

# The Sorensen In-Store Sales Forecast

## White Paper

**Notice:** This document contains confidential trade information that is the exclusive property of Sorensen Associates Inc. © 1999, All rights reserved.

**Portland:** 800-542-4321  
**Minneapolis:** 888-616-0123

# The Sorensen In-Store Sales Forecast

## Historical Perspective on Forecasting

Probably since his beginning, man has sought to determine the future. Whether for religious, political or economic reasons, the “profession” of forecasting has always been fraught with some danger.<sup>[1]</sup> This is a direct consequence of the potential for disastrous results caused by acting on a forecast that isn’t fulfilled at its appointed time. However, we persist in trying to peer into the future because of the very large rewards for doing so correctly.

The modern history of sales forecasting began in 1945 with studies for the Federal Reserve Board into the financial assets of households and their plans or intentions to buy major durables like cars and appliances.<sup>[2]</sup> This led to wider studies of consumer intentions to purchase, first of durables and, later, of consumables. Predicting purchases is obviously a crucial issue for both national economic policy and, on a micro level, new product marketing.

By the late 1960's the idea had formed that “if researchers could ‘simulate’ experimentally in a laboratory setting the process by which consumers *learn about and buy* a new product, it would be possible to project the real-world results from such an experiment.”<sup>[3]</sup> By the 1970's, half a dozen systems or models were being used by a like number of research firms to *simulate* test markets.

These included ASSESSOR, LITMUS, BASES, DESIGNOR, and Simulator ESP. Although these models have significant proprietary components, all except BASES have generally been disclosed in the academic literature. For example, ASSESSOR, developed by Silk and Urban at Sloan (MIT) was described in detail in 1978 and earlier.<sup>[4]</sup> Over the years, many aspects of the various models have converged.

These observations are made to emphasize that there is a substantial history of attempting to predict what will happen and more specifically, what the relation is between what people say they *will* do and what they actually *do*, later.

The relation between saying and *doing* is the foundation of *simulated* test marketing. Simulated test marketing, as a research tool, is a response to the costs and sometimes failures of test marketing. In test marketing, you attempt to predict what the entire market will *do* based on what a small sample *does*. In other words, you study the *actions* of a few to predict the *actions* of many or all.

Clancy lists five problems with test markets<sup>3</sup>:

1. They are expensive
2. They take too long
3. They give ideas to competitors
4. They are subject to sabotage
5. They don't explain the "why's" of the sales data

In the 1990's, test marketing continues, but often in a "mini-market" format and for a shorter period of time. The smallest form of this is the minimal "controlled store test."

### **How well does forecasting work?**

For thousands of years, the validity of the seer of the future was determined by past successes. Those who couldn't validate their prior forecast suffered being ignored, or worse. No wonder that every forecaster claims a high validation rate.

The big question is: How well does simulated test marketing (STM) work? In other words, how good is it at predicting success or failure? Before looking at some hard numbers, it is well to reflect on our introductory comments about the *need* for predictive accuracy. The need is so great that, regardless of success, forecasts will be made.

Now consider these points:

1. The leading provider of STM research claims, “about 90% of our forecasts are within  $\pm 20\%$ .”<sup>[5]</sup> These claims are echoed by other research providers.
2. Manufacturer clients, however, assert that only 52% of STMs were confirmed by in-market results and a whopping 41% had sales lower than predicted.<sup>[6]</sup>
3. Less than 10% of new products actually succeed. The cost of failed new food products alone has been estimated at \$9 billion to \$14 billion per year.<sup>[7]</sup>

These three points need not depress, but must be fixed firmly in mind when using STM results, and especially when considering a new approach, the Sorensen in-store approach, to simulated test marketing.

The failures of conventional STMs appear to be more widespread than generally acknowledged.

