For many groups that fund market promotion activities, an obvious motive for conducting a program evaluation is that some type of evaluation of the effectiveness of their promotion expenditures is mandated under the 1996 Farm Bill (FAIR Act). Research and experience, however, have shown that a regular and rigorous program of evaluation is critical for efficient management of any commodity promotion program. Whatever the reason a commodity promotion organization chooses to conduct an evaluation of its program, however, the organization faces the challenge of determining how to go about an appropriate evaluation and what is required to facilitate such an evaluation. In this presentation, after briefly reviewing the reasons why a rigorous and ongoing process of program evaluation is important for commodity promotion organizations, I outline the process of program impact analysis with an emphasis on how such evaluations are done and the problems and data issues inherent in doing such analyses. I conclude with some observations on what one might reasonably expect from such evaluations.

**The Why of ROI**

While legislatively required for some commodity promotion organizations, a periodic evaluation of promotion program effectiveness can provide critically needed information for effective program management for all commodity groups and marketing orders. Such evaluations can provide critically needed information to a commodity organization that can: (1) help improve the efficiency and effectiveness of its commodity promotion program; (2) assist in the design and adjustment of the organization’s long-run strategic plan; (3) provide needed feedback to contributors, industry, and other stakeholders; and (4) support a timely and appropriate response to any legal challenges.

*Improving Market Promotion Efficiency and Effectiveness*

Program evaluation is usually thought of as the measurement of program impact, that is, the “metrics” needed to determine how much “bang for the buck” has been generated by the promotion and research activities funded by the promotion organization. If the
expenditure of such promotional funds generates positive returns, then like any other investment, they would be viewed as successful. Otherwise, like any company or enterprise, the commodity group or marketing order would be better served by abandoning such investments. In essence, the “metrics” are an after-the-fact assessment of whether the organization funding the program has been “doing things right,” that is, whether the activities in which the organization has invested have been successful in achieving the objectives of the promotion.

Assisting in the Design and Adjustment of the Program’s Long-Run Strategic Plan

Evaluation also includes an assessment of whether the organization is “doing the right things,” i.e., whether the programs goals and objectives and the process designed to meet those goals efficiently and effectively lead to the optimum expenditure of the promotion funds. Even if all promotion expenditures are found to generate positive returns, the evaluation results may suggest some reallocation of funds among alternative activities to maximize the returns to the available promotion funds. Such insights provide the basis for developing and adjusting the long-run strategic plan of the organization to focus on those specific activities that are found to be most effective in achieving the primary mission of the organization and to discourage investments in those found to be relatively ineffective.

Providing Feedback to Contributors, Industry, and Other Stakeholders

Like investors in any venture, those who pay for commodity promotion programs will eventually want to know what they are getting for the money they are investing. The problem, of course, is that the cost of the program is immediately obvious to contributors because it is a line item on their balance sheets. The benefits, however, cannot be easily identified because they are included as part of the total revenues earned. How much of the revenues earned are the result of the promotion program and how much is due to other factors (foreign demand, consumer confidence, consumer health trends, food away from home trends, changing demographics, marketing skills, etc.) is simply not clear. The result for many organizations has been discontent in the ranks and even legal challenges if those who pay for the program do not understand the contribution of the program to their bottom lines.

Supporting a Timely and Appropriate Response to Legal Challenges

In recent years, the constitutionality of many legislatively mandated commodity programs (e.g., mushrooms, beef, pork, dairy products, grapes, and orange juice) has been challenged in court by some who are required to pay as a violation of their First Amendment rights to freedom of speech. Implicit in the arguments is the question of whether the promotion and advertising programs are effective in securing the anticipated benefits for those who pay for the programs. A promotion organization cannot wait until
a court challenge is mounted to decide to initiate a program evaluation because gathering the needed data and then conducting the necessary credible and complicated statistical analysis that will stand up in court and to peer review can take a great deal of time. By the time the analysis is ready, the case may have already been decided.

