Facts
National Pork Board
PORK QUALITY
American Meat Science Association

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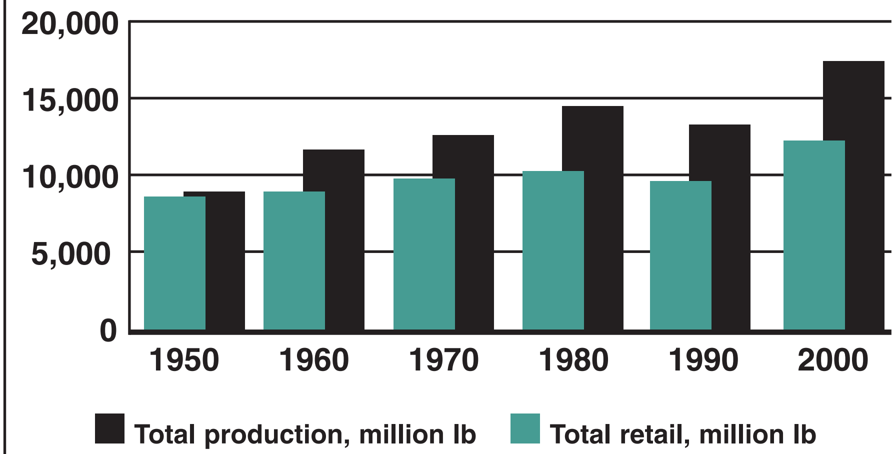
Consumer Attitudes: What They Say and What They Do

Since the 1950's, the amount of pork produced in the US has continued to increase, however retail disappearance has increased to a much lesser degree (Figure 1). This indicates two things: first, US consumption is not a high growth region, and second, the export market has claimed a growing share of US pork. The objective of this paper is to present an overview of factors which affect consumer behavior regarding pork purchase and consumption which may allow the pork industry to maximize demand for pork in the marketplace and successfully compete with other animal protein sources.

Figure 1 - Total Production and Retail Disappearance



In the 1993 NPPC Usage Study, perceived consumption of fresh pork ranked third behind fresh beef and poultry on a monthly basis. This has generally been borne out by USDA per capita consumption figures (Figure 2) meat consumption is increasing, albeit slowly; chicken consumption is increasing at the expense of beef (Figure 3). However, in 2001, the National Pork Board reported that eighty-six percent of Americans eat pork in a two-week period; pork is consumed an average of 4.7 times during that time. Eighty-three percent of Americans eat beef in a two-week period; beef is consumed an average of 3.7 times during that period. Seventy-three percent of Americans eat chicken an average rate of 2.6 times in two weeks. These data suggest that some alterations in the general trends that have occurred. However, increasing per capita pork consumption in the US may be less of an option

Figure 2 - Per Capita Meat Consumption
USDA, 2001

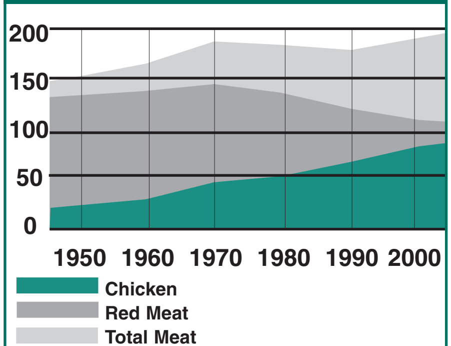
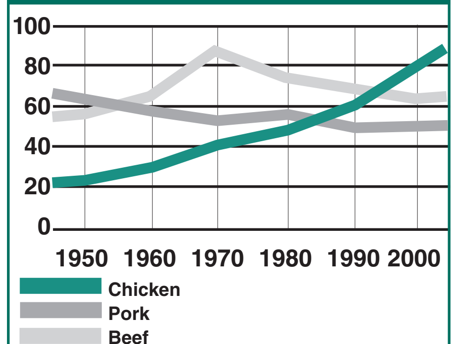


Figure 3 - Per Capita Meat Consumption
USDA, 2001



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than increasing the value of the pork being presented in the marketplace in order to maintain market share. Throughout the world, pork constitutes 41% of the total meat consumed; poultry constitutes 29% while beef constitutes 25%. According to the USDA's Foreign Agriculture Service, between 1980 and 2000, the volume of pork consumed worldwide rose 73%.