Reasons for these failures have been offered and need to be assessed:

**A. *The client (manufacturer) gave us the wrong data to work with.***

To properly weigh this explanation, consider this list of information that may be requested by the research firm from their client:<sup>3</sup>

1. The potential market’s size in millions of buyers.
2. The market’s size in dollar sales and in millions of units or cases.
3. The average standardized price of the product sold at retail (e.g., price per ounce).
4. The market’s seasonality.
5. The category’s growth or decline trend.
6. Total advertising spending in the product category.
7. The brands in the category that account for 80% or more of category sales and the market shares for each.
8. The nature and magnitude of promotional activity.
9. Insights into likely competitive response to a new product.
10. New developments taking place in the category (e.g., other introductions, packaging changes, pricing changes, and the like).
11. Total Gross Rating Points (GRPs) or target group rating points.
12. GRPs allocated by month (i.e., the media schedule).
13. GRPs allocated by media type (e.g., prime time network television, newspapers, drive time radio, outdoor).
14. Share of voice.
15. Attention-getting power of the advertising.
16. Attention-getting power of media by medium type.
17. Initial brand awareness.
18. Maximum likely brand awareness.

20. The probability that a buyer will remember the brand in the absence of subsequent advertising exposures.
21. The proportion of the target market aware of the new brand before the advertising breaks.
22. FSI's, other run-of-press ads.
23. Coupons—reach and redemption (adjusted for misredemptions)
24. Average cost per thousand GRPs by medium.
25. Average cost per coupon by promotion type.
26. Average cost per sample by promotion type.
27. The cost of distribution.

Whew!

This list stimulates two observations:

1. The marketing plan is a *major* component of all STMs, and *the data for all of this is expected to be provided by the client.*
2. Given the complexity and changing nature of the real world, it is almost impossible to accurately state all of this information with any degree of reliability.

***B. The market changed.***

Competitors have become increasingly aggressive in responding to new products. They act quickly and forcefully to neutralize a corporation's planned advances. The competitors' actions change the market so effectively that almost any assumption fed into a mathematical model becomes suspect.

***C. Media ineffectiveness***

Given the proliferation of media, "advertising today, in terms of media weight and copy, isn't strong enough to launch a new product successfully."<sup>3</sup> This is especially troubling since the conventional STM is so successful at modeling media plans. But the very point of their focus is becoming more diffuse and less manageable every year. The cost of breaking through the clutter of communications outside the store is leading many manufacturers to focus their efforts more on package design, shelf placement, in-store media and other mechanisms more closely tied to the physical sale and delivery of the product.

**Basics of the Conventional STM**

The basic approach taken by all simulated test market models to date is to break annual sales of a product into contributing factors and then to evaluate each of these factors individually. This is an analytical approach. It is a logical process:

1. How many people are potential candidates to buy this product? (A)
2. How many of these can we make aware of the new product? (B%)
3. How many of those aware would buy the product at least once (trial)? (C%)
4. How many triers will re-buy the product (repeat)? (D%)
5. How often will they re-buy (times per year) (E); and how many at each purchase occasion? (F)
6. How many will ever have the opportunity to buy (distribution)? (G)
7. What is the price per unit? (H)
8. What is the potential profit per unit sold? (I)

If each of these factors are known accurately, it is a relatively simple process to combine them and to calculate:

$$\text{Units sold (U)} = A \times B\% \times (C\% + C\% \times D\% \times E \times F) \times G$$

$$\text{Dollar sales} = U \times H$$

$$\text{Profits} = U \times I$$

As usual, the devil is in the details. Consider each of the eight inputs:

*1. How many people are potential candidates to buy this product? (A)*

This number is expected to be provided by the client and is usually driven by the client's choice of segment to target, and estimates as to the size of that segment. This can be like a charged minefield. Disagreement about this number led to a highly publicized lawsuit a few years ago. The client was suing the research firm because of a vastly overstated sales potential. The researcher's defense was an overstated segment size provided by the client. In practice, how this number is arrived at sometimes seems scary. And yet, it is the foundation of the sales projection.