The How of ROI

Once a promotion organization has made the decision to conduct an evaluation of its promotion program, the next challenge is to develop a process and select a method for conducting the analysis. Several steps are involved in conducting a program analysis including: (1) identifying the program objectives, (2) selecting the appropriate evaluation method, (3) collecting the necessary data, and (4) selecting an appropriate individual or group to perform the analysis.

Identifying the Program Objectives

The first step in conducting a program evaluation is to clearly identify the objectives of the promotion program. That is, whether or not a promotion program can be judged to be successful depends on what the objectives of the program are. The overall objective of most promotion programs is to enhance the profits of those who contribute to the program. Because measuring the impact of promotion on profits is understood to be difficult, most programs identify one or more intermediate objectives as indicators of program success, such as changes in: (1) industry sales, (2) industry price, (3) industry market share, (4) industry profits, or (5) consumer awareness of a product or of positive product attributes. Identifying the key objectives of promotion is important because all objectives may not be complementary so that achieving one objective may preclude another objective from being achieved. For example if an increase in sales and price are the objectives of promotion, success in raising price could lead to increased imports and limit the increase in domestic sales. Likewise, an increase in price this year could increase production in the subsequent year leading to increased sales at a lower price. So if the price increases but sales drop or if sales increase but the price drops as a result of the promotion program over time is the program to be judged a success or a failure? Such questions must be considered carefully to develop a clear understanding of what is meant by “success” before the promotion program is evaluated.

Selecting the Appropriate Evaluation Method

The second step in carrying out a program evaluation is to select the appropriate evaluation method for the objectives chosen. The mechanism by which a promotion program ultimately impacts the profits of those who pay for the program is often thought to begin with enhancing consumer awareness of the product or product attributes which is
expected to change consumer buying behavior and impact sales and price which only then will impact contributor profits. In schematic terms:

\[ \text{Promotion} \rightarrow \text{Consumer Awareness} \rightarrow \text{Sales/Price} \rightarrow \text{Contributor Profits} \]

Different types of analyses are used to measure the transmission of promotion impacts at each stage of the process.

**Consumer Awareness Studies**

Most of what is known about consumer attitudes and beliefs regarding specific agricultural commodities has come from "tracking" studies done by market research firms for the corresponding commodity promotion organizations. Consumer attitudes and beliefs regarding specific characteristics of the commodity of interest are "tracked" over time through periodic surveys of consumers. Improvements in attitudes and changes in beliefs consistent with the promotion messages over time are taken as evidence that the promotion program is working.

The concept of advertising awareness is associated with methods which enable the determination of whether individuals are familiar with and perhaps remember features of the advertising, such as the sponsor or a particular slogan. The use of attitudes as indicators of advertising effectiveness is based on the belief that the development of feelings about something is a necessary precursor to behavior. In this business school approach to measuring advertising effectiveness, both awareness and attitudes are seen as key inputs to information processing and persuasion. In focusing on consumer attitudes and awareness, attention is centered on individual behavior rather than on the aggregate behavior of individuals.

Typically, cognitive process models from the marketing and advertising literature are used to assess the impact of commodity promotion activities on such variables as recall, awareness, purchase, and consumption behavior. Specific applications of these models usually depend on the data available from tracking studies or usage and attitudinal surveys. To illustrate, in an analysis for the National Pork Board, we examined the effectiveness of the advertising done between 1992 and 1998. We identified the key characteristics of that advertising effort which contributed to effectiveness. To that end, we used summary data from a Meat Attitude and Perception Study conducted by an independent market research firm (M/A/R/C) as well as data about the nature and extent of the advertising effort over the time period following the implementation of the Pork Checkoff Program. The survey data identified eighteen attitudinal variables and eight awareness variables for analysis. The attitudinal variables related to overall individual consumer attitudes toward meat, nutritional value, preparation aspects, preferences, and social dimensions regarding pork. The awareness variables pertained to individual recall of pork advertising slogans as well as recall of pork ads.