Fresh meat consumption is affected by demand for healthy safe food, environmental and ethical concerns, accidents, scandals and product safety incidents which have attracted negative media attention, and changes in consumer tastes and preferences, as well as product palatability. Efficient transmission of changes occurring at the consumer level to the preceding production stages is a prerequisite for success. A consumer focus must be the central element for a product to succeed in an increasingly competitive and saturated market.

Who Are the Consumers??

We often speak of consumers as if they were one homogenous group. They aren't!! Consumers may be any potential market for our product, they may be users of related products, they may be current users of our product, or they may be potential new users. How we approach these consumers depends on their own intrinsic characteristic; these are the factors that make them potential consumers of our product.

We can "group" consumers in a variety of ways, but grouping them by age is one of the most common because those in the same age category tend to have a good deal in common which reflects the dominant cultural values when they were growing up and entering into early adulthood. Today's consumers can be divided into four generational groups: mature consumers, baby boomers, generation X and generation Y. The mature group is composed of consumers born prior to the end of WW II. There are approximately 68 million mature consumers in 40 million households. They have a median annual household earned income of $24,000, however they often have other disposable income available from investments, retirement programs, etc. They are loyal to brand name products, especially those which they became familiar with early on in their adult years. They want high quality products containing high quality ingredients but not necessarily those making use of new technologies. They are cautious with new products because they represent change. The baby boomers were born between 1946 and 1964 during the period of economic prosperity after the end of WW II. There are approximately 76 million baby boomers in 43 million households with a median annual household income of $43,000. They are strapped for time and willing to purchase convenience; they are willing to spend more money to make life easier (i.e. convenience foods). They use money and prosperity to define their "image". Those in the generation X group were born between 1965 and 1980. There are approximately 45 million generation Xers in 14 million households with a median annual household income of $31,000. They are in the stage of their life where they are building households with limited resources so they approach finances cautiously, however they are moving into the points of their lives where they will be earning and spending more. Capturing the loyalty of this group will pay off in the not-too-distant future. The members of the generation Y group are those born since 1980. Estimated at 73 million, they wield $140 billion in discretionary spending. They are extremely brand conscious and set the trends. Members of the generation Y group are much more ethnically diverse and have more diverse preferences than preceding generations.

What Influences Consumption?

Consumption is influenced by convenience, healthfulness, taste and the general consumption trends of a particular consumer's generational group. Today, ~70% of all meals are consumed at home. However, this does not mean that these meals are prepared at home–many are restaurant "take out". Nor does it mean the meals are prepared "from scratch"—many are purchased in partially prepared form. The only food preparation method increasing in home-cooked meals is "heat and eat". About 70% of adults make their dinner decisions for that day after 4 pm (Hutter 2000). Convenience is important because more families have two working parents, mom is cooking less, and more single and retired people are preparing meals for one or two.

Many consumers eat out frequently. Therefore, meals are moving to food service: in a 30 day period, 23% of consumers eat 11-20 meals out; 24% eat 6-10 out; and 29% eat 1-5 out. Consumers eat out for a number of reasons: they don't have to shop for food (90%); for entertainment (80%); to bring the family together (75%); for menu variety (60%); because they don't have to cook or wash dishes 50%); and to celebrate a special event (45%). A recent Check-Off funded study found that 40% of consumers would like to see more pork on restaurant menus (PorkReport 2001). Between 1996 and 1998, the number of new pork items on chain restaurant menus grew from 187 to 256 indicating a response in the food service sector to the consumer shift towards eating out and to their desire for a greater variety of menu choices (PorkReport 2001).

What Do Consumers Say They Want?