*2. How many of these can be made aware of the new product? (B%)*

No matter whether a consumer is a candidate or not, if they don't learn about the product's existence, they won't buy it. This is one place where existing STM models may strut their stuff. They may take into account every type of advertising and rely on carefully developed historical standards to relate GRP's, e.g., to awareness, etc. This factor is treated *as if* it was primarily driven by media considerations. This was probably true 20 years ago when the model was developed. The decimation of network television power and the steady growth of narrow casting has given the actual in-store shopping environment a much larger role here. Current STM models poorly address current market conditions.

3. *How many of those aware would buy the product at least once (trial)? (C%)*

This is typically determined by survey. Target consumers are introduced to the new product idea through some type of advertising or concept statement. They then state how likely they are to purchase by selecting one of five purchase intention statements. For example, "definitely would purchase," "probably would purchase," etc. Extensive studies published and unpublished, have attempted to determine, for each of these intent statements, what percentage of consumers actually *do* purchase the product.<sup>[8],[9],[10]</sup> These percentage factors serve as "norms" for the various research suppliers. And are part of their "black box" tool kits.

4. *How many triers will re-buy the product (repeat)? (D%)*

This is a similar purchase intention measure to trial (C%), but is formulated after the consumer has actually used the product for what is considered to be an appropriate period of time. Again, "norms" are applied to generate the fraction who actually will purchase repeatedly.

5. *How often will they re-buy (times per year) (E); and how much at each purchase occasion?*  
(F)

These numbers can be used as reported from the survey, but may be subjected to corrections, as with the purchase intentions.

6. *How many will ever have the opportunity to buy (distribution)? (G)*

This straightforward factor is usually measured in terms of All Commodity Volume (ACV). Simply stated, if shoppers only shop in one store and only half the stores carry the product, only half the shoppers will have an opportunity to buy the product. Again, this estimate provided by the client will have a direct linear effect on projected sales.

7. *What is the price per unit? (H)*

This is a simple multiplication of units to achieve dollar sales. However, price of the new product and the competitive set may have a huge impact on trial and repeat rates. Even if the client stays the course with their own pricing decisions, it is impossible to know what competitors will do in response to the new product.

8. *What is the potential profit per unit sold? (I)*

This number provided by the client is subject to the vagaries of fixed costs, labor costs and material costs in the future. However, these are probably less inconsistent than other, competitive factors.

### **Why Does it Work at All?**

Given that the sources of potential error are many and some assumptions are questionable, why are STM's as popular as they are? There are at least four good answers to this question:

1. Management has established performance hurdles for development of new products. The business model many companies have adopted for themselves includes a minimum forecast volume for a new

product to be considered for production. For example, management may have predetermined that no opportunities will be pursued that do not represent X million cases of new business.

2. There is an absolute need for sales projections. In many situations, the manufacturing plant must be instructed now about how much product to manufacture for later. There is no option: a number or quantity must be specified. This is only one aspect of the corporate planning process - many parts of the company must act “as if” sales will be at the projected level. Of course, everyone must be ready for contingencies: things happen pretty much as planned or, sales skyrocket and there is tremendous pressure to boost production or, sales plunge and lots of money is lost. Win, lose or draw, we must have a projected sales volume.
3. The STM provides an organized way to think about all of the components of sales; and is an aid to management judgment. Each piece of the marketing, sales, production and distribution plans can be related to all of the others. This allows management to think analytically about the problem. And the STM is not a cold, mechanical process that rigidly delivers a number. There is ample opportunity to plan with “what if” scenarios, particularly in the marketing plan. The STM has at least three contributing components: the model itself, a database of norms and “the judgment and experience of the STM analyst.”<sup>3</sup> While some claim that the model is the most important factor, others have asserted that judgment constitutes at least 50% of the forecast. Using the basic components of the STM, a seasoned team of new product managers, with good judgment, can produce a reasonable sales forecast. The STM is a tool, not an answer.
4. The STM provides a wealth of “why” data. Perhaps 80% of an STM report is dealing with detailed attitude, usage and attribute data generated by the survey portion of the study. The learning from this data may be of greater value to the marketer than the final number(s) reported. After all, it would be a very insecure or weak management indeed who accepted an STM sales projection at

face value. The marketer and other corporate management will ultimately make the decision as to what number is specified as *the* sales forecast.

