INTERNATIONAL MARKET PROMOTION EFFECTIVENESS OF THE SOYBEAN CHECKOFF PROGRAM

Dr. Gary W. Williams*

AFCERC Commodity Market
Research Report No. CM-02-12
February 2012

***** Gary Williams is a Professor and Co-Director, Agribusiness, Food, and Consumer Economics Research Center (AFCERC), Department of Agricultural Economics, Texas A&M University**.**

INTERNATIONAL MARKET PROMOTION EFFECTIVENESS OF THE SOYBEAN CHECKOFF PROGRAM

Agribusiness, Food, and Consumer Economics Research Center (AFCERC) Commodity Market Research Report No. CM-02-12, February 2012, Report to the U.S. Soybean Export Council by Dr. Gary W. Williams.

ABSTRACT

This study uses results of the 2009 evaluation of the effectiveness of the U.S. soybean checkoff program to better understand the relationship between the international marketing promotion component of soybean checkoff programs and the resulting changes in U.S. exports of soybeans, soybean meal, and soybean oil. The study provides more detail on the effects of the soybean checkoff program on exports, determines the gross return to international marketing promotion in terms of additional export revenue generated per dollar spent on international market promotion, and determines the return to soybean producers attributable to international market promotion per dollar spent on international marketing promotion. Following some background discussion of the international market promotion component of the soybean checkoff program, the study discusses the methodology and the data used. An analysis of the foreign market effects of the soybean checkoff program is then followed by an analysis of the returns to the historical investment of soybean checkoff dollars in international market promotion in terms of the additional export dollars as well as the additional producer dollars generated over the years. Implications for the management of the international market promotion component of the soybean checkoff program are provided.

The Agribusiness, Food, and Consumer Economics Research Center (AFCERC) provides analyses, strategic planning, and forecasts of the market conditions impacting domestic and global agricultural, agribusiness, and food industries. Our high-quality, objective, and timely research supports strategic decision-making at all levels of the supply chain from producers to processors, wholesalers, retailers, and consumers. An enhanced emphasis on consumer economics adds depth to our research on the behavioral and social aspects of health, nutrition, and food safety. Through research efforts, outreach programs, and industry collaboration, AFCERC has become a leading source of knowledge on how food reaches consumers efficiently and contributes to safe and healthy lives. AFCERC is a research and outreach service of Texas AgriLife Research and Extension and resides within the Department of Agricultural Economics at Texas A&M University.

INTERNATIONAL MARKET PROMOTION EFFECTIVENESS OF THE SOYBEAN CHECKOFF PROGRAM

EXECUTIVE SUMMARY

This study uses the results of the Williams, Capps, and Bessler (2009) evaluation of the effectiveness of the U.S. soybean checkoff program to better understand the relationship between the international marketing promotion component of soybean checkoff programs and the resulting changes in U.S. exports of soybeans, soybean meal, and soybean oil. The study provides more detail on the effects of the soybean checkoff program on exports, determines the gross return to international marketing promotion in terms of additional export revenue generated per dollar spent on international market promotion, and determines the return to soybean producers attributable to international market promotion per dollar spent on international marketing promotion. Following some background discussion of the international market promotion component of the soybean checkoff program, the study discusses the methodology and the data used. An analysis of the foreign market effects of the soybean checkoff program is then followed by an analysis of the returns to the historical investment of soybean checkoff dollars in international market promotion in terms of the additional export dollars as well as the additional producer dollars generated over the years. Following a summary of the key conclusions of this study, implications for the management of the international market promotion component of the soybean checkoff program are provided.

Between 1970/71 and 2006/07, over $724.1 million of soybean checkoff funds were spent promoting the soybean industry of which nearly 29% supported international market promotion programs. The checkoff expenditures on international programs were leveraged over the years with federal funds through the USDA cooperator program as well as funds raised from in-country third party contributors at least until 1998/99. Thus, total expenditures to promote soybeans and products over that same period amounted to $1.06 billion of which international market expenditures (checkoff, USDA, and third party) accounted for $540.6 million, 51% of total expenditures with remainder expended for production research and domestic promotion programs. With the implementation of the national soybean checkoff program in the early 1990s, checkoff expenditures began to shift away from international market promotion, reducing the international market share of total checkoff promotion expenditures from around 80% in the 1980s to just under 40% in 2006/07. At the same time, a reallocation of international market promotion expenditures away from the primary target markets of Europe and Japan to smaller but more rapidly growing markets (other Asian countries, Latin America, the Middle East, and Africa) commenced along with a growing focus on promoting soybean products (soyoil and soymeal) rather than soybeans in those markets.

In their study, Williams, Capps, and Bessler (2009) used an econometric simulation model of world soybean and soybean products markets to conduct an analysis of two scenarios over the period of 1980/81 through 2006/07: (1) a "*with expenditures*" scenario that assumes the soybean checkoff program was in place over that period and (2) a "*without expenditures*" scenario that assumes the soybean checkoff program had never been implemented. Differences in the simulated levels of the model variables (country production, demand, prices, trade, etc.) in the "*with expenditures*"

scenario from those in the "*without expenditures"* scenario were taken as direct measures of the effects of the checkoff expenditures over time. Their scenario analysis essentially measured the joint effects on world soybean and product markets of all soybean checkoff promotion expenditures in all regions for all commodities by all contributors.

The 2009 study did not analyze the effects of international promotion expenditures independent of those of the other two main categories of soybean checkoff expenditure (production research and domestic market promotion) primarily because such an analysis would have required an assumption that international promotion was done in a vacuum over the years. The results of such an analysis would have ignored the synergistic effects (both positive and negative interactions) of the three main checkoff program components in the market and provided unrealistic and largely meaningless results. For example, domestic market promotion tends to increase the domestic demand for soybeans and soybean products and reduce their availability for export. Production research boosts export availability but tends to depress price, and therefore, the value of exports. Analyzing the returns only to international market promotion while ignoring the export-reducing effects of domestic market promotion or the price-depressing effects of production research could lead to a conclusion that international market promotion expenditures are more (or less) effective in enhancing exports than is actually the case. Nevertheless, the results of the 2009 study, some of which were unpublished, provide the basis for exploring the relationship between international market promotion and the net changes in exports of soybeans and soybean products achieved as a result of the checkoff program. In using the results of the 2009 study, therefore, this analysis of the returns to international market promotion makes the realistic assumption that over the period of analysis, domestic market promotion and production research were on-going over that same period.

On average over the entire 1980/81-2006/07 period of analysis, the soybean checkoff program added soybean exports each year by an average of 993,600 mt or nearly 5%. For soymeal and soyoil, the average annual additions to their exports over that period were estimated to be somewhat larger in percentage terms at 15% (808,600 mt) and 24% (149,600 mt), respectively. Although exports of U.S. competitors increased as a result of the program, the U.S. share of world soybean, soybean meal, and soybean oil exports also increased as a result of the checkoff program. Using those and other results from the 2009 study, this study calculates a gross export revenue benefit-cost ratio (BCR) over the 1980/81 to 2006/07 period of $29.6 of additional export revenue (net of the cost of the promotion) per dollar spent on international promotion. In terms of export revenue generated, therefore, the return to international market promotion has far exceeded its cost. At the producer level, that additional export revenue translates into a BCR of $9.2 in additional profit to growers (net of both additional production costs and the cost of promotion) per dollar spent on international promotion. In other words, soybean producers received additional profits from international market promotion in excess of the cost of that promotion.

The calculated returns to growers from international market promotion is larger than the returns to growers from the overall soybean checkoff program reported in the 2009 study ($6.4 to $1). In other words, international market promotion over the years has helped to raise the average return to growers from the overall soybean checkoff promotion programs. Previous analyses of the effectiveness of the soybean checkoff program have consistently concluded that the historic shift in funding allocation strategy to funnel more funds to production research and less to international market promotion has likely moderated the level of the grower BCR from the

overall soybean checkoff program. As the 2009 study notes, this shift in funding strategy as the national checkoff program was implemented added tremendous supply push to checkoff program funding while reducing the demand pull of the program. The net effect was that the "supply push" of the production research program began to have a greater impact on U.S. and world soybean and product markets than the "demand pull" of international market promotion programs particularly since 2000/01.

The clear message from this study is that international market promotion has worked well for the soybean checkoff program and successfully enhanced profitability within the U.S. soybean industry. International market promotion has been and continues to be the foundation of the soybean checkoff program, helping to keep the entire checkoff program profitable as the United Soybean Board increasingly has explored other promotion and production research opportunities in domestic markets since the implementation of the national soybean checkoff program. The results of this study suggest a number of implications for international market program management purposes. First, the high BCRs calculated for international market promotion (as well as for the overall program) suggest that the U.S. soybean industry continues to underinvest in the soybean checkoff program despite the sharp increase in funding with the national checkoff program. Large additional benefits in terms of soybean grower profits can be realized from an even further increase in promotion expenditures. Second, the higher grower BCR to international market promotion compared to that of the overall checkoff program suggests that large additional benefits to growers also can be realized from additional allocations of checkoff funding to international market promotion. Third, the particular commodity mix of international market promotion expenditures over time has impacted the return from those expenditures. Fourth, the country/region mix of international promotion expenditures has also affected the return from those expenditures. Finally, although international promotion expenditures increase foreign demand for U.S. soybeans and products, U.S. competitors have also benefitted (although to a lesser extent) from those efforts. The foreign promotion strategy must include more than generating demand and focus also on providing service, developing business relationships with foreign buyers, and building confidence in the U.S. as a reliable supplier of consistently high quality soybeans and products.

