Consumers Are the Final Product Judges

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ABSTRACT

Consumers repurchase detergent products based upon satisfactory performance in their homes. While laboratory tests are essential tools to help develop detergents to meet consumer needs, they cannot totally reflect the real world of in-home experiences with its multitude of variables. The need to update laboratory test methods continually to account for changing lifestyles, consumer practices, and trends in related industries will be discussed, as will the pitfalls of relying solely on laboratory tests to try to predict whether product performance answers consumer's needs.

My purpose today is to position the role of the consumer in product evaluation, specifically laundry products. The title of my presentation really says it all – *consumers* are the *final* product judges. They test the products of our industry daily on the homefront and give us their answers in the marketplace.

Manufacturers can and do run extensive test programs during the development of a product and throughout its life span. Universities, government agencies, and consumer organizations also periodically test products but on a far less extensive scale. Whoever undertakes product performance testing should keep in mind these irrefutable facts:

1. All test methods, even the most sophisticated, are simply tools used to predict some aspect of a product's performance or to learn how a product will perform under given sets of circumstances.
2. No test method can encompass all conditions under which a product will be used.
3. No test method is infallible.

The best a manufacturer can hope to do is to cover a reasonable cross-section of conditions to establish the strengths and weaknesses of a product. He can also learn as much as possible about consumer conditions and habits. By assessing test results in relation to the consumer market, he can make some predictions as to how a product will be accepted. The real testing comes when consumers purchase a product, use it, and determine for themselves whether or not that product provides the performance benefits that meet their needs.

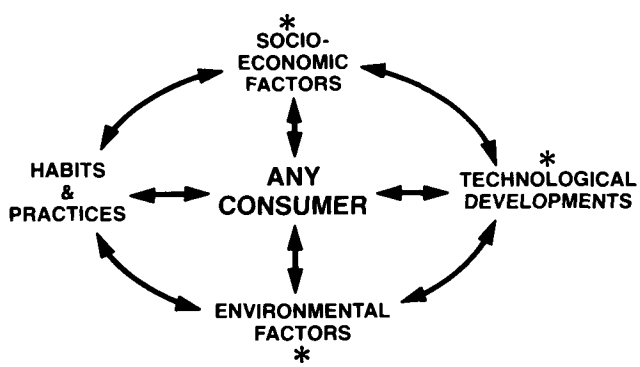

FIG. 1. Interacting factors in the consumer marketplace.

Wherever there is a free, competitive market economy, consumers – through purchase, trial, evaluation, and repurchase or rejection – determine which products shall flourish and which shall fail.

This free market system is particularly effective in sorting out the winners from the losers, especially among products like laundry detergents which are essential, are purchased and used frequently, and are relatively low in cost. Thus, cost is not a barrier to consumer trial and evaluation. Further, frequent use provides the experience and the opportunity to make comparisons and render judgments.

In an economy that is tightly controlled by government, consumer choices may be limited and their preferences may have little impact on what will be available to them to use. Nonetheless, I'll wager that consumers under these circumstances have opinions about products, whether or not their opinions carry weight.

Regardless of where in the world we wish to direct our attention, consumer behavior and decisions are influenced by various interrelated factors in their lives. Some of the major ones are illustrated in Figure 1. The starred factors affect consumer habits and practices. They also interact with each other and consumer behavior impacts upon them.

Let's look at these factors as they apply to home laundering.

SOCIO-ECONOMIC FACTORS

In terms of the world picture, it seems unmistakably clear that the socio-economic factors are predominant. For a majority of the world's population, those people in countries with very meager per capita income, there has been little change in laundering habits and practices. The primitive hand laundering methods handed down through the centuries prevail, whether done at the banks of a nearby stream, at a community facility, or within the home. Survival and subsistence are the paramount consumer concerns.

Among the more affluent populations in competitive

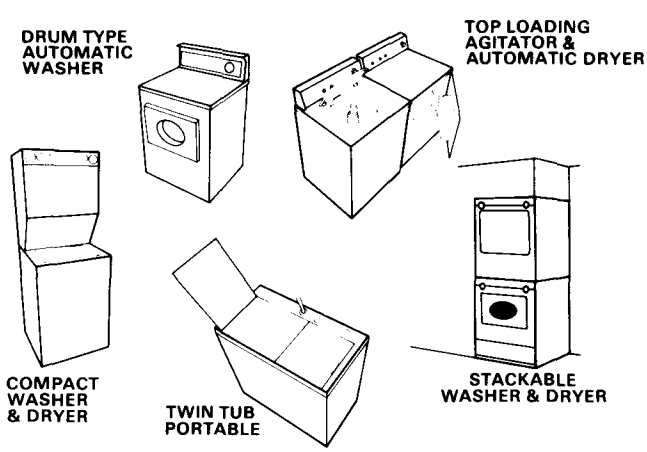

FIG. 2. Automatic washers and dryers.