These positive reasons do not obviate the decrescendo given earlier:

1. Conventional STM suppliers claim a 90% success rate (forecast/sales)
2. Their clients report a 50% success rate (forecast/sales)
3. Their clients experience less than a 10% success rate (introduction/survive)

How to reconcile the positives with this short list? The answer is not simple. But there do appear to be some significant flaws or weaknesses in the current STM process.

1. The conventional STM is strongly dependent on a marketing plan that is largely driven by mass media. For many manufacturers, mass media is not driving their sales. Rather, in-store factors such as packaging, shelf-configuration, in-store promotions, and the whole range of issues subsumed under “category management” are the relevant drivers. STM’s, whether BASES, LITMUS, or any of the others were designed to model a market structure that does not obtain today.
2. The standards and norms developed for STM’s describe a bygone market. In any event, they have always played a lesser role in the sales projection process than commonly thought by clients. Judgment and other factors were far more central to the projection. Rather than being an asset to legitimately exploit in the new millennium, they are components of a rear view mirror, looking back to an earlier marketing environment.
3. The conventional STM requires independent determination of a lot of measures. These must then be assembled together by addition or multiplication, with each measure being adjusted with normative factors to produce a final number that, hopefully, will reflect the real world at some future time a year or two away. Unfortunately, each measure has its own error which must also be added or multiplied to produce the final error.

## **The Sorensen In-Store Sales Projection**

Sorensen Associates has, in collaboration with Dr. Richard Fox of the University of Georgia, Bob Stevens, formerly of Procter & Gamble, and Dr. Bob Fountain of Portland State University, developed a novel approach to sales projection. Although there are similarities to conventional STM's, the differences are significant.

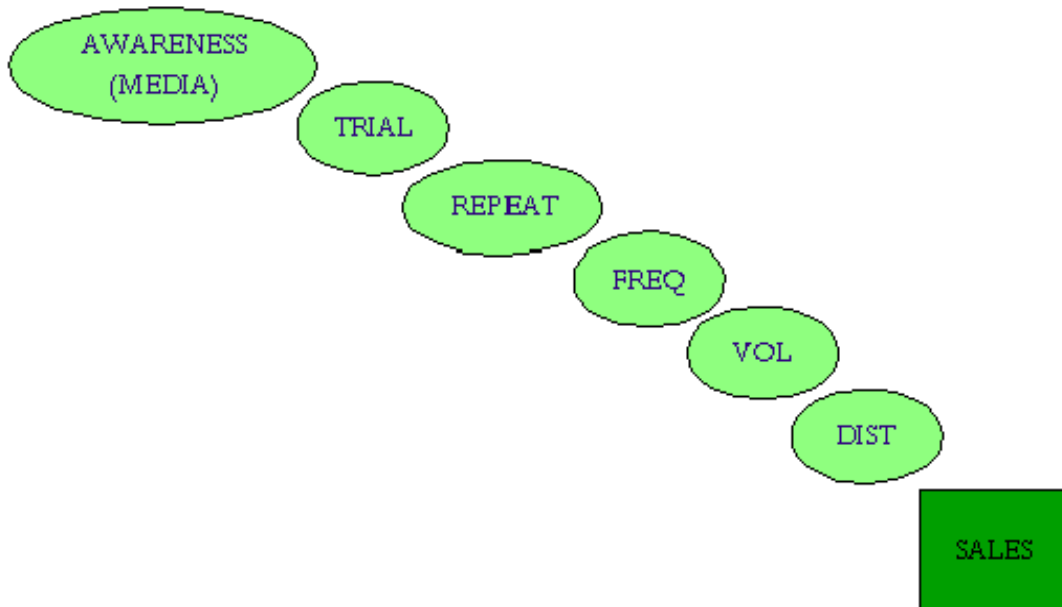
1. The Sorensen model is relational, rather than analytical. This means that the new product or line is juxtaposed to one or more existing products or lines. Survey measurements establish the potential sales relationship between the new (test) and existing (control). The sales projection of the test product is indexed to the sales of the existing or control product(s)
2. Real sales serve as the basis for *normative sales indexes*. Rather than a series of normative corrective factors, as in a conventional STM, there is only the direct relationship to real sales of the control product(s). The entire normative database of the conventional STM is superceded by indexing to recent sales histories.
3. The Sorensen Model is based on measurements of shoppers' purchase behavior and attitudes *at the point of purchase*. Extensive studies show that it is very difficult, if not impossible, to accurately simulate the real purchase environment and behavior. Sorensen Associates is "the in-store research company" with thousands of studies conducted in the retail environment. Making measurements at the retail shelf, in the midst of the competitive set, has produced superior data.