TABLE OF CONTENTS

Abstract ii

Acknowledgements ..... **Error! Bookmark not defined.**

Executive Summary ii

List of Tables vi

List of Figures vi

Background on Soybean Checkoff International Market Promotion 1

Analysis of the Effectiveness of and Returns to International Market Promotion 8

Benefit-Cost Analysis: Return on Investment from International Market Promotion 10

Conclusions and Implications 15

References 19

LIST OF TABLES

Table 1: Estimated International Market Promotion Expenditure Elasticities of Foreign Demand for Soybeans and Products by Region.....7
Table 2: Soybean Checkoff Promotion Effects on Major Exporter Shares of World Trade of Soybeans, Soymeal, and Soyoil, 1980/81-2006/07 11
Table 3: Benefit-Cost Analysis for International Market Promotion, 1980/81-2006/07.....14

LIST OF FIGURES

Figure 1: Total Soybean Checkoff Expenditures by Major Programs, 1970/71-2006/07 3
Figure 2: Major Program Share of Total Expenditures, 1970/71-2006/07.....3
Figure 3: International Market Promotion Expenditures by Contributor, 1970/71-2006/07.....4
Figure 4: International Market Promotion Expenditures by Country, 1970/71-2006/07 4
Figure 5: International Market Promotion Expenditures by Commodity, 1970/71-2006/07 6
Figure 6: Additional Exports as a Result of the Soybean Checkoff Program, 1970/71-2006/07 9
Figure 7: Change in U.S. Market Share of World Soybean, Soymeal, and Soybean Exports.....11

INTERNATIONAL MARKET PROMOTION EFFECTIVENESS OF THE SOYBEAN CHECKOFF PROGRAM

A recent study of the effectiveness of the U.S. soybean checkoff program concluded that the program has been highly effective over the years in enhancing the profitability, competitiveness, and size of the U.S. soybean industry (Williams, Capps, and Bessler 2009). That study reported that the benefit-cost ratio (BCR) of the soybean checkoff program to soybean producers over the period of 1980/81 to 2006/07 was relatively high at $6.4 in additional profit earned by U.S. soybean farmers for every checkoff dollar spent. In measuring the markets effects of the soybean checkoff program and calculating the related return on investment, the study considered the aggregate market effects of the three main promotion components of the program: (1) production research, (2) domestic market promotion, and (3) international market promotion. The separate effects of the three program components independent of each other were not analyzed for two reasons. First, such an analysis was beyond the mandate of the study. More importantly, an analysis of any of the three program components independent of the other two would ignore their synergistic effects (both positive and negative interactions) in the market and provide unrealistic and largely meaningless results. Nevertheless, the results of the 2009 study, some of which were unpublished, provide the basis for exploring the relationship between soybean checkoff promotion efforts in any of the three components areas and the results for various market segments, such as international market promotion and the net changes in exports of soybeans and soybean products achieved as a result of the checkoff program.

The primary goal of this study is to revisit the results of the 2009 study with a focus on better understanding the relationship between the international marketing promotion component of soybean checkoff programs and the resulting changes in U.S. exports of soybeans, soybean meal, and soybean oil. The specific objectives are to: (1) provide more detail on the effects of the soybean checkoff program on exports, (2) determine the gross return to international marketing promotion in terms of additional export revenue generated per dollar spent on international market promotion, and (3) determine the return to soybean producers attributable to international market promotion per dollar spent on international marketing promotion. Following some background discussion of the international market promotion component of the soybean checkoff program, the study discusses the methodology and the data used. An analysis of the foreign market effects of the soybean checkoff program is then followed by an analysis of the returns to the historical investment of soybean checkoff dollars in international market promotion in terms of the additional export dollars as well as the additional producer dollars generated over the years. Following a summary of the key conclusions of this study, implications for the management of the international market promotion component of the soybean checkoff program are provided.

Background on Soybean Checkoff International Market Promotion

Between 1970/71 and 2006/07, over $724.1 million of soybean checkoff funds were spent promoting the soybean industry of which an average of 29% supported international market promotion programs. The checkoff expenditures on international programs, however, were leveraged over the years with federal funds through the USDA cooperator program as well as

funds raised from third party, in-country contributors at least until 1998/99[1]. As a consequence, total expenditures[2] to promote soybeans and products over that same period amounted to $1.06 billion of which international market expenditures (checkoff, USDA, and third party) accounted for $540.6 million, 51% of total expenditures (Figures 1 and 2).

The American Soybean Association (ASA) managed the soybean checkoff program, including international market promotion activities, until the creation of the United Soybean Board (USB) under the mandatory national soybean checkoff program established by the Soybean Promotion, Research, & Consumer Information Act of 1990[3]. The ASA continued as USB's primary international market promotion contractor until 2005 when responsibility for that program was transferred to the United States Soybean Export Council (USSEC). Over the years (1970/71 to 2006/07), the contributions of soybean checkoff funds (ASA/USB) and funds through the USDA cooperator program (USDA) have been roughly equal (47% and 53%, respectively) (Figure 3). However, when third party contributions that occurred between 1970/71 and 1998/99 are included in the total, ASA/USB contributions amounted to only 34% of total international market promotion expenditures, indicating a much more effective leveraging of checkoff dollars during those years than was the case in subsequent years.

For much of the 1970s and 1980s, international market promotion consistently accounted for about 80% of total soybean checkoff investments with production research accounting for most of the remainder (see Figure 2). Increasing allocations of checkoff funds to production research reduced the international market promotion share to just under 70% by the early 1990s when the national soybean checkoff program was implemented. Under the national program, total soybean checkoff expenditures increased dramatically from $20.2 million in 1990/91 to $72.2 million in 2006/07, a 357% increase (see Figure 1). Although international market promotion expenditures nearly doubled from $14.5 million in 1991/92 to $28.2 million in 1997/98, the allocation of expenditures to production research and domestic market promotion programs increased even more rapidly. Moreover, the allocation of expenditures to international market promotion declined after 1997/98 averaging only $22.8 million during the period through 2006/07. The consequence was a continuing sharp decline in the international market promotion share of soybean checkoff expenditures to between 30% and 40% after 1998/99 (see Figure 2).

During the early years of the soybean checkoff program, international market promotion activities focused primarily on the industry's two largest export markets, Japan and Europe, consistently accounting for 75-80% of the expenditures during that period (Figure 4). Beginning in the 1980s, however, a strategic decision to re-allocate international market promotion expenditures away from those larger, more mature markets to smaller but more rapidly growing markets in other Asian countries, Latin America, the Middle East, and Africa sharply reduced the share of spending in Japan and Europe to about 50% in the mid-1980s, 30% in the mid-1990s, and 13% in 2006/07.

---

[1] Whether or not such leveraging of international market promotion funds with third party contributions in foreign markets was actually discontinued after 1998 is not clear. However, if such leveraging has continued, the funds contributed by third parties to foreign demand promotional activities have not amounted to much and have not been reported by in-country representatives since that date (Rickard 2008).

[2] Unless otherwise specified, all subsequent references to "total" soybean checkoff expenditures/investments in this report include not only producer-contributed soybean checkoff funds invested in soybean production research, domestic promotion, and international market promotion programs but also the foreign market promotion funds contributed by the USDA through the Foreign Agriculture Service and by 3rd Party contributors in the countries of investment. Not included are state expenditures of checkoff funds on domestic or international promotion programs because of the unavailability of the expenditure data for those programs.

[3] 7 U.S.C. 6301-6311; 56 F.R. 31048-31068, CFR. pt. 1220.

