.9 times per month. Moreover, depending on the level of saturated fat reduction, there are regional and socio-demographic differences that result in significantly greater increases (+) or decreases (-) at at least the 10 percent significance level from the average increase in consumption per month. For example, for 25 percent saturated fat reduction, West (+), household size of three (-), household size greater than 4 (+), education level less than 12th grade (+), black (+), age between 25-34 (+), and age between 45-54 (-) were significantly different from the average increase in consumption of 3.9 times more per month. For the 50 percent saturated fat reduction, the Northeast (-), West (+), household size of three (-), age between 25-34 (+), age greater than 64 (-), and income greater than $64,000 (+), were different from the average increase of 4.9 times per month.

Table 15.3 also shows that if the saturated fat content of fresh pork is reduced by 25 and 50 percent, the average willingness to pay without socio-demographic effects will increase an average of 20 and 29.9 cents per pound, respectively. Moreover, depending on the level of saturated fat reduction, there are regional and socio-demographic differences. For 25 percent saturated fat reduction, the Midwest (-), household size of two (+), income level between $55,000 to 64,000 (+), and male (-) were significantly different from the average willingness to pay more. For the 50 percent saturated fat reduction, the

TABLE 15.3 Estimated Influence of Socio-Demographic Characteristics on WTC and WTP for LSF Fresh Pork

Socio-Demographic Characteristics	Consumption (times per month)		Price (cents per pound)	
	25 percent LSF	50 percent LSF	25 percent LSF	50 percent LSF
Average Increase	3.9	4.9	20.0	29.9
Region				
Midwest			-5.7	-5.9
Northeast		-1.0		
South				
West	0.8	1.0		
Household Size				
One				
Two			4.5	7.7
Three	-1.4	-1.5		
Four				
> Four	1.1			-10.3
Education				
Below 12	1.1			
High-School Graduate				
Some College				
College Graduate				
Post Graduate				
Ethnicity				
Black	0.9			
White				
Age				
18-24				
25-34	1.1	1.3		
35-44				
45-54	-1.1			
55-64				
> 64		-1.8		

(continues)

TABLE 15.3 *(continued)*

Socio-Demographic Characteristics	Consumption (times per month)		Price (cents per pound)	
	25 percent LSF	50 percent LSF	25 percent LSF	50 percent LSF
Income (000 $)				
Below 15				
15-24				-10.4
25-34				
35-44				
45-54				
55-64			10.6	21.0
> 64		2.0		
Read Label				
Yes				
Sometimes				
No				
Gender				
Female				
Male			-3.5	-5.3
No. of Respondents	200	211	255	292

Note: Numbers in table are significant at least at the 10 percent level.

Midwest (-), household size of two (+), household size greater than four (-), income level between $15,000 and 24,000 (-) or $55,000 and 64,000 (+), and male (-) were significantly different from the average willingness to pay more.

Conclusions

Animal products contribute significantly to the total nutrients in the food supply, with meat accounting for the largest proportion of the calories. Advances in genetic engineering have made it possible to develop feed grains which are tailored to the specific needs of the livestock producer, and the desires of the health-conscious meat consumer. The ability to manipulate the fatty acid

composition of pork by feeding tailor-made grain lower in saturated fat, may allow pork producers to create higher-quality, healthier pork products.

A national consumer survey was designed to collect data on consumers' willingness to pay and consume pork products with a 25 and 50 percent reduction in saturated fat. The survey also asked how much more consumers would be willing to pay for the improved pork products. The manner in which the survey questions were asked minimized unrealistic responses by first establishing current level of price and consumption, and then asking the willingness to consume and pay more. The effects coding regression technique was used to evaluate how each level of each socio-demographic variable impacts WTC and WTP models.

Results confirmed the hypothesis that if the level of saturated fat is reduced, pork consumption will increase. The model results showed that the largest potential for increase in consumption will be household size of three or greater. Respondents from the West appeared to be the most willing to increase consumption of pork if its nutritional quality were improved. Respondents age 45 and older were the least likely to increase consumption of the improved or value-added pork products. Overall, survey respondents were willing to pay (on average 16 to 23 cents) more per pound for fresh pork with reduced levels of saturated fat. Respondents with larger incomes were more willing to pay a higher price for the improved products. Respondents from the Midwest region were generally less willing to pay more. This could be due to the fact that the consumers in the Midwest region are already consuming more pork than those in other regions. Household sizes of two are more willing to pay higher prices for LSF pork. Respondents with income above $54,000 are more willing to pay higher prices. Finally, males are less likely to pay more.