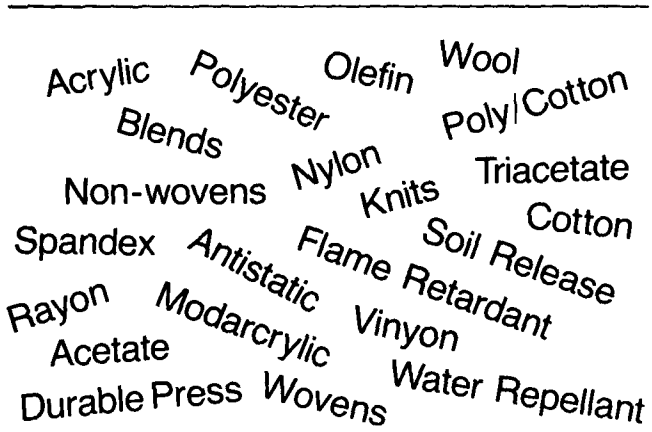

FIG. 3. Fibers, fabrics, and finishes.

FIG. 4. Laundry products.

market economies, technological developments have brought about marked changes in laundering in this century. Industries in these countries have had more money to engage in the research and development of new products. Consumers have had money beyond subsistence needs and have proven willing to exchange some of their surplus money for labor saving developments.

TECHNOLOGICAL DEVELOPMENTS

In the perspective of laundering history, technological changes have come about very quickly. Mechanization of the washing process did not become a reality until a little over 60 years ago when mass production of wringer-type washers began. This was a major step forward in easing the physical labor of washing, but nothing to compare with what has happened in the last 30 years. During this time we have seen:

1. The development of automatic washers and dryers (Fig. 2).
2. A revolution of textiles which has included the development of essentially all of the man-made fibers, of fabric blends, of finishes to enhance some aspect of fabric performance, and major growth of colored fabrics (Fig. 3).
3. The development of synthetic detergents and many laundering aids (Fig. 4).

All of these developments have come about because manufacturers perceived market opportunities based on consumers' needs or desires to lessen the hard work of laundering. Each of these developments has succeeded because large numbers of consumers have responded enthusiastically through purchase and repurchase.

As one might expect, the impact of economic factors on

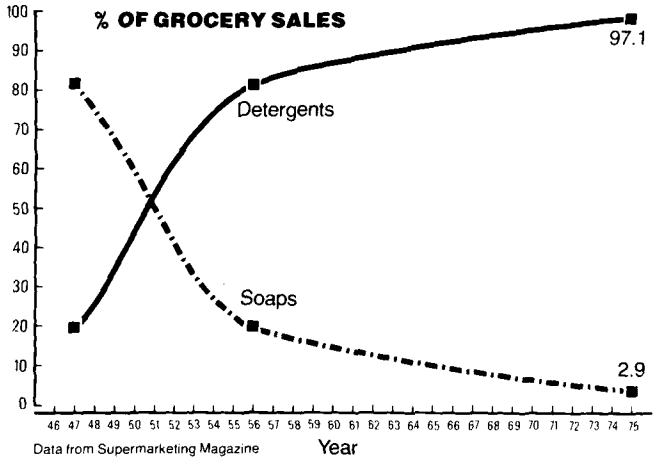

FIG. 5. Grocery store sales of laundry soaps and detergents in the U.S.