One problem with these type of studies is that attitudes and beliefs can be influenced by a large number of factors other than the promotion program alone so that changes in
consumer attitudes and beliefs as indicated by “tracking studies” cannot always be confidently attributed to the promotion program. For example, even though the "Other White Meat" message of the U.S. pork industry by itself may have had a positive effect on consumer attitudes and beliefs about pork, consumer surveys might indicate no change or even a negative change in those attitudes and beliefs if public health messages have simultaneously conveyed concerns over the health risks of eating meat. The current trend toward low-carb diets, however, could skew the perception of the success of the promotion in changing consumer attitudes towards pork in the other direction.

Another problem with consumer awareness and attitude studies is that while both tracking studies and more rigorous analyses have tended to find a positive effect of advertising on consumer attitudes and beliefs, the results are quite product specific and are not generally applicable. The most difficult problem with these studies, however, is that they provide little useful feedback on the benefits of the associated advertising and promotion programs to those who pay for the programs. Even if the promotion successfully changes attitudes, there is no guarantee that the attitude change will translate into increased sales. As a consequence, many researchers have preferred to analyze the direct relationship between promotion expenditures and sales without considering whether the promotion had any impact on consumer awareness or attitudes.

Sales Impact Studies

Early efforts to evaluate the sales impact of commodity promotion programs relied largely on anecdotal evidence and simple comparisons of gross investments in promotion and gross changes in sales. During the 1970s when agricultural markets were expanding rapidly and prices soaring, this approach to evaluation yielded some persuasive stories and even more impressive upward-sloping graphical relationships between promotion expenditures and sales.

The problem with simply comparing the trends in sales and promotion expenditures to measure program effectiveness is that many factors other than the promotion program affect the volume and value of commodity sales, including relative price changes, international markets, agricultural policies, changes in incomes, business cycles, population growth, competition from other products, consumer health concerns and demographics, and exchange rates just to name a few. This became rather apparent in the early 1980s with a sharp downturn in the agricultural economy, plunging prices, and disappearing markets. Combined with growing federal deficits and intensifying scrutiny of federal programs, the farm crisis of the 1980s underscored the need to devise better means of isolating and measuring the unique contribution of promotion programs to the performance of commodity sales and the profitability of the farm sector.

Over the last 25 years, increasingly sophisticated statistical methods have become the standard means of analyzing the relationship between promotion program expenditures and sales. Most common have been the use of econometric models to isolate and measure the contribution of promotion expenditures to changes in commodity sales. Of particular interest in constructing such models are the relative effects of the various
market forces on market behavior, including both promotional activities and the numerous other factors that impact the market. Promotional activities include consumer targeted advertising campaigns, promotion campaigns for wholesalers, investments in research and technology development, etc. Other market factors that affect the market might include the quality of the product and of competing products, the price of competitors’ products, competitor advertisement campaigns, characteristics of consumers (e.g., income, age, gender, etc.), characteristics of the market (e.g., weather conditions, government regulations, production technologies), and so on. In essence, the modeling process is an exercise in statistically disentangling the market effects of promotion program activities from those of other market forces, many of which have a considerably larger influence on market behavior than the promotion activities.

Two approaches to modeling the relationship between promotion activities and commodity sales are most common: (1) the structural model approach and (2) the time series model approach.

*The Structural Modeling Approach:* Most studies that have investigated the impact of advertising and promotion on sales of products have relied on single-equation modeling approaches. However, results obtained using single-equation models may not satisfy integrability conditions, and therefore may not be consistent with demand theory. Further, some researchers have concluded that failure to incorporate the impact of advertising on closely related goods can lead to unreliable estimates of advertising effects. To circumvent this shortcoming, some researchers have incorporated advertising variables into demand systems. With the systems approach, it is possible to determine the relative impacts of advertising, prices, and total expenditure (or income) on sales of products while accounting for cross-commodity price and advertising effects. Whether single equation or demand systems are used, the statistical significance and sign of the advertising elasticities are usually taken as an indication of the effectiveness of the demand promotion programs on sales.