It was surprising that the demographic variables of education, ethnicity, and respondents who read labels, did not have much effect on increased consumption of pork or willingness to pay higher prices for healthier pork products. Respondents also said that the new pork products should be appropriately labeled to identify the added value. For example, pork from "Good Grain" should be labeled as lower in saturated fat content. Past purchasing patterns suggest this is essential to the successful marketing of new and improved pork products.

References

Breidenstein, B. C. and Z. L. Carpenter. 1983. The Red Meat Industry: Product and Consumerism. *Journal of Animal Science* 57(sup. 2):119-132.

Brooks, C. C. 1971. Fatty Acid Composition of Pork Lipids as Affected by Basal Diet, Fat Source, and Fat Level. *Journal of Animal Science* 33:1224-1231.

Cohen, Jacob and Patricia Cohen. 1983. *Applied Multiple Regression—Correlation Analysis for Behavioral Sciences*. 2nd Edition. New Jersey: Lawrence Erlbaum.

Hollis, G. R. 1989. Porcine Somatotropin: A Tool for Producing Leaner Hogs More Efficiently. *Veterinary Medicine* 1989(December):1188-1194.

National Institutes of Health. 1987. *Eating to Lower Your High Blood Cholesterol*. No. 87-2920. Washington, D.C.: National Institutes of Health.

Putler, D. and E. Frazao. 1988. *Food Review.* United States Department of Agriculture, Economic Research Service:16-22.

Ratchford, Brian T. 1975. The New Economic Theory of Consumer Behavior: An Interpretive Essay. *Journal of Consumer Research* 2:65-75.

Raunikar, Robert and Chung-Liang Huang. 1987. *Food Demand Analysis.* Ames, IA: Iowa State University Press.

Sterling, Lesa G., Gary M. Fader, Beth H. Gutowski, and Catherine K. Halbrendt. 1994. The Effect of Source and Level of Dietary Fat on the Fatty Acid Composition of Muscle and Adipose Tissue in Swine. *The Professional Animal Scientist* 10:11-17.

van Ravenswaay, Eileen O., Jennifer B. Wohl, and John P. Hoehn. 1992. Michigan Consumers' Perceptions of Pesticide Residues in Food. Department of Agricultural Economics Staff Paper No. 92-56, Michigan State University.

Wirth, Ferdinand F. 1989. Mid-Atlantic Market Preferences Toward Farm-Raised Hybrid Striped Bass: A Conjoint Analysis. M.S. Thesis, University of Delaware.

Appendix 15.A

TELEPHONE SURVEY

City:_____
State:_____
Tel.:_____

LOW SATURATED FAT—PORK PRODUCTS SURVEY

Introduction: Hello, I am _____. I am calling for the University of Delaware. We are conducting a national survey to look at Food Purchasing Decisions and we are interested in interviewing you to get your opinion.

Like to talk to the primary food shopper. If busy, call back later.

Time:_____ Date:_____

1. Have you ever eaten or do you currently eat <u>any</u> of the following: Pork, bacon, sausage, or ham.
   Yes ( ) No ( ) (**IF 'NO' THEN TERMINATE THE INTERVIEW**)

2. Including yourself, how many people are there in your household?
(**CHECK ONE**)

One	( )	Three	( )	Five or six	( )
Two	( )	Four	( )	Seven or more	( )

3. Are you or any of your family on a fat or cholesterol-restricted diet?
Yes ( ) No ( ) (**IF 'NO' THEN SKIP TO 5**)

4. For which of the following reasons?
(**CHECK ALL THAT APPLY**)

Medical Reasons	( )	Weight Reduction	( )
Hereditary Reasons	( )	Other (Please Identify)_____	

5. What is your **primary** source of healthy eating tips?
(**CHECK ONE**)

Doctor	( )	Magazine	( )
Newspaper	( )	Newsletter	( )
TV/Radio	( )	Books	( )

Other _____

6. Do you know your blood cholesterol level?
Yes ( ) No ( ) (**IF 'NO' THEN SKIP TO 8**)

7. What is your level? _____

8. On **average** how often, **at home and away from home**, do you eat the following?

	Times a Week	Times a Month	Times a Year	Other
a. Beef	( )	( )	( )	( )
b. Chicken	( )	( )	( )	( )
c. Turkey (luncheon meat)	( )	( )	( )	( )
d. Fish or seafood	( )	( )	( )	( )
e. Fresh pork/pork chops	( )	( )	( )	( )
f. Bacon	( )	( )	( )	( )
g. Sausages	( )	( )	( )	( )
h. Luncheon ham	( )	( )	( )	( )