Figure 1: Total Soybean Checkoff Expenditures by Major Programs, 1970/71-2006/07

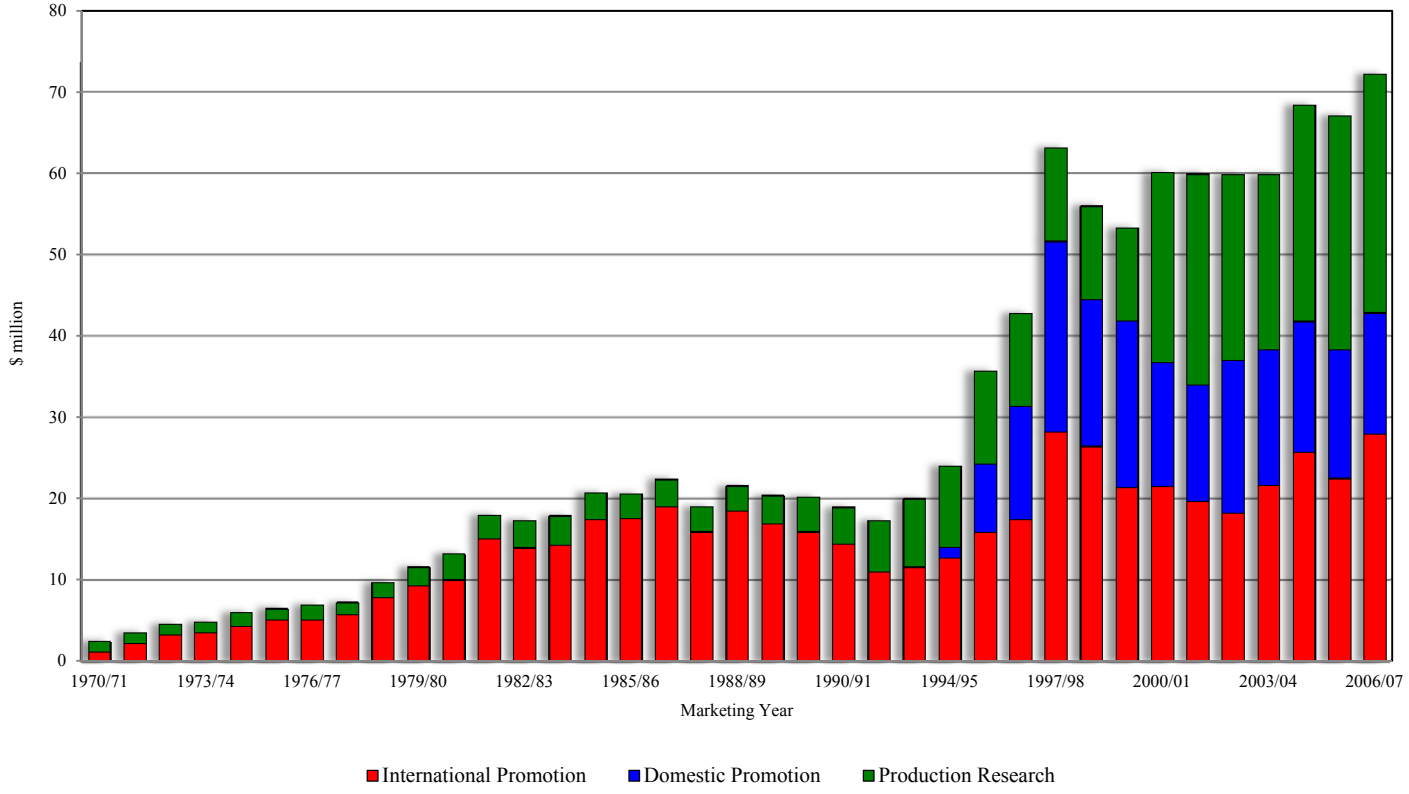


Figure 2: Major Program Share of Total Expenditures, 1970/71-2006/07

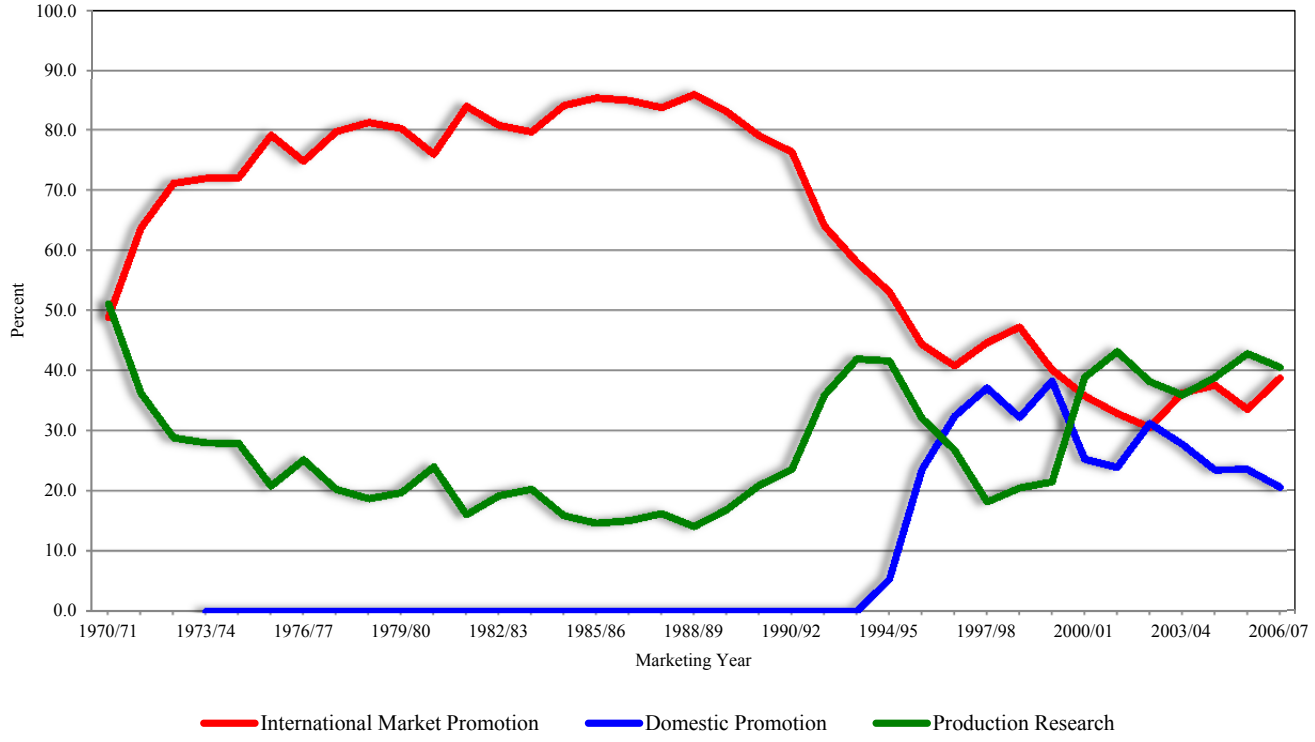


Figure 3: International Market Promotion Expenditures by Contributor, 1970/71-2006/07