*The Time-series Modeling Approach:* While development and estimation of a structural model is a common evaluation technique, the structural approach suggests a potentially elaborate relationship between sales and promotional expenditures. An increasingly common, alternative technique for analyzing the impact of promotion expenditures on sales is the use vector autoregression (time series) models. As opposed to the structural approach, time series methods do not seek to identify and ultimately estimate the parameters of underlying demand relationships. Rather, the focus of this approach is on the data themselves and the regularities found therein. The use of the time series method is of particular interest because in measuring advertising effectiveness particular care must be taken to account for both the contemporaneous (current) and lagged (past) effect of advertising expenditures on sales.

Regardless of the model used, the impact of the promotion expenditures on sales is measured by changing the level of the expenditures in the model to see what happens to the level of sales. To determine the impact that investments have had on sales over the life of the program, the level of historical expenditures in the model can be set to zero and
the level of sales that would have existed over time in the absence of the program can be calculated. Measuring the difference between the actual, historical level of market sales and what the model says they would have been in the absence of the program provides a direct measure of the contribution of the promotion to the change in sales that has occurred over time. Even if the analysis indicates that market sales have increased as a result of the promotion program, the question remains as to whether the increase has been greater than the cost of the program. For that reason, most promotion organizations are more interested in some measure of return on investment rather than the effects of promotion on the level of sales.

The term “return-on-investment” is actually a misnomer in the literature on commodity promotion program impacts. What most studies really calculate is a Benefit-Cost Ratio (BCR) which measures the dollar increase in sales per promotion dollar spent. Because promotion expenditures occur over time and have different effects over their life cycles, the increase in industry sales generated by the program over time are often discounted to present value before dividing by the discounted cost of the program to account for the time value of money. The result is a discounted benefit-cost ratio (DBCR). If the BCR or DBCR (net of program costs) is greater than one, the promotion program is deemed “successful” because more than one dollar in sales is generated for every dollar spent. On the other hand, if the calculated BCR or DBCR is less than one, the program is deemed “unsuccessful.” Note that since the BCR and DBCR are ratios, as the denominator gets smaller, the ratio will tend to increase. Thus, if two different promotion activities have the same effect on returns but one requires less investment than the other, then the lower cost activity provides a larger “bang for the buck.”

Because they provide measures of the “average” return to promotion activities, BCRs are limited in their usefulness for making promotion funding allocation decisions. As a result, many studies report a marginal rate of return (MRR) which is a more appropriate “return on investment” (ROI) concept than a BCR as a measure of the effectiveness of advertising and promotion expenditures. An MRR is usually calculated as the percentage increase in sales revenues from a 1% increase in promotion expenditures. Thus, an MRR provides a more accurate indication of the change in total returns that might be expected from a reallocation of funds among competing promotion activities.

A particular limitation of the BCRs and MRRs calculated using demand models is that they are static or ceteris paribus measures of the effectiveness of commodity promotion. In other words, BCRs and MRRs based on sales and demand models are calculated assuming that nothing, including prices, changes when promotion expenditures change. The static nature of the results means that such models, like consumer awareness studies, are not particularly useful in efforts to measure the benefits of promotion expenditures to those who pay for the programs.

Contributor Benefit Studies

Sales impact analyses based on demand models are designed to determine whether or not past promotion expenditures have effectively shifted out the demand for the commodity
and, therefore, sales. If such analyses conclude that promotion expenditures have not shifted out demand, then obviously the program has not benefited those who have paid for the programs. However, if the conclusion from such analyses is that demand has been positively impacted by promotion expenditures, the related increase in sales may or may not translate into increased profits of those who pay for the programs for a variety of reasons. In the first place, if the promotion program has only a small impact on demand and sales, then the returns to contributors could obviously be much less than their contributions to the promotion program.