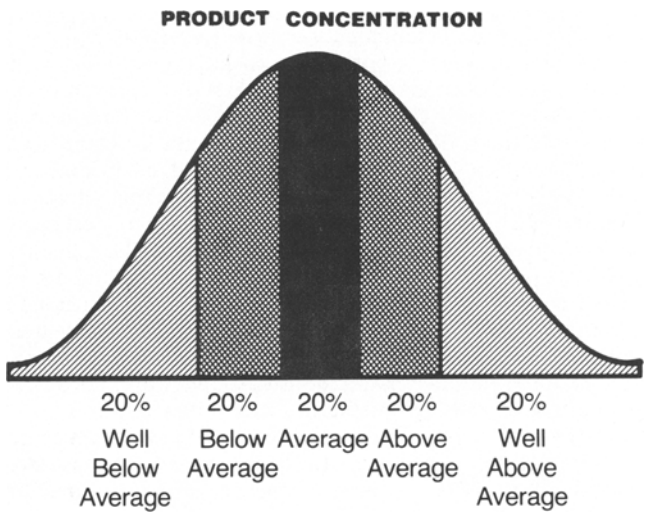

FIG. 6. Normal distribution curve for product concentration.

technological developments can be most clearly demonstrated in the ownership of laundry appliances, since these represent a major consumer investment. Although there is an element of risk in generalizing, especially when one does not have data from all parts of the world, it would appear from data available that:

1. In countries having a per capita income of less than the equivalent of $1000 U.S. dollars, handwashing is the strongly dominant method of laundering.
2. In countries where per capita income is between $1000 and $3000, machine washing in nonautomatic washers becomes increasingly important, and hand laundering diminishes accordingly.
3. In countries having a per capita income in the range of $4000-$6000, automatic washers predominate, having a household saturation of 65-85% in most countries above the $5000 level. This includes many European countries, the U.S., and Canada.

While income level has not represented the same barrier to the acceptance of detergents, the use of soaps, especially bar soaps, is higher in the less affluent countries.

In the more affluent countries synthetic laundry detergents were readily accepted by consumers and quickly dominated those markets. For example (Fig. 5) a history of grocery store sales of laundry soaps and detergents in the U.S. shows that exactly 9 years after their introduction, built synthetic detergent granules had completely reversed

the market. Laundry detergents have continued to grow, and laundry soaps have steadily declined until today they constitute less than 3% of the market, and this includes laundry bar soaps.

Use of fabric softeners is high in the more affluent countries and low to nonexistent in the poorer ones. Bleach usage is also low in the less affluent countries where sun-bleaching is a common practice.

As with detergents, man-made fiber fabrics including acrylics, nylons, polyesters, and polyester/cotton blends constitute a higher percentage of the family wash in the more affluent countries, but they are of growing importance in essentially all places. Colored fabrics are also on the increase universally.

ENVIRONMENTAL FACTORS

In addition to naturally occurring environmental factors such as water hardness, concern about compatibility of products with our environment, especially in highly developed countries, led to the development of a whole new family of surfactant materials which biodegrade readily.

Concern about eutrophication of receiving waters has led to the reduced use of complex phosphates as builders in several countries. Sodium nitrilotriacetate has proven to be a satisfactory substitute in such places as Canada and Sweden. In the U.S., where NTA was voluntarily withdrawn from the market pending the outcome of environmental and safety studies, the search goes on for adequate replacements for phosphate. In the meantime, detergent performance in phosphate legislated areas in the U.S. has taken a sizeable step backward. That U.S. consumers in areas where phosphate is banned have judged nonphosphate detergent products to be inadequate is reflected in their increased use of laundry additive products such as bleach, presoak products, detergent boosters, and water softeners in an effort to achieve satisfactory laundering results.

Water supply and/or hot water supply have shaped the development of appliances. In countries where these are limited, drum-type automatic washers or small-capacity twin-tub machines are predominant.

Concern about the availability and high cost of energy is impacting on appliance design and on consumer practices. Appliance manufacturers in the U.S. have been mandated by the government to achieve energy efficiency improvement targets of 47% for automatic washers and 11% for dryers by the year 1980. Both appliance and detergent manufacturers are presently *recommending* cold water for rinsing for all clothes loads as an appropriate energy saving measure, which does not decrease cleaning performance.

CONSUMER HABITS AND PRACTICES

Consumer habits and practices have changed or may change as a result of changes in the other factors.