This new model, though not dependent on media plans, can incorporate both in-store causals (e.g., IRI Review Net summaries) and broadcast and print media (CMR) - see appendices.

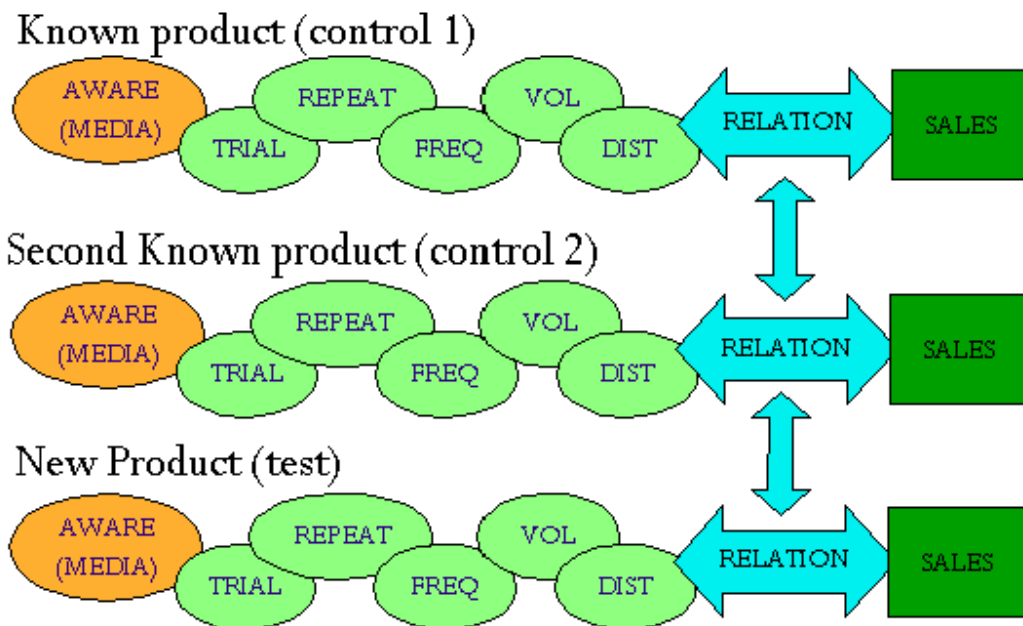
## **The Relational vs. Analytical Approach**

The conventional STM's analytical approach can be diagrammed as a chain of independent components or links that when properly modeled together deliver a sales projection:

In general, each link must be absolutely correct or the sales projection will fail.