Even if the program has a large impact on demand and sales, however, the contributors to the program may or may not be able to capture all or even most of the benefits of the program. That is, the benefits of the program may be captured by (or “spill over” to) producers, processors, and retailers in foreign markets and in closely related domestic markets who do not contribute to the costs of the program. For example, in a recent analysis of the orange juice promotion program of the Florida Department of Citrus, we found that the increase in orange juice demand and price generated by the program prompted an increase in orange juice imports which benefited foreign orange growers and limited the benefits of the program to Florida orange growers who pay for the program.

To get at the impacts of promotion programs on the benefits to those who pay for them, a more sophisticated and dynamic type of commodity market model than used for demand and sales impact analyses is required. Because most products pass through several stages of processing before reaching the final consumer, the markets associated with these different stages are interrelated at some level. In vertically related markets, what happens in one market or processing stage affects all other markets or stages. Furthermore, product processing often results in bi-products or joint products that sell in entirely different markets. In horizontally related markets, products that are not directly in a processing chain may be considered close substitutes for products in the chain. At the same time, some markets include foreign components. Market supply may include imports and market demand may consist of both domestic and export demand.

The intricacy of the interrelationships among and between markets means that myriad factors can affect the market of a particular product and not just those in its own markets. To successfully capture the transmission of the impact of advertising and promotion at the retail or processing levels of the market or in foreign markets back to those who pay for the program requires a dynamic model that adequately accounts for all these relationships.

Once the market for the product has been accurately modeled and the relative roles of the promotion program activities and other market forces have been accounted for and incorporated into the model, the process of measuring the benefit of the promotion expenditures to those who pay for the program is done through scenario analysis with the model. This is accomplished by simulating the model over the historical period with and then without the promotion expenditures included in the model. The actual historical data are taken to represent the “with promotion” scenario. For the “without promotion” scenario, the level of promotion expenditures are first set to zero in the model in each
year over the historical period. The model is then simulated over that period to generate changes in the levels of the production, consumption, trade, and prices that would have existed over time in the absence of any promotion program. The simulated differences between the values of model variables in the “with” and “without” promotion scenarios provide direct measures of the historical effects of the program on the market of the commodity being promoted.

The most direct and meaningful measure of the benefit of a commodity promotion program to those who pay for the program, and, therefore, the most commonly used, is the change in the aggregate profits of the contributors that is attributable to the promotion program. Because the benefits to contributors in terms of increased profits must be greater than the cost of the program to them if the program is to be considered successful, a contributor profit BCR is the usual measure used to determine the extent of program success. The contributor profit BCR is calculated from the scenario analysis as the aggregate increase in profits to the contributors (after subtracting out the total cost of the promotion program) as a result of the program divided by the total value of the promotion expenditures over the history of the program. The result is the BCR of the program in terms of the additional contributor profit generated by the program per dollar invested in the program. A discounted profit BCR (DBCR) can be calculated by first discounting the numerator and the denominator of the BCR to present value before dividing.

For example, in the case of the Florida orange juice promotion program, Florida orange growers are assessed a tax on each box of oranges sold part of which is used to fund the Florida orange juice promotion program. To measure the benefits of that program to Florida orange growers, we calculated the change in aggregate profits to Florida orange growers as a result of the program expenditures using a sophisticated model of the orange and orange juice industry. Dividing the change in Florida orange grower profits over time as simulated with the model by the historical cost of the program yielded a Florida orange grower profit BCR of about 6 to 1 and a DBCR of about 3 to 1. Similar BCRs can be calculated using other measures of benefits, such as the value of additional domestic, foreign, or total market sales, and then again dividing by total promotion expenditures to calculate the benefit in terms of the additional sales generated per dollar of investment.