1. Data from the United Nations Statistical Yearbook for 1975 indicates that per capita income is increasing in most countries slowly but steadily. As income increases, use of new appliance, detergent, and textile developments also increases, resulting in fundamental changes in laundering practices.
2. Where soaking, prewashing, or boiling have been long-accepted consumer practices, many automatic washers incorporate these functions in their cycles of operation.
3. Consumers washing synthetics and polyester/cotton blends by machine use lower wash temperatures for them. In countries where hand laundering is done, these materials are treated more gently than is the rest of the wash. In the U.S. and Canada, the advent of these fabrics has led to the development of permanent-press cycles on washing machines which incorporate a cool-down period before spin extraction to minimize wrinkling.
4. The increase in colored fabrics has had an impact on reducing water temperatures for laundering in countries where the use of hot water and/or boiling predominanted. Colored fabrics are washed separately and under less rigorous conditions where hand laundering is practiced. Consumers recognize these as necessary steps to protect against dye bleeding and dye transfer.
5. Energy conservation has already had an impact on water temperature used for laundering. It is difficult to separate the influences of modern fabrics, colors, and energy conservation on water temperature usage trends, but the combined effects have certainly resulted in a significant downward shift. For example, in the U.S. between 1970 and 1975, the percentage of loads washed in hot water decreased from 50% to 35%, and warm water loads increased from 35% to 50%. A consumer survey done by a leading U.S. appliance manufacturer in 1976 shows an even more dramatic shift with hot washloads further decreasing to 25% and warm washloads increasing to 74%. Because utility rates increased dramatically in most parts of our country between 1975 and 1976, this latter reduction in hot washloads can probably be largely attributed to attempts by consumers to conserve energy to reduce utility bills. Those washing with cold water remained at 15% for 1970 to 1975 but decreased to 11% in 1976.
6. Limited water supplies lead to measures to conserve the amount of water used. In countries where water is limited or expensive, drum-type automatic washers which use a low water volume will be the most acceptable.

   Limited water supplies also foster repeated re-use of the wash water. In areas of the U.S. where the water supply is limited, upright automatic washers having a "suds saver" feature are popular. These machines will automatically pump used wash water back into the washer from a collecting tub.

   Consumers are adaptable. They learn to adjust to the conditions under which they live and to use laundry products in such a way as to achieve results satisfactory to them. Problems arise when there is a sudden shift in conditions, as is the case in the drought-stricken state of California right now. In some areas consumers who never had to use wash water for more than a single load are going to considerable trouble to collect and re-use wash- and/or rinse-water in their automatic washers. Until they learn to adjust detergent usage upward or to use additional product in ensuing loads, cleaning results will suffer.
7. Water hardness is another factor which affects consumer practices. Consumers who move from a soft-water area to a hard-water area are at least temporarily overwhelmed with the difficulty of combatting hard-water problems. Consumers who live in an area where water hardness fluctuates from season to season must learn to continually adjust their habits to compensate for the changes. They may change brands or use more product or use more additives or install household water softening systems, or do whatever is necessary to achieve performance which is satisfactory to them.

All of the preceding points of discussion should convince any skeptic that our world is not a static place – that things are ever changing and that consumers not only adapt to but welcome change, particularly when changes such as new appliances or new products make life easier.

CONSUMER DIFFERENCES

The next point I should like to emphasize is that no two consumers are identical nor are their laundering conditions. We do need to keep reminding ourselves of the diversities:

1. Consumers may have large families, small families, or no families. A homemaker with several children will have more laundry, probably dirtier laundry, and a greater variety of soils with which to cope than will a single person.
2. Consumers may be young, middle-aged, or elderly, with varying degrees of experience.
3. Any of these consumers may dwell in small or spacious apartments, mobile homes, huts, modest homes, or mansions.
4. They may be nomadic, live on farms, in small villages, in the suburbs, or in the city. The location may have a great deal to do with water supply, hardness, and disposal.
5. Employment will range from relatively sedentary and clean to hard, physical, dirty work.
6. The clothing consumers wear will run the gamut from sturdy work clothes to frilly evening attire, and may include all the fibers known to mankind singly or in a variety of combinations.

These are the variations that occur *within* any country. Among countries, as we have previously discussed, habits, practices, appliances used, and the fabric composition of loads may differ appreciably.

Because of the differences among people, and in their habits or in the conditions under which they live, only individual consumers, themselves, can judge what types of products will give them satisfactory laundering results. This being the case, what must a manufacturer do to develop a product or a product improvement that will succeed in the marketplace?

PRODUCT TESTING

One thing is certain. There is no single, inexpensive test that will give realistic answers. Instead, a variety of tests covering broad cross-sections of conditions must be undertaken in the laboratory and in consumers' homes. It is not unusual for a new product to remain in the developmental and testing stages for 3 to 5 years or possibly more before it is marketed.