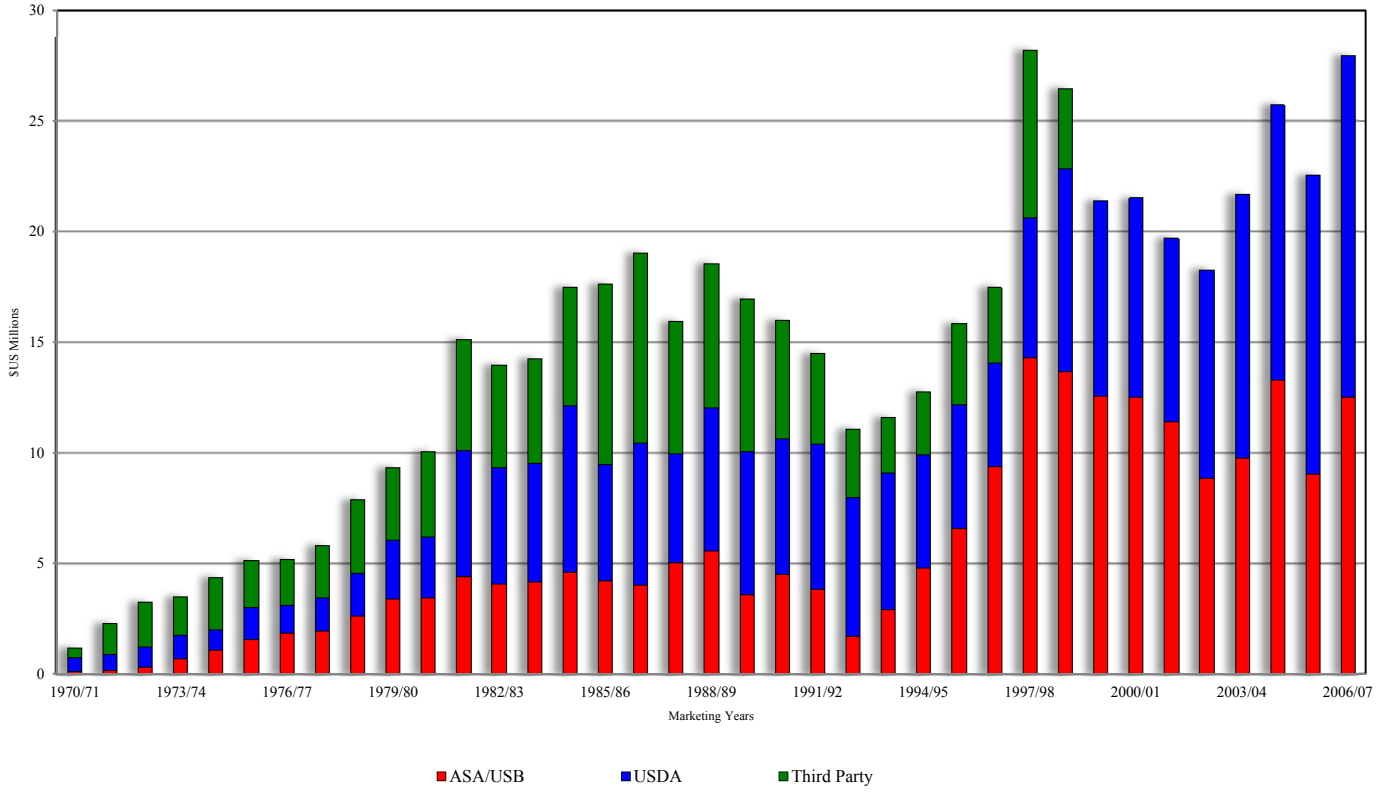
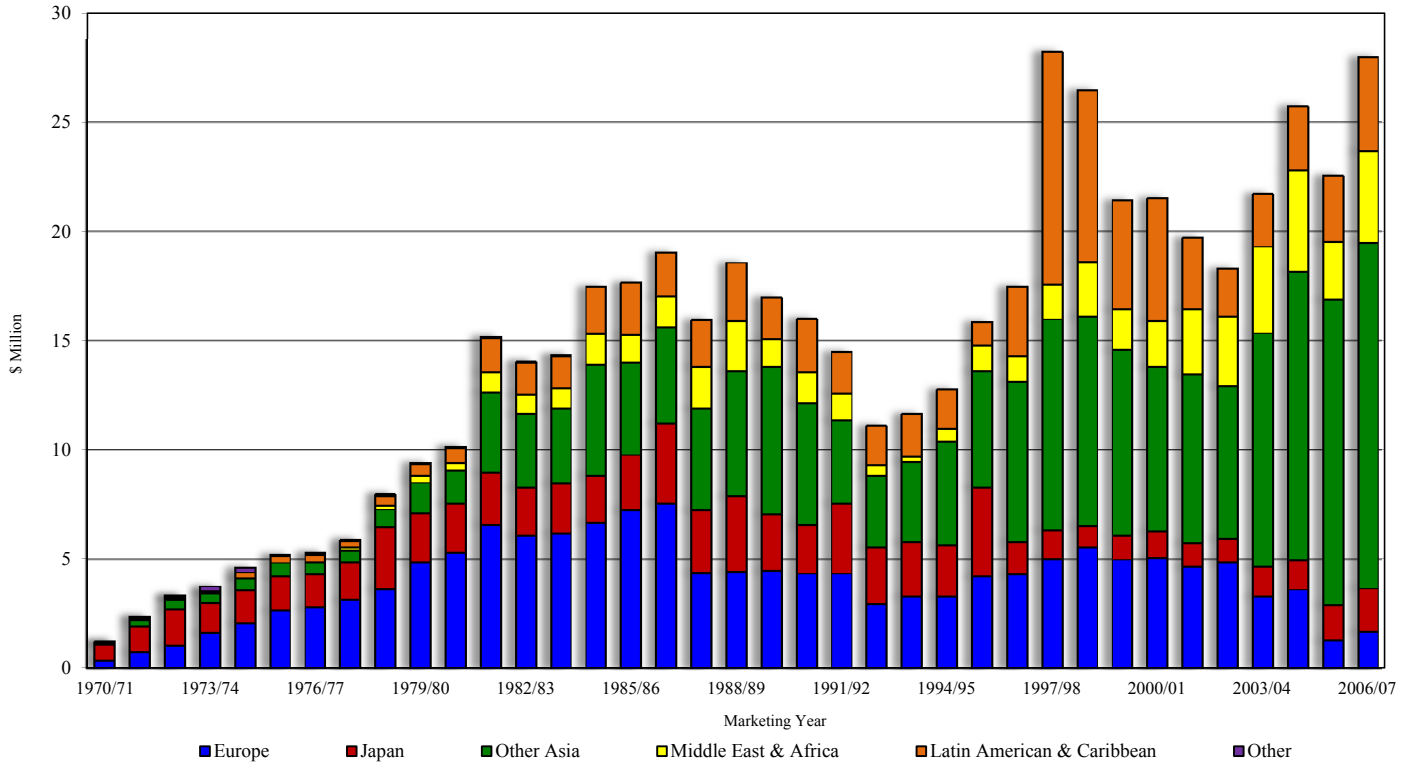


Figure 4: International Market Promotion Expenditures by Country, 1970/71-2006/07



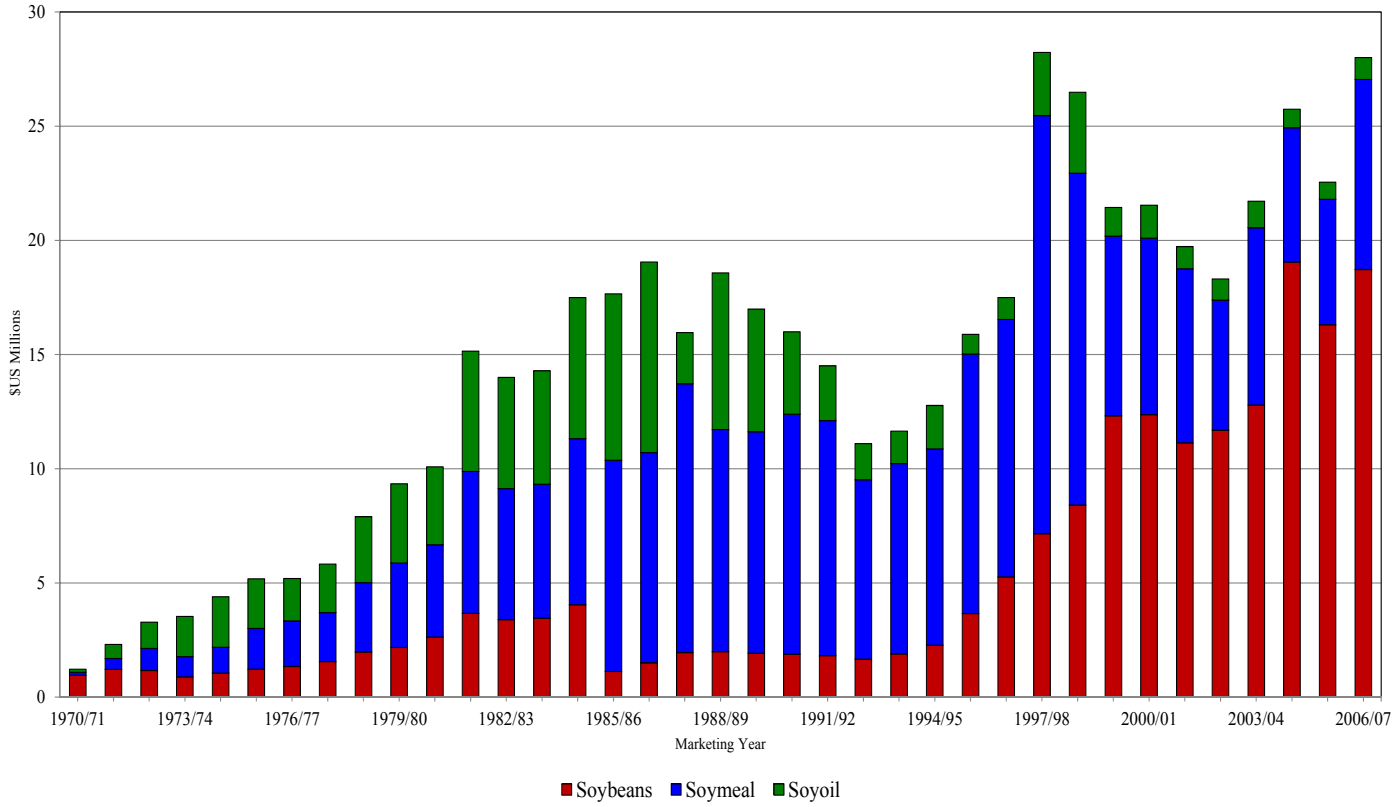
The strategic shift in the country composition of international market promotion expenditures in the 1970s and 1980s was accompanied by a similar strategic shift in the commodity composition of those expenditures. The share of international market promotion expenditures intended to enhance foreign demand for soybean products (soyoil and soymeal[4]) increased steadily during those years to over 90% in the mid-1980s and then began just as steady a decline to about 30% by 2006/07 (Figure 5). As a consequence, expenditures intended to promote soybean exports dominated international market promotion activities from about 2000/01 through 2006/07. As noted in the 2009 study, the motivation behind the switch from promoting the export of soybean products in the pre-national checkoff period to promoting soybean exports in more recent years is unclear but likely related to the shift in the regional focus of expenditures that occurred at about the same time. In Europe and Japan, an initial emphasis on soybean promotion gave way to greater emphasis on value-added products in later years. Then as the strategy for international market promotion broadened to include new, emerging markets across a broad number of less developed countries, the focus once again shifted to soybeans rather than value-added products. That strategy makes sense because before growth in consumption of value-added products can occur in a new market, a supply of value-added products must be available. Working with importers, processors, and refiners in new markets to enhance efficiency and capacity, develop products suited to the needs of the consumers in that country, and improve the production, handling, and marketing process and infrastructure is an important first step to developing the needed supply of value-added soybean products in the market.