9. Do you read labels on the food you buy?
Yes ( ) No ( ) (**IF 'NO' THEN SKIP TO 13**)

10. Which of the following do you read for and how frequently?

	Usually	Sometimes	Never
a. Calories	( )	( )	( )
b. Cholesterol level	( )	( )	( )
c. Fat content	( )	( )	( )
d. Other _____	( )	( )	( )

11. If you are shopping and you see a product label that says either low-fat, cholesterol-free, sugar-free, low-sodium, how accurate do you think they generally are: (**CIRCLE ONE**)

VERY ACCURATE NOT ACCURATE
1 2 3 4 5

12. Do you read labels on **meat and meat products** such as luncheon meats to see what the fat content is? (**CHECK ONE**)
Usually ( ) Sometimes ( ) Never ( )

13. Have you reduced the amount of fresh pork (not ham) you ate in the last five years?
Yes ( ) No ( ) (**IF 'NO' THEN SKIP TO 15**)

14. Do you eat **less** fresh pork—because in your opinion, it contains more fat than other meats?
Yes ( ) No ( )

15. Have you reduced the amount of **processed** pork (sausages, bacon, and luncheon ham) you ate in the last five years?
Yes ( ) No ( )

16. Do you eat **less** processed pork like sausages, bacon and ham—because you are concerned with the amount of fat?
Yes ( ) No ( )

17. If no, why? _____

18. Have you heard of the following kinds of fats?
A. saturated Yes ( ) No ( )
B. unsaturated Yes ( ) No ( )

READ TO RESPONDENTS

To help you understand the next few questions I am going to read some facts about fat and grain.

Fats are made up of saturated and unsaturated fat. A diet high in saturated fat tends to raise the total blood cholesterol level. High blood cholesterol levels are associated with an increased risk of heart disease.

STATEMENTS FOR REFERENCE

A grain has been developed to feed hogs that reduces the amount of saturated fat in pork products but maintains the same flavor and texture. We call this grain "Good Grain" for later reference.

To give you some reference points—

A serving of cooked (i.e. roasted) beef contains about 9 grams of saturated fat.

A serving of cooked (i.e. roasted) chicken contains about 3 grams of saturated fat.

PROCEEDING TO THE NEXT QUESTION

19. For a serving of cooked pork (not ham) there are about **8 grams** of saturated fat. If "Good Grain" can reduce the amount of saturated fat in pork from **8 grams to 6 grams** which is a 25% reduction, how much **more** per pound would you be willing to pay? **(CIRCLE THE ANSWER, ASK FROM THE HIGHEST PRICE AND STOP ONCE ANSWER IS GIVEN)**

		Price In-crease/Lb.			**No Change**
75 cts/lb	50 cts/lb	25 cts/lb	10 cts/lb	Other_____	( )

20. How about if 'Good Grain' can reduce the saturated fat from **8 grams to 4 grams** which is a 50% reduction, how much **more** would you be willing to pay?

		Price In-crease/Lb.			**No Change**
75 cts/lb	50 cts/lb	25 cts/lb	10 cts/lb	Other_____	( )

21. How much per pound do you pay for fresh pork? _____? (**IF YOU GET PRICE SKIP TO 23**)

22. Average U.S. price is $3.03/lb. Are you paying this amount?

A. Yes ( ) (**IF 'YES' SKIP TO 23**) No ( )
(**IF 'NO' THEN PROCEED TO ASK**)

B. Higher? About $3.50 ( ) Other (Specify) _____
C. Lower? About $3.00 ( ) Other (Specify) _____
D. Don't care about price ( )
E. Don't know ( )

23. If 'Good Grain' can reduce the amount of saturated fat, do you think you would eat **more** fresh pork?
Yes ( ) No ( ) (**IF 'NO' THEN SKIP TO 26**)

(**REPEAT TO RESPONDENTS**)

24. OK, if reduction is from **8 to 6 grams** or a 25% reduction then how many **more** times a week/month would you eat 'Good Grain' pork?
TIMES a WEEK ( ) TIMES a MONTH ( ) TIMES a YEAR ( )

25. If reduction is **8 to 4 grams** which is a 50% reduction. How many **more** times a week/month do you think you would eat 'Good Grain' pork?
TIMES a WEEK ( ) TIMES a MONTH ( ) TIMES a YEAR ( )