Initially, small-scale screening tests need to be developed and conducted to determine whether or not the product has possibilities. In the laundry product category these may include evaluations to determine:

1. Soil removal capabilities using a broad range of standard soils developed by the manufacturer and applied to a variety of fabrics representative of the current market.
2. The soil redeposition behavior of the product.
3. Product solubility in hot, cold, hard, or soft water.
4. Product interactions with water hardness salts.
5. The effects of the product on various aspects of fabric performance, such as tensile strength, dimensional stability, or color.
6. The effects of the product on the various materials used in laundry appliances, such as metals, plastics, finishes, and other materials it will contact or on the operation of hoses, pumps, filters, and the like.
7. And many more.

If, after initial screening tests the product looks promising, testing moves on to controlled naturally soiled laundering tests performed in the laboratory under conditions simulating home use. The product will be appraised using realistic ranges of water hardness for the country involved, different wash temperatures, different product concentrations ranging from severe underusage to overuse. Naturally, the range of fabric types commonly found in consumers' homes will be included in this work.

And still the testing goes on, advancing to various types of home-use tests undertaken to get feedback from consumers based on their experience. From all of these tests, one can *begin* to get a feeling for consumer attitudes toward the product.

Finally, if all has gone well, the product will be introduced into a limited market. Here is where the ultimate test of product benefits starts, because consumers must spend their money for the product. Although there will be usage instructions on the package, the product is theirs to use any way they choose – correctly or incorrectly. If enough consumers recognize and appreciate the benefits the product provides and enough of of them repurchase it to indicate that a profitable market exists, the manufacturer can proceed to full-scale manufacturing and marketing. If not, the manufacturer has several alternatives:

1. Leave the product on the market to find out why the product was not well received and try to improve it to meet consumer needs.
2. Withdraw the product from the market and start over.
3. Forsake that market completely.

"Tide" is an example of an eminently successful product. It was the first built synthetic detergent granule in the U.S., and after 30 years it still is the leader. It has not remained in first place by accident. Since its introduction, consumers, washing machines, fabrics, laundry habits, and its competition have all changed. Accordingly, "Tide" has also changed. There have been at least 55 significant modifications in this product in its lifetime to improve its overall performance and aesthetic properties to adapt it to the changing world.

A simple fact of life for detergents or other laundry products is that they do not survive in the competitive marketplace without frequent repurchase by large numbers of consumers. It is essential, therefore, for manufacturers to know as much as possible about consumers and their habits. This requires constant monitoring to know how consumers are changing as the world changes around them so that products can be adapted to their current needs.

This brings me to the subjects of consumer product performance standards and performance labeling of products. In recent years there has been increasing pressure from consumer organizations in many countries to not only establish standard methods for measuring the performance of consumer products, but also to require some type of performance rating on packages. Seemingly, there is no way to convince the proponents of these measures that:

1. There are no simplistic, inexpensive, nonlaborious methods that will realistically measure product performance as it will be experienced by all consumers. Moreover, there are no complex, laborious, time consuming laboratory methods that will give all the answers.
2. A laundry product may work well under one combination of conditions but not under another. Because the individual variables interact, no valid conclusions can be drawn by examining one variable at a time. (For example, high temperature may be beneficial in one situation and harmful in another.)
3. No two consumers will have the same average conditions, nor will a given consumer wash very many loads under exactly the same conditions. Even within a home, the variety of conditions encountered from load to load can be astonishing.
4. The truly average consumer, therefore, scarcely exists. If we focus only on the conditions of laundering, we still find that less than 1% of all consumers can reasonably be called "average."

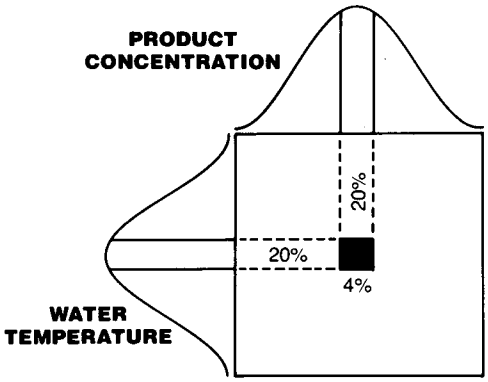

FIG. 7. Product concentration and a second variable–water hardness.

Why is this? Because to be statistically average, you must be average in all relevant conditions at the same time.