The Sorensen In-Store Sales Projection model can be diagrammed as:



Rather than any link needing to be absolutely correct, it is only necessary that each set of links be congruent. That is, all “trial” data in any given test must be equivalent in methodology so that variations between controls and tests are *related* to true trial data. What that relation is, is unimportant. What is important is that the relations be the same in this particular study. The “Relation” of the chain of factors for the control product(s) to actual sales for those products is the *normative sales index* for this test.

### **Concepts/Products**

At a minimum, the sales projection requires two concept statements: one for a product (probably competitive) that is already on the market and whose sales history can serve as a control; the other will be for the test product for which a sales projection is sought. Each concept should be complete with the name, positioning, packaging, features and price.

Ideally there will be more than one control product and at least one control will *not* be in national distribution. This allows both the test and control products to be evaluated in regions or markets in which shoppers are not familiar with either.

In seeking congruence between measures, e.g., of trial, it is important that there be no extraneous biases favoring one or another concept. Each must be a fair representation of the competition in the marketplace, and for this reason the impact of a familiar brand must be considered.

If product is going to be made available for either sampling or in-home use, it needs to reflect fairly what will be the competitive marketplace, as well as congruence in packaging. (Sorensen Associates can assist, in some cases, with repackaging one or more of the products to promote congruence.)

## **Shopper Evaluations**

Consumer input begins in selected stores (e.g. supermarkets) where introduction of concepts and interviewing occurs in the category section. In this way, all candidates for the study are automatically prescreened as category shoppers. After verification of category usage, brand share and frequency, shoppers are introduced to the concepts. The presentation may be of finished packages on the shelf, mockups, a competitive display board or individual (rotated) concept cards. Respondents then state their future purchase interest in the test product and its key competitor (controls), as well as evaluating critical attributes. This purchase interest data can be buttressed by the use of “chip allocations” to represent projected purchases. Additionally, the purchase cycle, attitudinal, behavioral and demographic information is collected to allow profiles of probable triers and rejectors.

If adequate amounts of test product are not available for usage in a trial (typically 200-500 packages), the Sorensen In-Store Sales Projection can be based on this “concept” data. However, usage of the product by the consumer is essential to incorporate concept fulfillment, i.e., repeat data.

For the home-use phase, single samples of either the test or control product(s) are sent home with shoppers who profess that they will “definitely” or “probably” purchase, based on their evaluation of the concept. Multiple samples including both the test and control products may be sent home, particularly if a third wave of interviews, the “sales wave” is to be conducted.

The callback interview for the home use phase is conducted long enough after placement to allow, on average, half of the product to be consumed. The shoppers will have a diary for use in evaluating the product and when contacted by telephone will report on repeat purchase interest, purchase cycle and diagnostic information.

Other data collected will be the amount of product used, family/household member usage, occasions for

use, anticipated purchase volume, etc.

In addition to the first call back interview, further interviews may subsequently occur in one or more waves, designated as “sales wave interviews.” Requestioning as to purchase quantity and interest may occur. But, more importantly, shoppers are offered the opportunity to purchase products at the regular retail price. The interviewer takes orders and fulfills the order with a letter and monetary compensation; or alternatively may ship the products COD.

### **Summary of Method**

The conduct of the Sorensen In-Store Sales Forecast is designed to create a mosaic of information about the attitude and reactions of real shoppers when faced with a new competitive option at their own usual point-of-purchase. The mosaic continues with their experience with the product at home.

Knowing the actual sales coming from the mosaic for a control product allows the same relationship to forecast the sales of the test product from its congruent mosaic.

The method is applicable in three basic versions:

Level I - Concept Test. Applicable when only concepts are available.

Level II - Home Use Test. Both concepts *and* sufficient product for sample distribution are available.

Level III - Controlled Store Test. Sufficient product is available to allow distribution in at least a few stores for a number of weeks.