A major problem for using a BCR as a measure of the benefit to program contributors is that a BCR provides no clear criteria for judging whether the benefits of a particular advertising program have exceeded the costs sufficiently to warrant continuation of the program. That is, a typical benefit-cost analysis of a promotion program fails to address whether or not the program is a “good” investment for those who pay for the program. Even if the contributor benefit from a particular commodity promotion program is estimated to be positive and even higher than those estimated for other commodity promotion programs, the contributors might plausibly still be better off if the funds they contribute to the program could be invested in other common investment opportunities and realize a even higher return. If so, then it may make little difference to the contributors if the BCR from the program is “high” if they could take those funds and invest them in other common investment opportunities and realize a higher return. A
relevant concern for commodity promotion program evaluations, therefore, is the opportunity cost of the program funds which requires treating programs as investment alternatives for producers.

A standard method for determining the highest yielding investment opportunity is to calculate an internal rate of return (IRR) to the promotion expenditures over time. In analyzing alternative business investments, the IRR is often referred to as the discounted rate of return, the marginal efficiency of capital, and the yield of an investment. The MIRR is calculated as the change in the future value of the estimated returns to the promotion expenditures over time as determined by the contributor benefit scenario analysis divided by a change in the present value of advertising expenditures expressed in percentage terms. Consequently, the IRR is a dynamic ROI measure which expresses the estimated marginal returns to promotion expenditures (i.e., the percent change in returns from a one percent change in promotion). In our study of the Florida orange juice promotion program, we calculated the IRR to Florida orange growers to be 14.4% over the life of the program. In other words, we concluded that for Florida orange growers to have done better with the funds they invested in the orange juice promotion program, they would have had to have found an investment alternative that yielded more than 14.4% on average annually over the entire 33-year period of the program.

Some Important Measurement Issues

Regardless of the measurement approach taken, a particularly difficult issue in the evaluation of promotion program impacts is that the relationship between the promotion expenditures and market behavior is not necessarily straightforward. For example, some minimum threshold level of promotion expenditures may be required for the expenditures to even begin to have any effect. Below that level, expenditures may be simply unable to generate sufficient research interest or recall and awareness to motivate consumers. Thus, activities that may be effective at a high level of expenditure may have no impact if expenditures fall below some threshold level. The threshold level is likely different for each product, time period, and world location.

At the same time, even when threshold levels are met, the promotion expenditures generally have life cycles of at least three distinct phases: (1) a “delayed effect” stage during which the expenditures initially do not impact the market, (2) a “carryover effect” stage in which expenditures in a previous period continue to impact the market in the future, and (3) a “decay effect” stage during which past expenditures gradually lose their impact on the market. The life cycle problem is especially prominent in responses to advertising-type activities. The “delay effect” can occur because several exposures to an advertising message over time may be required before an individual decides to buy. Once the advertisement has registered with consumers, they tend to remember the advertising for a while. This “carryover effect” has been reported to last from one month up to two or more years depending on the commodity and the type of promotion activity.

Some types of advertising activities are intended to have little or no carryover effect because they involve temporary specials or product attributes that will not continue. For
that type of advertising, the objective is an immediate response without any intent to gain consumer loyalty to the product. Generic promotion activities are generally directed toward longer-term responses and, therefore, have often been found to generate lengthy carryover effects. While the effects of promotion activities often persist beyond the period in which the expenditures are made, they do not last forever. A decay in those effects is expected after some period of time. Research has shown that the promotion message will be forgotten if the potential users are not continuously exposed to it and that continued investments in promotion are necessary because users filter messages and only respond when they are ready to make a purchase. When the user is interested, relatively few exposures to the promotion message are necessary for an effect. Also, without repeated exposure to the message, the number of recalls decreases.