In case you are uncomfortable with that last statement, let me show you what would happen if a laundry laboratory operated only under average conditions. Let's look at only three important variables: product concentration, water hardness, and water temperature.

First, Figure 6 shows a normal distribution curve for product concentration. (You may choose any curve you wish so long as the height of the curve shows the relative number of people washing at each concentration.) Naturally, such curves must be based upon a representative sample of homes in your particular area.

The main problem is to define what we mean by "average." In this figure, I've divided the population of loads into five equal groups, each 20%, and I've called the middle group "average." Why the population of loads and not the population of consumers? Because each consumer washes under a wide variety of conditions depending on what is being washed. You'll see when I'm through that you can define "average" as broadly as you wish and still arrive at the same conclusions.

Now let's add a second variable (Fig. 7), water hardness, and again divide the scale into five equal parts, each containing 20% of the loads. Here we see that only 20% of 20%, or 4%, can be called average in both hardness and concentration at once.

If we add a third variable (Fig. 8), say water temperature – again with 20% in the midrange called "average," we find 20% of 20% of 20%, or .8% of the loads are average in all three respects at once.

At this point, you may believe that I am overdramatizing the situation, or that I have forgotten about the correlations among the variables. So, let's try this. *You* expand the range called "average" . . . make it 30%, 40%, or even 50% if you wish. Then, *I* will come back to you with an expanded list of variables.

Here are ten additional variables known to affect laundry end results:

Water volume	Rate of agitation
Load composition	Presoaking
Cloth to water ratio	Pretreatment
Type of washer	Use of other additives
Length of wash time	Method of drying

And there are others. No matter how broadly you define "average," the number of loads washed under truly average conditions must be vanishingly small.

This is why laundry performance testing done only under average conditions cannot anticipate what very many consumers will see under conditions of home use. On the contrary, such testing will disenfranchise at least 99 44/100% of the consumers – and, as we would say in the land of Ivory soap, that just won't float.

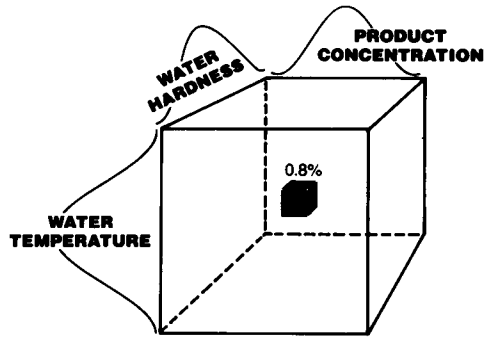

FIG. 8. Product concentration and a third variable–water temperature.

Anyone contemplating meaningful product performance evaluation must not only examine each variable over most of its range, but must also examine it at several levels of each of the other important variables. One must also record data not only for the removal of soil, but also for color fidelity, fabric damage, redeposition, and a host of other observations that are known to influence consumer satisfaction.

This is fundamental to obtaining realistic, meaningful results, and we at Procter & Gamble have discovered no way to get the "big picture" by doing any less work.

I should like to express two more concerns about standard test methods. Because conditions and consumers change so rapidly, standard test methods often are obsolete by the time they are published or shortly thereafter. This is why it is mandatory practice in the American Society for Testing and Materials and the American National Standards Institute that all standards be brought up for review and be either reapproved, revised, or withdrawn every 5 years. Unfortunately, when standards are adopted by regulatory bodies, they tend to be cast in concrete and to linger on well beyond their time.

An additional concern is that standard performance test methods, if adopted by government agencies, thus becoming the law of the land, can have anticompetitive consequences and result in a diminution of consumer choice. Product manufacturers, under these circumstances, would focus product development efforts toward achieving a high rating under the limited, specified conditions. There would be little incentive to develop products which would perform well under other conditions or which would offer special performance characteristics that might be valued by consumers.

What then is my advice to those who would either make or evaluate consumer product performance?

1. Don't look for shortcuts.
2. Do the most complete and best job of laboratory evaluation that you can do.
3. Support that effort by obtaining the best consumer research evaluation you can get.
4. Regularly monitor consumers' habits, practices, needs, and wants in the marketplace.
5. Recognize that even if you do all of these things, they may not be enough.
6. Recognize that the final choice belongs to consumers. When they make their choices in the marketplace, they determine the success or failure of any product.

Anyone who would deprive consumers of the right to judge product benefits or who would limit their choice is doing them a grave disservice. Consumers *are* and *forever should be* the final product judges.