What consumers think they eat and say they want is often driven by the prevailing attitude towards that food. People may not necessarily do what they say they do, nor buy what they say they want. There is a discrepancy between what consumers think they eat and what they actually eat: They think they should and think they do eat less fat and sugar than they actually do; they think they should and do eat more dairy products and vegetables than they actually do; they think they should and do eat less bread, starch, and cereals than they actually do. Since 1985, Americans have become much less concerned about the calories and the fat in their food. Even so, most still say they want to lose weight!!

To determine whether a food product is or will be acceptable, consumers consider sensory characteristics (appearance, taste, etc.), nutritional value, convenience, health impact, and other individual relevant aspects. The sensory, health and nutritional characteristics are generally the most important parameters in meat and meat product selection.

There is some evidence that intrinsic cues (product physical characteristics such as color, marbling, etc) carry more weight when consumers form meat quality expectations than do extrinsic cues (packaging, price, number of servings, etc.). Consumers must be entirely satisfied with the sensory properties of products before other quality dimensions become relevant (Chambers IV and Bowers 1993). Consumer perception of pork and its primary fresh meat substitutes (beef and poultry) are quantitatively evaluated based on leanness, healthfulness, taste and tenderness. Consumers have lifestyle needs: often, they do not want a particular product; they want what the product "offers".

According to the National Research Council, price, perceived healthfulness and taste are the three motivators related to meat consumption. Healthfulness is probably one of the most commonly acknowledged reasons for shifts in meat consumption. However, the different consumer groups have different levels of knowledge about food products (fat content of meat from various species, presence of healthful micronutrients such as iron and vitamin B12, etc), different purchase motivations, and different expectations. Healthfulness means different things to different consumer groups: low calorie, high vitamin content, low fat, high fiber, low saturated fat, and/or low cholesterol. Which aspect or aspects of nutritional content are important to a particular group will depend on other priorities of that group.

Ninety percent of consumers say taste is a major factor in food selection. This is reflected in the proliferation of ethnic foods. Chinese, Mexican and Italian predominate. There are additional trends in the various food groups and in specific foods within those groups. Taste usually ranks high in terms of self-rated importance in meat choice decisions. Significant associations have been found between the perception of pork attributes and the characteristics of the respondents. Several groups have found that daily meat consumers perceive pork to have better taste and to be more healthful and tender than do less frequent meat consumers. Urban consumers judge pork healthfulness to be significantly lower than do their rural counterparts.

Because of the incidence of PSE (10%) and DFD (4%) pork, we would expect color to be important to consumer. In a recent study, we asked consumers (n=556) to rate PSE, normal and DFD pork for several visual characteristics as well as for purchase intent (Brewer and McKeith 1999). Purchase intent for the PSE chops was lowest (~2 on a 5-point scale); that for normal chops was somewhat higher (~2.7); while that for DFD chops was a great deal higher (~4.7). Overall appearance acceptability, which includes marbling and surface wetness, as well as color, was a better predictor of purchase intent of DFD and normal chops than was color alone. However, color alone was a good predictor of purchase intent for pale colored (PSE) chops only.

Some contend that amount of visible fat is the strongest visual cue for consumers considering purchasing pork at retail – in a recent study, 2/3 said pork has "too much marbling" (Levy and Hanna, 1994). First impression reinforces the perception of pork being "bad for you". Even so, 74% of the consumers in their study were "very" or "somewhat" satisfied with pork as a "good value for the money". In a recent study in our lab, consumers said they pick pork because they like it (80%), and to a much lesser extent because of cost (35%) and nutritional value (25%). In addition, compared to beef prime rib, ~76% think pork loin chops have less fat, while ~21% think they are about the same. Compared to chicken thigh meat, ~38% think pork chops have less fat, while ~48% think they are about the same (Brewer et al. 2001).