There are several substantial benefits from the Fox-Fountain-Stevens-Sorensen design:

1. The development of normative sales indices within each test (tied to control product sales) gives the researcher *tremendous flexibility in study design*. Media impact can be incorporated (or not).

Monadic, sequential or protomonadic designs for multiple samples are readily accommodated. As long as there is congruence and consistency among the controls and test product(s)

within a single test, there is no requirement for such consistency from test to test.

2. Conducting the concept portion of the test at the shelf provides a *real-world purchase environment* and eliminates many of the approximations inherent in a “simulated” test market.
3. The *speed and cost of in-store research* has an established favorable relationship to other milieus. In the words of Gerald Berstell: “The benefits of the POS approach over conventional research tools are classic: better, faster, cheaper.”<sup>[1]</sup>
4. The test *does not absolutely depend on client supplied data*, such as media plans, although it may be enhanced by such data.

### **Validation**

It is not possible to fully validate a novel procedure. However, some aspects of the Sorensen model outlined here have been subject to preliminary testing. First, the concept of the “normative sales index” was used by Sorensen to project national sales volumes for a single serve product that had no close parallel in its category. Sorensen’s volume projections were based on a controlled store test, with actual sales data indexed to sales of a control product and the relation of that product to ACV.

The identical product with promotional strategies was evaluated by a BASES II test. The results were as follows:

	<b><u>SORENSEN</u></b>	<b><u>BASES II</u></b>
Projected national sales (millions of cases)	1.5 – 2.4	1.3 – 3.4

The Sorensen data, derived from a controlled store test, is more similar to a BASES III test.

Nonetheless, the projected ranges are in reasonable agreement, given differences in methodologies and uncertainties in each. Of particular interest is that the Sorensen Model related real sales of the product

to another control in the store, and thence to national ACV. The second validation relates to a line extension of a grocery item and data collected from sales wave interviews. The products were placed with shoppers for them to take home and use; with a subsequent telephone interviewer followed by, some time later, the sales wave interview. This in-store projection of shares used the same methodology as that in conventional STM's, hence the validation is of the store as a placement locale:

<u>Product</u>	<u>Projected</u>	<u>Actual</u>
A	11.2	12.8
B	15.7	18.9
C	16.8	14.3
D	12.7	8.6
E	5.7	6.4
F	10.2	13.7
G	7.7	7.8
H	7.2	8.3
I	12.8	9.1

Again, share projections are in reasonable agreement with actual shares observed in-market one year later.

Another validation of in-store share projections for a household care line:

<u>Product</u>	<u>Projected</u>	<u>Actual</u>
M	35	37
N	7	7
O	8	3
P	7	8
Q	7	11
R	5	8
S	5	6

## **Bibliography**

- [1] *Deuteronomy* 18; 20-22.
- [2] F.T. Juster, *American Statistical Association*, September 1966, p. 658-696.
- [3] Clancy, Kevin J.; Shulman, Robert S.; Wolf, Marianne: *Simulated Test Marketing – Technology for Launching Successful New Products*, New York, Lexington Books/Macmillan, Inc., 1994.
- [4] A. J. Silk, G. L. Urban, *Journal of Marketing Research*, Vol. XV (May, 1978), p. 171-191.
- [5] The BASES Group, company brochure.
- [6] A. L. Baldinger, ARF Pre Test Market Research Workshop, June 2, 1988.
- [7] R. Malhotra, ARF Behavioral Research and Single Source Data Workshop, June, 1990.
- [8] M. Kalwani, A. J. Silk, *Journal of Marketing Research*, Vol. XVII (August, 1980).
- [9] E. M. Tauber, *Journal of Advertising Research*, Vol. 15, No. 5, October, 1975, p. 59-64.
- [10] A. C. Bemmaor, *Journal of Marketing Research*, Vol. XXXII (May, 1995), p. 176-191.
- [11] Berstell, G., *Marketing News*, Vol. 26, No. 12, June 8, 1992, p. H-31.