Methodology and Data

The results for the effects of and returns to soybean checkoff international market promotion expenditures are based on the results of the 2009 study of the soybean checkoff program (Williams, Capps, and Bessler 2009). In that study, the basic tool of analysis was a 180-equation, annual econometric simulation model of world soybean and product markets that allows for the simultaneous determination of the supplies, demands, prices, and trade of soybeans, soybean meal, and soybean oil in six major world trading regions: (1) the United States, (2) Brazil, (3) Argentina, (4) the European Union 15/27, (5) Japan, and (6) a Rest-of-the-World (ROW) region[5]. To determine the effectiveness of the soybean checkoff program, the first step was to isolate the effects of checkoff expenditures on the U.S. production of soybeans and on the demand for soybeans and soybean products in both domestic and foreign markets from those of other events that may have affected those production and demand variables in those same markets over the years. For this purpose, soybean checkoff research, domestic promotion, and foreign demand promotion stock variables were constructed and treated as regressors in the U.S. supply (acreage and yield), domestic demand, and foreign demand equations of the world model of soybeans and soybean products. Data for all types of soybean checkoff expenditures across all commodities, activities, and countries over a long period of time were needed for the analysis. All expenditure data used in the study were converted to a constant dollar basis to remove the effects of inflation. Expenditures in foreign markets were also converted to the local currencies for the countries and regions of expenditure defined in the study. The data were then transformed into research and promotion stock variables to account for the time lag between

[4] International market promotion expenditures have also promoted "soyfood" products. However, inasmuch as these products are manufactured from the meal portion of the soybean, they are treated as "soymeal" products in this study.
[5] More details about the model used in the 2009 analysis can be found in Williams, Capps, and Bessler, 2009.

Figure 5: International Market Promotion Expenditures by Commodity, 1970/71-2006/07



expenditure and market impact for each commodity (soybeans, soymeal, and soyoil) in domestic and international markets. Model specification tests were conducted to determine appropriate lag structures for calculating the stock variables[6]. The research stock variables enter the model as arguments of the regional soybean acreage and yield functions. The domestic and international soybean, soybean meal, and soybean oil demand promotion expenditure stock variables enter the model as arguments of the respective demand functions of the U.S. or of the importing regions in which the expenditures were made.

The parameters of the world soybean and soybean products model were then estimated using standard econometric procedures. The estimated international market promotion elasticities of the foreign demand for soybeans, soymeal, and soyoil are quite small and consistent in both magnitude and sign with those of previous studies of the soybean checkoff program (for example, Williams, Shumway, and Love 2003) as well as with studies of other checkoff commodities (see the section on "Studies on the Return to Commodity Promotion Expenditures" in the 2009 study to compare these results to those of other studies) (Table 1). Most of the estimated international market promotion elasticities are statistically significant at the 1% or 5% level. The regional promotion elasticities indicate the estimated percentage change in the market demand for the respective product in each region given a 1% change in the real (inflation-adjusted) and exchange-rate-adjusted promotion expenditures for those products in each region. Thus, for example, a 10% increase in international promotion expenditures (corrected for inflation and denominated in yen) to promote soymeal in Japan is estimated to result in a 0.43%

[6] More details about the construction of the research and promotion stock variables are available in Williams, Capps, and Bessler (2009).

Table 1: Estimated International Market Promotion Expenditure Elasticities of Foreign Demand for Soybeans and Products by Region[a]

Regions	Soybeans	Soymeal	Soyoil
EU-15/27	0.040***	0.059**	0.031**
Japan	0.029**	0.043*	0.020***
Rest-of-the-World (ROW)	0.063**	0.062	0.052**

[a] All elasticities evaluated at the means of the data.. * = significant at the 1% level. **= significant at the 5% level, and ***=significant at the 10% level.

increase in the Japanese demand for soymeal. In contrast, a 10% increase in inflation- and exchange-rate-corrected promotion expenditures in the European Union to promote soymeal is estimated to result in a slightly larger increase of 0.59% in the EU demand for soymeal. So a doubling (100% increase) of those expenditures in the European Union would lead to a 5.9% increase in EU soymeal demand.

Validation of the world soybean and products model through dynamic, within-sample simulation indicated a highly satisfactory fit of the historical, dynamic simulation solution values to observed data. A sensitivity test indicated that the model is highly stable to changes in checkoff expenditures over time (see the 2009 study for more details).

The model was then simulated over the period of 1980/81 to 2006/07 under two scenarios regarding soybean checkoff expenditure levels and the results used to calculate benefit-cost ratios for the soybean checkoff program[7]. The first scenario (the "*with expenditures"* scenario") represented actual history over the 1980/81 to 2006/07 period of analysis by assuming that the soybean checkoff program existed over that period. Thus, the simulation results for the level of supply, demand, prices, trade, etc. in world soybean and soybean product markets included the impacts on those markets from soybean checkoff expenditures in the U.S. and around the world. The second scenario (the "*without expenditures"* scenario) assumed that the soybean checkoff program had never been implemented. This second simulation was conducted by setting the historic values of soybean checkoff expenditures to zero in the world model of soybeans and soybean products and then simulating the model once again over the same period to generate new values for U.S. and world soybean and product production, consumption, trade, prices, etc. Because the changes in the model variables in the "*without expenditures"* scenario were generated by changing only the levels of checkoff expenditures, they represent the levels of supply, demand, prices, trade, etc. that would have existed over time *in the absence of a soybean checkoff program*.

Differences in the simulated levels of the model variables (production, demand, prices, trade, etc.) in the "*with expenditures"* scenario from those in the "*without expenditures"* scenario are then taken as direct measures of the effects of the checkoff expenditures over time. Because no other exogenous variable in the model (e.g., levels of inflation, exchange rates, income levels, agricultural and trade policies, etc.) other than checkoff expenditures is allowed to change in either scenario, this process effectively isolates the effects of the soybean checkoff program on

[7] Details of the regression and simulation results can be found in Williams, Capps, and Bessler, 2009.

the U.S. and world soybean markets, prices, and trade. That is, the simulated differences between the values of the endogenous variables from the "*with expenditures"* scenario and from the "*without expenditures"* scenario in which those expenditures are set to zero provide direct measures of the historical effects of the soybean checkoff expenditures (and only those expenditures) on the U.S. and world soybean and product markets.

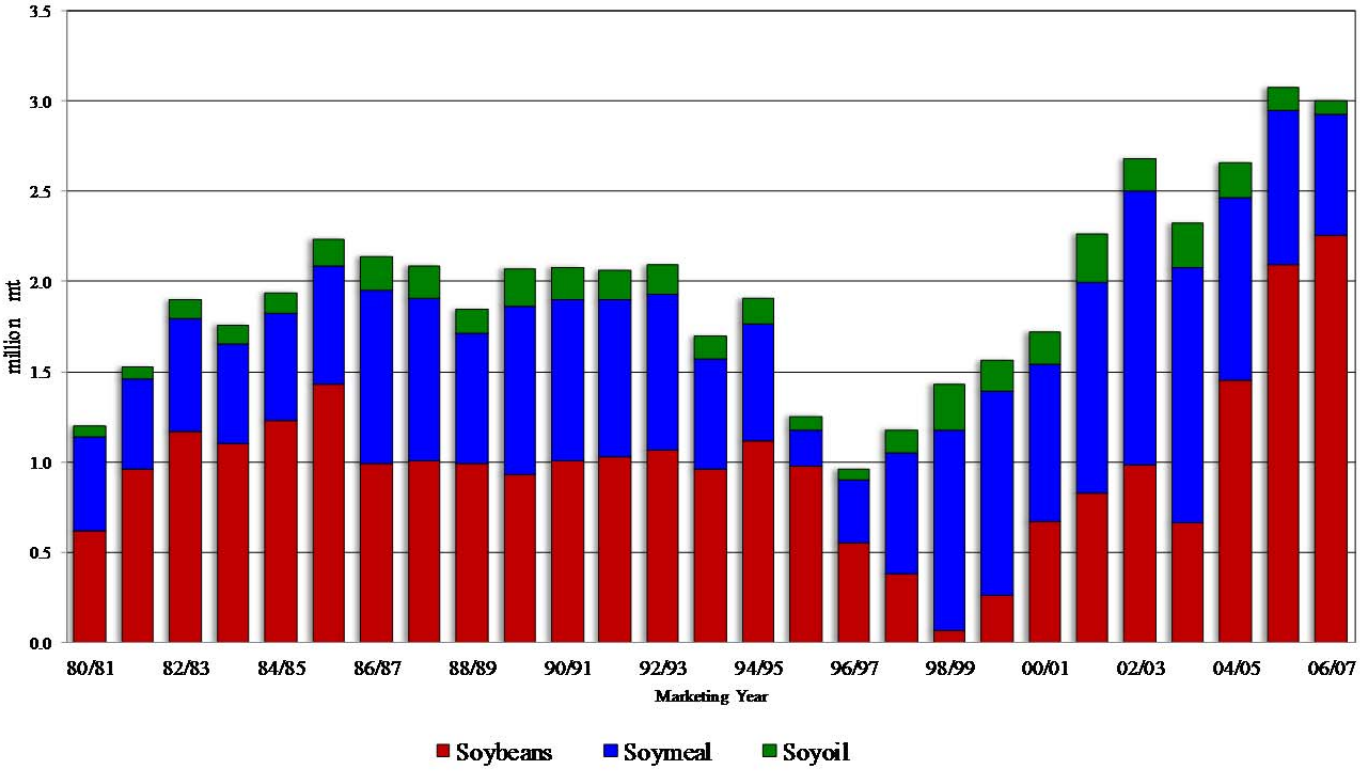
The 2009 study measured the joint effects of all promotion expenditures in all regions for all commodities by all contributors on world soybean and product markets. The study did not analyze the effects of international promotion expenditures independent of those of the other two main categories of soybean checkoff expenditure (production research and domestic market promotion) primarily because such an analysis would have required an assumption that international promotion over the years was done in a vacuum. The results of such an analysis would have ignored the synergistic effects (both positive and negative interactions) of the three main checkoff program components in the market and provided unrealistic and largely meaningless results. For example, domestic market promotion tends to increase the domestic demand for soybeans and soybean products and reduce their availability for export. Production research boosts export availability but tends to depress price, and therefore, the value of exports. Analyzing the returns only to international market promotion while ignoring the export-reducing effects of domestic market promotion or the price-depressing effects of production research could lead to a conclusion that international market promotion expenditures are more (or less) effective in enhancing exports than is actually the case.