The risk of food borne illness as a consequence of consuming contaminated meat products is a very real threat in the minds of today's consumers. The subjective nature of risk perceptions is important in understanding purchase behavior. In the minds of consumers, food safety risk also includes spoilage and residues of chemicals such as hormones (Brewer et al. 1994; Brewer and Prestat, 2002). A recent study confirmed that US consumers prefer irradiation to other pathogen-reducing technologies (Fingerhut et al 2001). They appeared to be willing to pay price premiums for risk reduction, however they are generally insensitive to the level of risk reduction (FMI 1998). Preferences are primarily affected by price differences and *perceived risks*, not by the technical risk information provided. In the international arena, branding and certification programs that imply compliance with higher sanitation standards elicit higher prices (Quagrainie et al., 1998). This is especially likely in regions where animal diseases (foot and mouth disease, BSE) are current issues.

Purchase motives can include self-fulfillment, family well-being, enjoyment and pleasure, or socialization opportunities. Today's consumer expects more quality than ever before. He must understand his own desires (i.e. to lose weight). Before a consumer purchases a product, he must have a general concept of what the product is and what it has to offer. Both may be either realistic or unrealistic. For example, if a consumer who wants to lose weight believes that fat-free cookies are low calorie, he may purchase them for that reason unaware that the fat has been replaced by sugars and starches that contribute as many or more calories than the fat-free version. He says he wants a low calorie food, but he purchases a high calorie food. This exemplifies the potential bias between facts and their perception by consumers. Consumers may evaluate product attributes quite differently from experts; thus, perception may be in conflict with scientific information. Altering demand,

Table 1--Top Ten Trends in Consumer Food Demands

Source: Food Technology, April, 2001

1. Pre-made and take-out meals constitute more than half of all meals in casual restaurants taken off the premises.
2. Ethnic foods are booming because aging baby-boomers with increased amounts of disposable income want high-flavor, healthy restaurant food.
3. Americans are seeking overall balance and moderation in their diets. All-out avoidance of red meat, obsessing over fat-free and fiber are no longer the primary focus.
4. "Appetizers" which allow eating with the hands, socializing, etc. suit a busy lifestyle.
5. Home is the preferred place to eat but fewer consumers are trained to cook and fewer still want to clean-up after. They want family sized portions, one-dish meals that go from oven to table to dishwasher.
6. Food for kids is a growing share of the market. The US has nearly 40 million children between 5 and 14 years old and another 14 million in high school. One in four is overweight; 27 million have high cholesterol; 2.2 million have high blood pressure; and 85% of kids don't get 5 servings a day of fruit and vegetables.
7. There is an increased demand for products and ingredients with a fresh, natural image. Far Eastern cooking and Asian vegetables have attractive "signature" ingredients.
8. In the US, meal time is anytime. Frequent snacking spurs new products. Sandwiches top the list of in-home dinner items and soup is in the top ten.
9. Fortified, functional and performance-enhancing foods reflect the increase in Americans' desire to take more responsibility for their health. Fat, energy and weight control continue to be major issues.
10. There is a market for "clean", "pure", "natural", "safe" foods. These include organic vegetables, free-range chicken, etc. One third of shoppers say they purchase organic foods to maintain health and 1/4 look for health information when shopping. A majority of mainstream shoppers find acceptable the use of biotechnology to grow foods that include substances that may help prevent disease, lower fat content, or keep food fresher longer.

then, depends on *improving perception* of pork product acceptability as well as *improving the actual quality* attributes of the product.

To put a successful product in the marketplace, we must understand the ultimate consumer and give them what they want. These are products that (1) meet their preferences and needs; (2) are convenient for them; (3) offer a value according to them; and (4) most importantly, taste good.

What Do Consumers Do?

There are some distinct trends in the marketplace with respect to food choice: consumers want convenience, taste, "natural", healthy products, especially those that can be prepared at home by those with few cooking skills (Table 1).