## APPENDIX I. BRIEF RESUMES

Richard Fox

UNIVERSITY OF GEORGIA

148 Brooks Hall - Dept. of Mktg.

Athens, Georgia 30602-3258

E-mail: rfox@cbacc.cba.uga.edu FAX: 706-542-3738

Phone: 706-542-3761

**CURRENT:** Associate Professor in Department of Marketing and Transportation at the Terry College of Business of the University of Georgia; teach marketing research methods, marketing models, and statistical methods.

**BACKGROUND:** Ten years experience at Procter & Gamble, primarily in consumer research; Manager of Quantitative Marketing Research at Kenneth Hollander and Associates in Atlanta; Manager of Marketing Research and Marketing Information Systems at Nimslo Corporation in Atlanta; Marketing Research consultant for numerous major corporations. Major current research interest is analysis of household panel data to develop models to project trial and repeat purchasing.

**EDUCATION:** Ph.D., 1968, M.S., 1965, Michigan State University (mathematical statistics); B.S., 1963, University of Dayton (mathematics).

Bob Stevens

GENESIS II

170 Lookout Farm Drive

Crestview Hills, Kentucky 41017

E-mail: views@aol.com

FAX: 606-331-1323

Phone: 606-331-1230

**CURRENT:** Semi-retired consultant dedicated to improving the practice of market research, publishes a regular opinion sheet, Views from the Hills of Kentucky.

**BACKGROUND:** 40 Years at Procter & Gamble in market and consumer research. Co-creator of the Home Performance Testing Group, pioneered assessment-in-context (in-store research) and methodologies for Negative Brand Share, Disposable Test Market (with Elrick & Lavidge), the Package as a Billboard (at the point of purchase), et al.

**EDUCATION:** 1954, University of Kentucky (business); graduate school, 1959, University of Cincinnati (industrial statistics).

**SELECTED PAPERS:** Views from the Hills of Kentucky

Herb Sorensen  
SORENSEN ASSOCIATES INC  
999 NW Frontage Road, Suite 190  
Troutdale, Oregon 97060  
E-mail: herb@sorensen-associates.com  
FAX: 503-666-5113  
Phone: 800-542-4321

**CURRENT:** Full service market research firm that fields thousands of interviews per week in the aisles of supermarkets nationwide.

**BACKGROUND:** While developing quality control systems (HACCP) and new food products in the early 70's, recognized the need for consumer input in formulating product specifications. Sought opinions of supermarket shoppers; subsequently developed nationwide system for researching supermarket shoppers with hundreds of interviewers and thousands of supermarkets.

**EDUCATION:** Ph.D., 1970, University of California, Davis (biochemistry); M.S., 1965, University of Nebraska (biochemistry and nutrition); B.A., 1964, Union College (chemistry; mathematics).

Bob Fountain  
PORTLAND STATE UNIVERSITY  
Statistical Consulting Laboratory  
Portland, Oregon  
E-mail: fountain@pdx.edu  
Phone: 503-452-2458

**CURRENT:** Director of the Statistical Consulting Laboratory at PSU, with focus on application of statistical techniques to social, medical and marketing problems.

**BACKGROUND:** Teaching and statistical consulting at the University of New Mexico, University of Texas at San Antonio and Portland State University with 30 publications.

**EDUCATION:** Ph.D., 1985, University of New Mexico (statistics); M.A., 1981, University of New Mexico (statistics); M.A., 1979, University of Texas at Austin (mathematics); B.A., 1975, University of Texas at Austin (mathematics).

## **APPENDIX II. ReviewNet by IRI**

This is a sample of the sales data used by Sorensen to produce the “normative sales index”, the relational piece of the Sorensen In- Store Sales Forecast model.

### **APPENDIX III. LNA/MediaWatch by CMR**

This is a sample of the media data that can optionally be included to recognize the impact of a media plan in the Sorensen In-Store Sales Forecast model.

---