AGAIN FOR YOUR REFERENCE,
A SERVING OF COOKED BEEF CONTAINS 9 GRAMS OF SATURATED FAT
A SERVING OF COOKED CHICKEN CONTAINS 3 GRAMS OF SATURATED FAT

26. For a serving of cooked bacon there are about **18 grams** of saturated fat. If 'Good Grain' can reduce the amount of saturated fat in bacon from **18 grams to 13 grams** which is a 25% reduction, how much **more** per pound would you be willing to pay? **(CIRCLE THE ANSWER, ASK FROM THE HIGHEST PRICE AND STOP ONCE ANSWER IS GIVEN)**

		Price Increase/Lb.			**No Change**
75 cts/lb	50 cts/lb	25 cts/lb	10 cts/lb	Other_____	( )

27. How about if 'Good Grain' can reduce the saturated fat from **18 grams to 9 grams** which is a 50% reduction, how much **more** would you be willing to pay?

		Price In-crease/Lb.			**No Change**
75 cts/lb	50 cts/lb	25 cts/lb	10 cts/lb	Other_____	( )

28. How much per pound do you pay for bacon? _____ (**IF YOU GET A PRICE SKIP TO 30**)

29. Average U.S. price is $2.30/lb. Are you paying about this amount?
A. Yes ( ) (**IF 'YES' SKIP TO 30**) No ( )
(**IF 'NO' THEN PROCEED TO ASK)**

B. Higher? About $2.50 ( ) Other (Specify) _____
C. Lower? About $2.00 ( ) Other (Specify) _____
D. Don't care about price ( )
E. Don't know ( )

30. If 'Good Grain' can reduce the amount of saturated fat, do you think you would eat **more** bacon?
Yes ( ) No ( ) (**IF 'NO' THEN SKIP TO 33**)

31. OK, if reduction is from **18 grams to 13 grams** or a 25% reduction then how many **more** times a week/month would you eat 'Good Grain' bacon?
TIMES a WEEK ( ) TIMES a MONTH ( ) TIMES a YEAR ( )

32. If reduction is **18 grams to 9 grams** which is a 50% reduction. How many **more** times a week/month do you think you would eat 'Good Grain' bacon?
TIMES a WEEK ( ) TIMES a MONTH ( ) TIMES a YEAR ( )

33. For a serving of cooked sausages there are about **15 grams** of saturated fat. If 'Good Grain' can reduce the amount of saturated fat in sausages from **15 grams to 11 grams** which is a 25% reduction, how much **more** per pound would you be willing to pay? **(CIRCLE THE ANSWER, ASK FROM THE HIGHEST PRICE AND STOP ONCE ANSWER IS GIVEN)**

		Price In-crease/Lb.			**No Change**
75 cts/lb	50 cts/lb	25 cts/lb	10 cts/lb	Other_____	( )

34. How about if 'Good Grain' can reduce the saturated fat from **15 grams to 8 grams** which is a 50% reduction, how much **more** would you be willing to pay?

		Price In-crease/Lb.			**No Change**
75 cts/lb	50 cts/lb	25 cts/lb	10 cts/lb	Other_____	( )

35. How much per pound do you pay for sausages? _____ (**IF YOU GET A PRICE SKIP TO 37**)

36. Average U.S. price is $2.30/lb. Are you paying about this amount?
A. Yes ( ) **(IF 'YES' SKIP TO 37)** No ( )
(IF 'NO' THEN PROCEED TO ASK)

B. Higher? About $2.50 ( ) Other(Specify)_____
C. Lower? About $2.00 ( ) Other(Specify)_____
D. Don't care about price ( )
E. Don't know ( )

37. If 'Good Grain' can reduce the amount of saturated fat, do you think you would eat **more** sausages?
Yes ( ) No ( ) (**IF 'NO' THEN SKIP TO 40**)

38. OK, if reduction from **15 grams to 11 grams** or a 25% reduction then how many **more** times a week/month would you eat 'Good Grain' sausages?
TIMES a WEEK ( ) TIMES a MONTH ( ) TIMES a YEAR ( )

39. If reduction is **15 grams to 8 grams** which is a 50% reduction. How many **more** times a week/month do you think you would eat 'Good Grain' sausages?
TIMES a WEEK ( ) TIMES a MONTH ( ) TIMES a YEAR ( )

40. For a serving of cooked luncheon ham there are about **8 grams** of saturated fat. If 'Good Grain' can reduce the amount of saturated fat in ham from **8 grams to 6 grams** which is a 25% reduction, how much **more** per pound would you be willing to pay? **(CIRCLE THE ANSWER, ASK FROM THE HIGHEST PRICE AND STOP ONCE ANSWER IS GIVEN)**

		Price In-crease/Lb.			**No Change**
75 cts/lb	50 cts/lb	25 cts/lb	10 cts/lb	Other_____	( )

41. How about if 'Good Grain' can reduce the saturated fat from **8 grams to 4 grams** which is a 50% reduction, how much **more** would you be willing to pay?