Actual food choice is a particular interest for all those in the food production and distribution system, however it is a complex phenomenon that is influenced by a number of variables. A commonly used model for understanding behavior is the "theory of reasoned action" which says that behavior can be predicted by the conscious decision to perform the action (intention) which follows from thinking that the behavior is likely to have good consequences, that important others want us to engage in the behavior, and from our perception of how easy or difficult it is to perform the behavior. However, habit plays an important role in food choice when a food is consumed frequently. Saba and Di Natale (1999) surveyed >900 consumers relating intent to consume fresh red meat, habit and actual meat consumption. They found that *fresh pork* consumption is influenced far more by habit than by volitional intention. However, intention, especially consumer attitude as to whether the product is "good" (versus "beneficial") has more effect than habit on actual consumption of *processed pork* (ham, sausage, etc.). This may relate to the fact that statements about fat content, cholesterol, sodium, calories, and added ingredients are becoming evident on labels of *processed and enhanced pork products*.

There is an interdependence between supermarket choice and pork product choice. The reasons consumers give for choosing particular supermarkets include (1) convenient operating hours, (2) certification of food products, (3) time constraint including operating hours, (4) proper packaging size, (5) shopping environment, (6) convenience to home, and (7) reasonable prices. Once a supermarket has been selected, then some of the extrinsic considerations for pork purchases are (1) freshness (dated), (2) general product information, (3) perceived food product safety, (4) purchase convenience (location and time), (5) packaging size, and (6) palatability.

A consumer must first decide to purchase or not to purchase a product from a given category (meat). Once that decision has been made, subsequent choices among a variety of products with various intrinsic and extrinsic characteristics must be made using "weighted" decisions. Whether to choose pork chops or T-bone steaks will be determined by the weights of the various attributes going into the decision. For example, does quality and convenience offset price differential? What is the range of products presented to choose from? In recent work in our lab, consumers were asked to "weight" the importance of various factors with respect to the satisfaction they expected to receive from consuming fresh pork products. With respect to extrinsic factors, color, amount of visible fat and price were included in the top 5 factors carrying the most weight in purchase decisions. Brand, packaging, number of servings per package, store and whether or not pork was a "promotional" item were least important in terms of their expected satisfaction. With respect to expected satisfaction upon consumption, tenderness was the most important, closely followed by juiciness and flavor.

This is the point at which consumer group demographics make possible some general predictions regarding the weights of various attributes in the decision making process. Those under 30 years of age are more likely to purchase meat than those over 40, and they are more likely to choose lean meat products than those between 20 and 30. This may reflect the increase in health conscious eating habits in middle aged and older consumers. Families with incomes of $20,000 or less are less likely to select higher quality pork while those with incomes over $50,000 are more likely to select it than those in other income groups.

In a recent consumer study, we found that ~80% choose pork because they like it–nutrition is much less a consideration (25%). Stated purchase intent, based on visual evaluation, was higher for the lean and medium marbled chops than for highly marbled chops, which supports the actual selections these consumers made. For the in-home evaluation portion of this study, 40% of this consumer group chose lean chops (<1% fat), 42% chose medium marbled chops (2-2.5% fat), and 18% chose highly marbled chops (3-3.5% fat). The correlation between stated purchase intent and appearance acceptability was high. Overall appearance acceptability was highest for lean and lowest for highly marbled chops. In blind taste tests, these same consumers found lean chops to be least juicy and flavorful, while highly marbled chops were most juicy and flavorful. Schupp et al. (1998) have found that acceptability of other types of red meat after purchase is determined almost exclusively by the satisfaction derived from its consumption. We found that very few of the chops evaluated at home were placed in the "would not buy "category". Our results suggest that whichever chops a consumer selected, when prepared at home, they were rated as very tender, juicy and flavorful, and were in the higher purchase intent categories. In addition, when evaluated at home, sensory attributes for all chops were higher than when they were evaluated in the blind taste test on-site indicating other factors (satisfaction of expectations, value judgments relative to "my ability to choose" and "my ability to prepare" pork, etc) were at work.

Summary

Different forces are at work among the different consumer market segments in terms of the attitudes and perceptions of the members of that segment, the relative values they place on various characteristics and whether or not those characteristics actually relate to experienced quality. This has resulted in some "trends" in consumer food demands that appear to have little in common with each other (Table 1). What does appear to be clear is that no single factor appears to dominate in terms of either consumer decision to buy or expected/experienced quality upon product consumption.

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#04621 - 10/02