Nevertheless, the results of the 2009 study, some of which were unpublished, provide the basis for exploring the relationship between international market promotion and the net changes in exports of soybeans and soybean products achieved as a result of the checkoff program. In using the results of the 2009 study, therefore, this analysis of the returns to international market promotion makes the realistic assumption that over the period of analysis, domestic market promotion and production research were on-going over that same period. In this study, the results of the 2009 study simulation scenario analysis described above for U.S. soybean and soybean product exports are first discussed. Then the simulation results are used to measure the returns to international market promotion through the calculation of two benefit-cost ratios: (1) the gross export revenue benefit-cost ratio (EBCR) which measures the additional export revenue generated per dollar spent on international market promotion (net of the cost of promotion) and (2) the grower profit from exports benefit-cost ratio (NEBCR) which measures the additional soybean grower profit generated from the additional exports (net of additional production costs and the cost of promotion) per dollar spent on international market promotion.

Analysis of the Effectiveness of and Returns to International Market Promotion

The 2009 study concludes that, on average over the entire 1980/81-2006/07 period of analysis, the soybean checkoff program added soybean exports each year by an average of 993,600 mt or nearly 5% (Figure 6). For soymeal and soyoil, the average annual addition to exports over that period was somewhat larger in percentage terms at 15% (808,600 mt) and 24% (149,600 mt), respectively. The study also provides important insight on the consequences for exports of shifting checkoff expenditures away from export promotion. Between 1980/81 and 1991/92, the checkoff program consistently added about a million metric tons to annual exports of soybeans plus nearly 730,000 mt of soymeal exports and just under 140,000 mt of soyoil for a total of

Figure 6: Additional Exports as a Result of the Soybean Checkoff Program, 1970/71-2006/07



about 1.9 million mt in additional export volume each year (Figure 6). That was during the period when international market promotion accounted for the majority of checkoff expenditures. With the sharp decline in expenditure allocation to international promotion beginning in the late 1980s, the annual addition to total soybean and product export volume dropped by about 1 million mt to only about 960,000 mt by 1996/97. The addition to soybean exports took the biggest hit, declining to only about 70,000 mt by 1998/99. The addition to soymeal and soyoil exports dropped to lows of 204,000 mt in 1995/96 and 55,000 mt in 1996/97, respectively.

Note that even though expenditures allocated to international market promotion first began to decline in about 1989/90, the full impact of the reduction on exports of soybeans and products was not apparent until about 1993/94 (see Figure 5). The many years of work in developing was not apparent until about 1993/94 (see Figure 5). The many years of work in developing overseas markets continued to buoy U.S. soybean and product exports for a few years despite the reduction in expenditures. This "carryover" effect then worked in reverse once expenditures for international promotion recovered to peak of $28.2 million in 1997/98. Exports recovered more slowly, not reaching a high until 2002/03 because of the time required to re-build foreign demand for U.S. soybeans and products again. The pattern repeated itself when expenditures for international market promotion were once again reduced between 1997/98 and 2002/03.

One lesson here is that the up and down pattern of international market expenditures has had serious effects on the effectiveness of those expenditures in generating additional exports and, therefore, export revenues. International promotion expenditures are intended to create a stream of additional export revenues over time. The export and revenue impacts of those expenditures in any given year, however, are not fully realized immediately but rather are distributed over a

number of years. Consequently, any reduction in funding for even one year can seriously erode the effectiveness of the program in boosting exports and export revenues not just in that year but over a long period of time. By the same token, increasing funding levels again after some period of lapse usually requires years before the benefits are fully realized once again. In the meantime, the returns from the program are lower than they otherwise might have been.

A common concern about international market promotion is that export competitors may benefit from the promotion efforts. The hope is that U.S. export promotion result in an increase in only U.S. exports. The fact is, however, that there is no guarantee that other countries such as Brazil and Argentina do not benefit from U.S. efforts to build foreign processor, feeder, manufacturer, and consumer use of soybeans and soy-based products. The real question is usually not whether or not any of the benefit is lost to foreign competitors but rather how much is lost. The 2009 study concluded that, although the exports of U.S. competitors increase as a result of the soybean checkoff program, the U.S. share of world soybean, soybean meal, and soybean oil exports also increased by 0.3, 9, and 23 percentage points, respectively, over the 1980/81-2006/07 period (Table 2). The U.S. export market shares of soymeal and soyoil gained the most over the period of analysis (Figure 7). Most of the gain in U.S. soybean export share in the early years of the program was lost in later years with the decline in funding for international promotion and the subsequent shift in international market promotion expenditures toward the direct promotion of soybean product use and away from direct promotion of soybean use in foreign markets.

Benefit-Cost Analysis: Return on Investment from International Market Promotion

Knowing whether or not the checkoff program has boosted exports is important because if that has not occurred then, of course, there is little obvious benefit from continuing to promote exports. The foregoing analysis clearly shows that the soybean checkoff program has effectively boosted both the U.S. level and world share of soybeans, soymeal, and soyoil exports. Nevertheless, knowing that the program has boosted exports is not sufficient support for a decision to continue funding international promotion efforts. The critical question is whether international market promotion is cost effective. In other words, have the benefits of the checkoff program in terms of additional export revenue generated and additional profits to growers from the additional exports generated been larger than the cost of international market promotion itself?

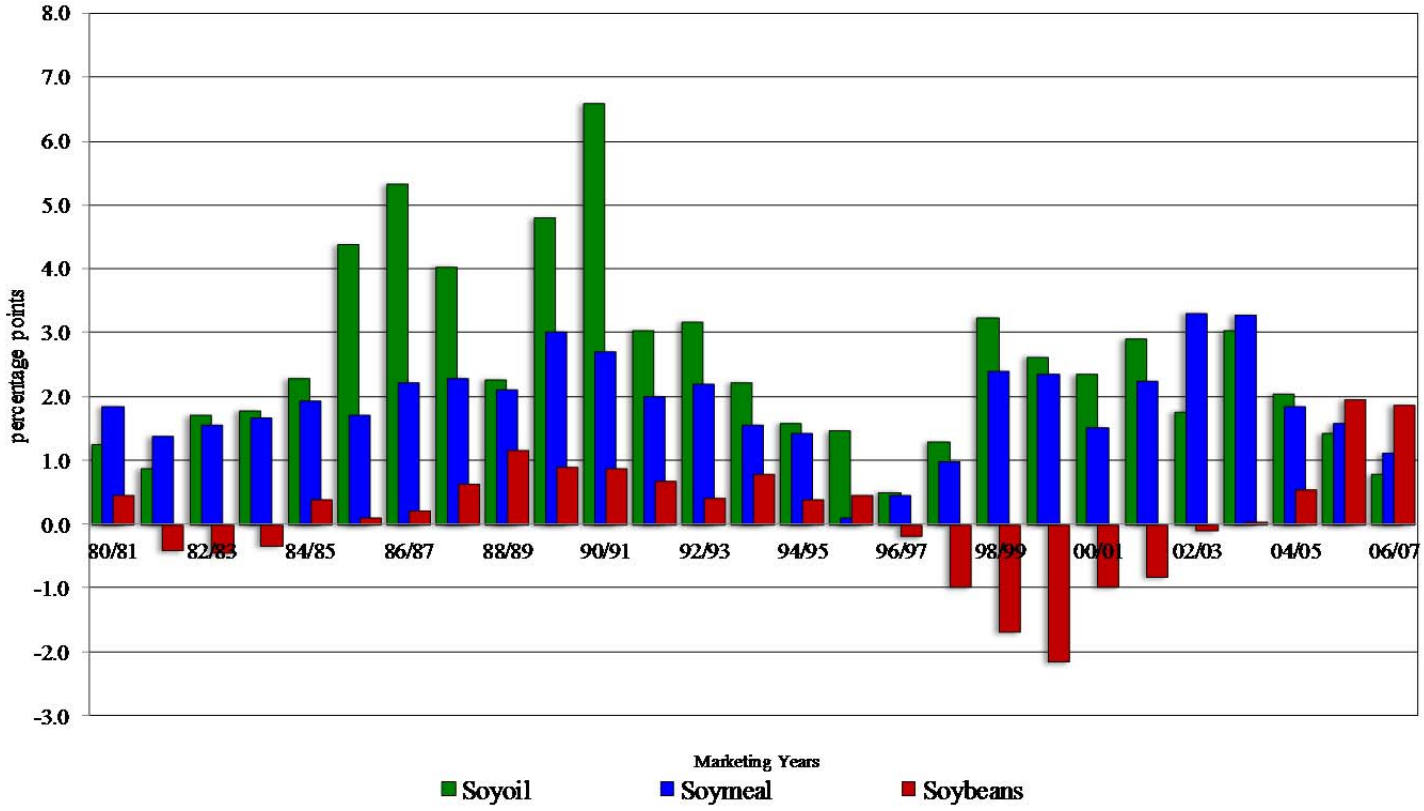
To assess the returns to international market promotion, this section provides a benefit-cost analysis of the soybean checkoff international market promotion efforts by focusing primarily on two benefit-cost measures: (1) the gross export revenue benefit-cost ratio (EBCR) and (2) the grower profit from exports benefit-cost ratio (NEBCR). The first ratio measures the per dollar return to international export promotion at the export level of the market calculated as the additional soybean, soymeal, and soyoil export revenue generated (net of the expenditures on international market promotion) per dollar spent on international market promotion. The additional soybean and soybean product export revenue (XR) generated by the program in any given year (t) is calculated as:

$$(1)\quad XR_t = \sum_i p^{w}_{xit}\, x^{w}_{it} - \sum_i p^{wo}_{xit}\, x^{wo}_{it}$$

Table 2: Soybean Checkoff Promotion Effects on Major Exporter Shares of World Trade of Soybeans, Soymeal, and Soyoil, 1980/81-2006/07

	1980/81 - 1991/92		1992/93 - 2006/07		1980/81 - 2006/07	
	Ave. Market Share Change (percentage points)	% change	Ave. Market Share Change (percentage points)	% change	Ave. Market Share Change (percentage points)	% change
Soybean Exporters						
United States	0.4	17.2	0.0	6.8	0.1	11.4
Brazil	0.1	1.1	0.0	0.2	0.1	0.6
Argentina	-0.5	-4.4	0.0	0.6	-0.2	-1.7
Soymeal Exporters						
United States	2.0	7.1	1.8	11.3	1.9	9.4
Brazil	-0.9	-1.7	0.1	0.2	-0.3	-0.6
Argentina	-1.2	-4.6	-1.8	-4.2	-1.5	-4.4
Soyoil Exporters						
United States	3.2	19.8	2.0	26.4	2.5	23.4
Brazil	-0.4	-0.3	-0.5	-1.8	-0.5	-1.2
Argentina	-2.2	-5.8	-2.1	-4.3	-2.2	-5.0
EU-15	-0.7	-1.3	0.7	5.9	0.1	2.7

Figure 7: Change in U.S. Market Share of World Soybean, Soymeal, and Soybean Exports



where p_x is export price ($/mt); x is the volume of exports (million mt); i = soybeans, soymeal, and soyoil; and "w" and "wo" indicate the values from the *with* checkoff expenditure scenario and the *without* checkoff expenditures scenario, respectively.

Then the gross export revenue benefit-cost ratio (EBCR) is then calculated as:

$$(2)\quad EBCR = \sum_{t=1}^{T} \frac{XR_t - E_t}{E_t}$$

where E is international market promotion expenditures ($US million) across all commodities and regions. Note that E_t is first netted out of the additional export revenues generated (XR) in those years (i.e., XR_t - E_t) since the checkoff represents the cost of generating those revenues.
The second benefit-cost ratio, the grower profit from exports benefit-cost ratio (NEBCR), measures the per dollar return to international market promotion at the producer level of the market calculated as the additional soybean grower profits (additional cash receipts net of additional production costs and the cost of international promotion) generated per dollar spent on international market promotion. The additional soybean industry profits (R*) generated in any given year (t) are calculated as:

$$(3)\quad R_t^* = \gamma_t^w (p_t^w q_t^w - c_t^w A_t^w) - \gamma_t^{wo} (p_t^{wo} q_t^{wo} - c_t^{wo} A_t^{wo})$$

where p is the farm price of soybeans ($/bu.); c is production cost ($/acre); A is the area planted to soybeans (million acres); q is production of soybeans (million bu.); γ is the export share of total soybean industry revenues; and "w" and "wo" indicate the values from the *with* checkoff expenditures scenario and the *without* checkoff expenditures scenario, respectively.

Then the grower profit from exports BCR (NEBCR) is calculated as:

$$(4)\quad NEBCR = \sum_{t=1}^{T} \frac{R_t^* - E_t}{E_t}$$

where E is again international market promotion expenditures ($US million) across all commodities and regions. Again, note that E_t is first netted out of the additional profit generated (R^*_t) in those years (i.e., R^*_t - E_t) since the expenditures represent a cost to producers.

To account for the time value of money, as various researchers have done in considering the soybean and other commodity checkoff programs, a discounted grower profit from exports BCR is calculated as:

$$(5)\quad DEBCR = \frac{\sum_{t=1}^{T} (R_t^* - E_t)/(1+i)^t}{\sum_{t=1}^{T} E_t}$$

where i is the interest rate chosen to discount the additional profit flows to present value. Obviously the level of the DEBCR depends on the rate used to discount the benefits over time. The DEBCR was calculated using the 30-day Treasury bill interest rates (IMF) for 1980/81 through 2006/07 as done by Williams (1999), Williams, Shumway, and Love (2002), and Williams, Capps, and Bessler (2009) and others. The Treasury bill interest rate, which averaged

5.6% between 1980/81 and 2006/07, was selected because it represents a realistic alternative investment rate for the 1980/81 through 2006/07 period of analysis.

A BCR as calculated in equations (2), (4), and (5) that is greater than 1 is interpreted as meaning that the program has more than paid for itself. Otherwise, the program would be considered to be ineffective in increasing export revenues (equation (2)) or profits of the soybean producers (equation (4) and (5)) who pay for the program.

Using the simulation results from the *with expenditure* and *without expenditure* scenario results from the 2009 study (Williams, Capps, and Bessler) and equations (1) and (2) above, the gross export revenue benefit-cost ratio (EBCR) is calculated to be 29.6 to 1 (Table 3). In other words, for every dollar of international promotion expenditure over the 1980/81 to 2006/07 period, $29.6 of additional export revenue (net of the cost of the promotion) was generated. In terms of export revenue generated, therefore, the returns to international market promotion have far exceeded its cost. Note from table 3 that the EBCR was higher during the earlier years (1980/81-1991/92) when the majority of checkoff expenditures were allocated to international market promotion (35.0 to 1) than in the later years of the analysis (1992/93-2006/07) when the share of checkoff expenditures allocated to international market promotion was declining (25.9 to 1).

Of course, not all the benefits from the additional U.S. soybean, soymeal, and soyoil exports generated by international market promotion have accrued to producers over the years. Others also have benefitted, including exporters, processors, feeders, manufacturers, and others along the supply chain. The grower profit from exports benefit-cost-ratio (NEBCR) measures the benefits accruing to producers from the additional exports generated by international market promotion. Again, using the simulation results from the *with expenditures* and *without expenditures* scenario results from the 2009 study (Williams, Capps, and Bessler) with equations (3) and (4) above, the NEBCR is calculated to be 9.2 to 1 indicating that soybean producers received $9.2 in additional profits from international market promotion for every dollar spent on international market promotion. That is, the profits received by soybean growers from international market promotion have far exceeded the cost of that promotion (Table 3).

Note that the returns to growers from international market promotion as measured by the NEBCR (9.2 to 1) in this report is larger than the returns to growers from the overall soybean checkoff program (NBCR) as reported in the 2009 study (6.4 to 1). In other words, international market promotion over the years has helped to raise the average return to overall soybean checkoff promotion programs. Previous analyses of the effectiveness of the soybean checkoff program have consistently concluded that the historic shift in funding allocation strategy to funnel more funds to production research and less to international market promotion has likely moderated the level of the grower BCR from the checkoff program over time. As Williams, Capps and Bessler note (2009), this shift in funding strategy as the national checkoff program was implemented added tremendous supply push to checkoff program funding while reducing the demand pull of the program. The net effect was that the "supply push" of the production research program began to have a greater impact on U.S. and world soybean and product markets than the "demand pull" of international market promotion programs particularly since 2000/01.