		Price In-crease/Lb.			**No Change**
75 cts/lb	50 cts/lb	25 cts/lb	10 cts/lb	Other_____	( )

42. How much per pound do you pay for ham? _____ (**IF YOU GET A PRICE SKIP TO 44)**

43. Average U.S. price is $2.70/lb. Are you paying about this amount?
A. Yes ( ) (**IF 'YES' SKIP TO 44**) No ( )
(**IF 'NO' THEN PROCEED TO ASK)**

B. Higher? About $3.00 ( ) Other(Specify)_____
C. Lower? About $2.50 ( ) Other(Specify)_____
D. Don't care about price ( )
E. Don't know ( )

44. If 'Good Grain' can reduce the amount of saturated fat, do you think you would eat **more** ham?
Yes ( ) No ( ) (**IF 'NO' THEN SKIP TO 47**)

45. OK, if reduction is from **8 grams to 6 grams** or a 25% reduction then how many **more** times a week/month would you eat 'Good Grain' ham?
TIMES a WEEK ( ) TIMES a MONTH ( ) TIMES a YEAR ( )

46. If reduction is **8 grams to 4 grams** which is a 50% reduction. How many **more** times a week/month do you think you would eat 'Good Grain' ham?
TIMES a WEEK ( ) TIMES a MONTH ( ) TIMES a YEAR ( )

(**ASK THE NEXT QUESTION IF ANY OF THE FOLLOWING 23, 30, 37 OR 44 WERE 'YES' ANSWERS)**

47. Since you have indicated that you will eat more pork products, will you eat **less** of the following:

	Yes	No		Times a Month
a. Eat less beef	( )	( )	if yes	( )
b. Eat less chicken	( )	( )	if yes	( )
c. Eat less turkey	( )	( )	if yes	( )
d. Eat less fish or seafood?	( )	( )	if yes	( )

48. What meat products do you generally buy according to brand name not grocery store brand?

Food Group	Usually	Sometimes	Never
a. Chicken	( )	( )	( )
b. Beef	( )	( )	( )
c. Pork	( )	( )	( )
d. Turkey	( )	( )	( )
e. Fish or seafood	( )	( )	( )
f. Bacon	( )	( )	( )
g. Sausages	( )	( )	( )
h. Luncheon ham	( )	( )	( )

49. If 'Good Grain' pork products are developed would you prefer the products to carry a brand name?
Yes ( ) No ( )

50. What is the average time (in minutes) you use to prepare a main course meal during:
Weekdays ( ) Weekends ( )

51. On average, how many times a month do you eat out?

For breakfast? _____ times For lunch? _____ times
For dinner? _____ times

52. Of that how many times included pork or pork products (such as pork chops, bacon, luncheon ham, and sausages?) _____ times

53. What is your highest level of education?
(**READ ALL CATEGORIES)**

Below grade 12	( )
High School Graduate	( )
Some College or Vocational/Technical School	( )
College Graduate	( )
Postgraduate	( )

54. Which age category do you fall into?

18-24 ( )	45-54	( )	Refused ( )
25-34 ( )	55-64	( )	
35-44 ( )	65 and over	( )	

55. Please indicate your marital status. Married ( ) Unmarried ( )

56. Which Household Income category do you fall into?

Below $15,000	( )	$45,000-54,000	( )
$15,000-24,000	( )	$55,000-64,000	( )
$25,000-34,000	( )	$65,000 and over	( )
$35,000-44,000	( )	Refused	( )

57. What is your ethnic background?

Black (nonHispanic)	( )	American Indian/Native Alaskan	( )
White (nonHispanic)	( )	Hispanic	( )
Asian or Pacific Islander	( )	Other (Please specify)_____	

58. What is the occupation of head of household? _____

59. Sex of respondent?

Male ( ) Female ( )