To account for the life cycle effect of promotion expenditures, researchers must determine a lag structure for promotion expenditures and appropriate functional forms for the demand relationships. Typically, researchers develop promotion stock variables formed as weighted averages of past expenditures measured in constant dollars to account for the time lag in the impact of the advertising. A lag formulation commonly used in the analysis of advertising effectiveness is the Almon polynomial distributed lag (PDL) and another is the polynomial inverse lag (PIL) formulation. In contrast to the PDL model, the PIL does not require specifying the lag length, and, thus, is conceptually an infinite lag. In principle, the use of the PIL lag formulation imposes the assumption on the model that advertising expenditures in one period have infinitely long impacts over time on consumption. Consequently, the PDL formulation is more commonly used in order to allow for testing for lag length, that is, the pattern and time period over which promotion expenditures influence the demand for a commodity.

Data Requirements and Related Issues

Once a particular evaluation method is selected, the next concern is the collection of the data needed for the analytical procedure selected. As should now be apparent, data on a large number of variables over a long period of time are critical prerequisites to the analysis of the impact of commodity promotion programs. At least three interrelated data issues must be considered in collecting the necessary data.

First, as discussed earlier, the process of statistically isolating the effects of a commodity promotion program on market variables like industry sales and profits requires that the effects of other factors that may affect the market besides the promotion program must be accounted for. Thus, a critical step in the evaluation of any commodity promotion program is to identify the other important factors that affect the market and then to obtain the data related to those factors.

Second, the frequency of the data collected is also important. Because most promotion program activities affect industry sales and profits only with some lag in time, the ideal data for identifying the length of these lags are generally monthly data. Increasingly, however, consumer demand analyses are being conducted using weekly supermarket
scanner data available from A.C. Nielsen or Information Resources, Inc. although the data can be costly to obtain and are not generally suitable for analyzing the sales impact of promotion programs at the aggregate, national level. Nevertheless, the use of scanner data insures that the analysis will be rich in observations, a requirement for definitive statistical assessments over a relatively short time period. Quarterly data can also be used for demand analysis but are less preferred. If nothing else is available, annual data might be useable if the promotion program activities tend to be funded on an annual basis and continue over a period of many months or quarters each year. Weekly, monthly, or quarterly data are more appropriate if the majority of the promotion activities are media advertising and other short-term events. On the other hand, annual data may be more appropriate for measuring the response of the market to promotion over the life of the program or some other lengthy period of time. Likewise annual data are usually required if foreign market behavior or supply response must be included in the model. Consequently, an ideal promotion evaluation database will include at least monthly, quarterly, and annual data on all variables related to the commodity market and the promotion program.

A third data issue is that the more periods of data available (monthly, quarterly, or annual as appropriate), the greater the statistical confidence in the impact measurement results. The rule of thumb in doing this type of analysis is to utilize data for at least 40 periods. Thus, if the data are monthly, then about four years of data are required. If the data are only quarterly or annual, then a decade or even 40 years of data or more would be ideally needed.

Clearly the implication is that reliable evaluations of program impact require a great deal of advance planning, data gathering and organizing, and record keeping. Failure to put in place an appropriate system of data collection early in the life of a commodity promotion program can make later analysis of the impact of the program impossible. For example, one commodity organization that requested a particular promotion analysis had done little over the years to keep track of particular promotion expenditures. After several months of interviewing and working with various national and state organization, we were forced to conclude that the failure of the organization to maintain systematic and detailed historical information in a consistent format on their annual funding of such programs rendered what little data could be collected to be virtually useless at least for program evaluation purposes.

Who Should do the Program Evaluation?

Analyses of consumer awareness and attitudes related to specific advertising campaigns are typically conducted as tracking studies by the advertising firms that conduct the promotion programs, by independent market research firms, or by researchers from the marketing departments of business schools. On the other hand, commodity promotion program analyses can most competently be done by skilled and experienced professionals with expertise not only in statistical analysis, market modeling, and scenario analysis but also in the evaluation of agricultural commodity promotion programs. The evaluation
process would ideally establish a long-term relationship with some qualified group of professionals who can not only help develop the necessary database but also construct the necessary market model which can be updated and utilized at regular intervals to analyze the impact of the program over time. The selection of the appropriate group of professionals to conduct the analysis should emphasize the importance of objectivity to enhance the confidence that stakeholders and others can place in the results. In this process, peer review of the program impact analysis results is imperative to help insure the objectivity, credibility, and professional quality of the work. A number of such individuals and groups can be found at selected land grant universities, such as Texas A&M University, Cornell University, the University of Florida, Auburn University, the University of California at Berkeley and Davis, and elsewhere. Also, many of those researchers work in regional research groups such as NEC-63 and other national organizations such as the National Institute for Commodity Promotion Research and Evaluation housed at Cornell University.

What Can Reasonably be Expected From an Analysis of Program Impact?

Expectations by stakeholders for the impact of commodity promotion programs on industry sales and profits are generally quite high. Research on the impact of commodity promotion programs has grown rapidly in recent years and, with a few noteworthy exceptions, has found that the BCRs for most of those programs are positive and fall in the range of about $2 to $12 per dollar spent. However, the reported BCRs often vary widely, even for the same product.

Unfortunately, a high calculated BCR says nothing about the absolute impact of the program on the market. A high BCR results if you divide a small industry profit benefit by an even smaller level of investment. For most commodity promotion programs, the value of the expenditures in research and promotion activities is extremely small in comparison to the total value of industry sales. Commodity promotion expenditures generally amount to a fraction of 1% of the total industry sales each year. With such a low promotion investment intensity, i.e., the level of investment compared to sales, the overall impact of a commodity promotion program could hardly be expected to be highly significant in a practical sense in its effects on production, prices, sales, and market share even if the impact could be said to be statistically significant.

Also, even though the primary objective of a promotion program may be to increase industry sales or industry profit, individuals contributing to the program will expect that the funds will be spent in such a way that they are individually better off than they would have been without the program. However, because different producers have different cost structures and face perhaps different demand conditions, for example, a subset of producers in the industry may benefit from a commodity promotion program they contribute to while the industry as a whole loses or vice versa. All boats do not necessarily rise to the same level with the tide – some float, some take on water but stay afloat, and some sink.
The same problem faces those who expect that promotion programs will necessarily raise the prices they receive for the product they sell. While profits might be expected to increase as a result of a promotion program, profits can increase while prices are declining if sales increase even faster. This is particularly a problem for industries in which supply tends to respond quickly to any upward pressure on price. In such industries, any increase in profit is usually the result more of a sales increase than a price increase. For producers or processors whose capacity remains fixed in this situation, the benefits of a promotion program are not clear. Even if the program is successful in maintaining the industry’s market share and defending the competitiveness of the industry’s product, the results may not be obvious to all individual producers and processors if price has not also increased.

Thus, even though one may reasonably expect that a promotion program impact analysis will find a positive benefit relative to cost from the program, the analysis is not likely to demonstrate a large absolute impact on the market nor an even distribution of any benefits of the program among stakeholders. At the same time, the results of a program impact analysis cannot be expected to provide entirely reliable guidance for future allocations of promotion funds among competing potential promotion activities for several reasons. First, what is true of the program as a whole may not be true of individual activities or even groups of activities. Even though the program as a whole may be effective in meeting the program objectives, certainly some individual activities may make little or no contribution. Second, as mentioned earlier, program impact evaluations are generally backward looking. That is, they use historical data to measure market relationships over some historical period and attempt to measure the impact the program has had in the past. There is no guarantee that the market will behave in the future as it has in the past. Government policies change. Trade negotiations liberalize the flow of goods and service among nations. Consumer preferences and habits shift. Technological innovations improve production efficiencies and enhance competitiveness. Commodity promotion programs vary in their effectiveness over time. At the same time, any revisions in the way promotion funds are allocated among activities is likely to affect the measured returns and impacts of those activities in the future.