Table 3: Benefit-Cost Analysis for International Market Promotion, 1980/81-2006/07

	1980/81 -1991/92	1992/93 -2006/07	**1980/81 -2006/07**
Added Export Revenue ($ million)	7,603.8	8,132.3	**15,736.1**
Foreign Market Promotion Investment[a] ($ million)	211.0	302.6	**513.6**
Gross Export Revenue Benefit-Cost Ratio (EBCR)[b] ($/$ spent)	35.0	25.9	**29.6**
Added Soybean Cash Receipts from Exports ($ million)	4,344.1	4,807.6	**9,151.7**
Per Acre Cost of Production ($/acre)			
Total	179.71	239.88	**213.14**
Variable cash expenses	60.44	79.48	**71.02**
All other (capital, land, etc.)	119.27	160.40	**142.12**
Per Bushel Cost of Production ($/bu)			
Total	5.87	6.25	**6.08**
Variable cash expenses	1.97	2.07	**2.03**
All other (capital, land, etc.)	3.90	4.18	**4.06**
Cost of Production Added by Exports ($ million)			
Total	1,249.3	2,665.4	**3,914.7**
Variable cash expenses	420.4	874.6	**1,295.0**
All other (capital, land, etc.)	828.9	1,790.8	**2,619.7**
Added Grower Profits from Exports[c] ($ million)	3,094.8	2,142.2	**5,237.0**
Grower Profit from Exports Benefit-Cost Ratio (PEBCR)[b] ($/$ spent)	14.7	7.1	**10.2**
Grower Net Profit from Exports Benefit-Cost Ratio (NEBCR) ($/$ spent)	13.7	6.1	**9.2**
Discounted NEBCR (DEBCR)[d] ($/$ spent)	4.1	1.8	**2.7**

[a] Foreign Market Promotion Expenditures (ASA/USB, USDA, and Third Party contributions).
[b] Net of cost of international market promotion.
[c] Added cash receipts from exports minus production costs added by exports.
[d] The interest rate on the 30-day Treasury Bill used as the discount rate.

Some caveats on the interpretation of the BCR measures are important to mention. Estimated BCRs for checkoff programs much in excess of 1:1 often are taken to imply large absolute impacts of a checkoff program on the market. Nothing could be less true. A BCR of 5:1 results from dividing a $5 billion industry profit benefit by a $1 billion checkoff investment or from dividing a $5 benefit by a $1 investment. For the soybean checkoff program, like most commodity promotion programs, the value of the expenditures on research and promotion activities has been extremely small in comparison to the total value of industry sales (less than 0.5% for the soybean checkoff program). With such a low level of investment compared to sales,

the overall impact of the checkoff program could hardly be expected to be significant in a practical sense in its effects on domestic demand, exports, price, and market share even if the impact could be said to be statistically significant. Thus, care must be taken in interpreting the results in Table 3 so as to avoid implying that the reasonably high BCRs estimated for international market promotion mean that the promotion has had a large absolute impact on the level of exports and export revenue. Table 2 shows that the absolute impact has been actually quite small in most cases. Many market factors have a much larger effect on the volume and value of export sales than promotion programs, such as relative price changes, agricultural policies, changes in incomes, population growth, competition from other producing countries, exchange rates, and consumer health concerns and demographics, just to name a few. The BCR simply indicates the returns from whatever the level of investment has been and not whether the investment has been a major factor in impacting sales.

CONCLUSIONS AND IMPLICATIONS

The clear message from this study is that international market promotion has worked well for the soybean checkoff program and successfully enhanced profitability within the U.S. soybean industry. International market promotion has been and continues to be the foundation of the soybean checkoff program, helping to keep the entire checkoff program profitable as the United Soybean Board increasingly has explored other promotion and production research opportunities in domestic markets since the implementation of the national soybean checkoff program. Among the major findings of this study are the following:

- *In terms of* ***additional export revenue generated****, the Benefit-Cost Ratio (BCR) of the international market promotion component of the soybean checkoff program has been quite positive at $29.6 generated per dollar spent on international promotion.*

  For every dollar of international promotion expenditure over the 1980/81 to 2006/07 period, $29.6 of additional export revenue (net of the cost of the promotion) was generated. In terms of export revenue generated, therefore, the returns to international market promotion have far exceeded its cost.

- *In terms of* ***additional soybean grower profits generated****, the Benefit-Cost Ratio (BCR) of the international market promotion component of the soybean checkoff program has also been relatively high at $9.2 in profit generated per dollar spent on international promotion.*

  For every dollar of international promotion expenditure over the 1980/81 to 2006/07 period, $9.2 of additional soybean grower profits (net of the cost of the promotion and the additional cost of production) was generated. Thus, soybean growers have benefited greatly from their investment in international market promotion.

- *The return to growers per dollar spent on international promotion has been larger than their return per dollar spent on the overall soybean checkoff program.*

  International market promotion over the years has helped to raise the average return to the overall soybean checkoff promotion program. A shift in funding allocation following the implementation of the mandatory checkoff program in the early 1990s enhanced the checkoff

funds invested in production research and reduced the investment in international market promotion. The result was the addition of more supply "push" and a reduction of demand "pull" from checkoff program funding over the last two decades. While international market promotion generates additional demand for U.S. soybeans and products, production research generates additional supply to feed that additional demand. In the process, however, the additional supply generated from production research shifts out the supply curve and limits the upward movement in prices from the demand "push" of international promotion. This result does not necessarily imply, however, that investments in production research should be abandoned. Williams, Shumway, and Love (2002) found that soybean checkoff funded production research tended to reduce rather than enhance the overall returns to the soybean checkoff program. But they cautioned against concluding that checkoff investments in new, high yielding, and cost-efficient soybean production technologies and techniques should be curtailed because the consequence might be a shift of comparative advantage in the production and export of soybeans and soybean products over the long run to U.S. export competitors like Brazil and Argentina that operate aggressive soybean production research programs of their own. They suggest that a low or even negative BCR for production research investments should be considered to be the cost to U.S. soybean producers of staying competitive in world markets. In this sense, a strong international market promotion program could be seen as playing a critical role in offsetting that cost by generating high positive returns to producers. In any event, the real issue is to determine the proper funding mix between production research and demand enhancement programs like international promotion. Soybean growers must weigh carefully the tradeoff between the possible cost to them of investing in production research to help maintain global competitiveness and the positive return from investing in international promotion.

- *Soybean checkoff investments in international market promotion have enhanced the international competitiveness of the U.S. soybean industry and increased the global market share of U.S. soybean and product exports.*

  U.S. soybean, soymeal, and soyoil exports averaged 5%, 15%, and 24%, respectively, more each year than would have been the case without the checkoff program. Also, the U.S. shares of world soybean, soybean meal, and soybean oil exports were respectively 0.3, 9, and 23 percentage points higher than would have been the case without the checkoff program. The U.S. export market shares of soymeal and soyoil gained the most over the 1980/81-2006/07 period of analysis. Most of the gain in U.S. soybean export share in the early years of the program was lost in later years with the decline in funding for international promotion and the subsequent shift in international market promotion expenditures toward the promotion of soybean product use and away from the direct promotion of soybean use in foreign markets.

These conclusions suggest a number of implications for international market program management purposes:

1. The high BCR for international market promotion (and, indeed, for the overall soybean checkoff program) suggests that the U.S. soybean industry continues to underinvest in the soybean checkoff program despite the sharp increase in funding with the national checkoff program. Large additional benefits in terms of soybean grower profits can be realized from an even further increase in promotional expenditures. As the level of expenditure increases, however, the BCR would be expected to drop to some extent. Indeed, the BCRs for the

overall checkoff program as well as for international market promotion dropped about in half in the period following the implementation of the mandatory program (see Table 3).

2. The higher grower BCR to international market promotion compared to that of the overall checkoff program suggests that large additional benefits in terms of grower profits can be realized from additional allocations of checkoff funding to international market promotion. As the level of international market promotion expenditures increase, the export revenue BCR (EBCR) and the grower profit from exports BCR (NEBCR) would be expected to drop to some extent. Such a reallocation of funds to international promotion, however, would not necessarily reduce the overall returns from soybean checkoff program if the reallocation was from funding for production research – to some point. However, the tradeoff between production research and international market promotion is not linear in its effects on the returns to growers. Too much reduction in production research could result in a loss in efficiency in soybean production and result in a loss in competitiveness in world soybean markets to U.S. soybean export competitors. Again, the important issue is the proper funding mix between international market promotion and production research.

3. The commodity mix of international market promotion expenditures can impact the return from those expenditures. When the share of checkoff funds allocated to international programs began to decline with the implementation of the mandatory program in the early 1990s, more of the funds for international promotion were spent to promote foreign demand for soybean products (meal and oil) rather than soybeans. The consequence was a decline in the U.S. share of world soybean exports but a rebound in total revenues from U.S. exports of soybeans and soybean products. In the later years of the period analyzed (about 1999/00 through 2006/07), however, an increasing share of international market promotion expenditures were again being used to promote foreign demand for soybeans rather than soybean products. That increasing focus on soybeans and away from soybean products may be responsible, in part, for the lower revenue from exports BCR (EBCR) and the lower grower profits from exports BCR (NEBCR) during the mandatory period of the checkoff program (25.9 and 6.1, respectively) than during the voluntary period (35.0 and 13.7, respectively) (see Table 3). Determining the optimal mix of soybean, soymeal, and soyoil promotion expenditures to maximize the returns from international market promotion would be a complex undertaking that was clearly beyond the mandate of the 2009 study.

4. The country/region mix of international promotion expenditures can also affect the return from those expenditures. The focus of international market promotion over the period of analysis has switched from maintaining and building a few large, mature markets to opening and developing many new, smaller markets. As the 2009 study suggests, this trade-off has pitted a philosophy of maintaining sales in large but stable markets against one of building sales in a large number of smaller, growing markets. The estimated expenditure elasticities estimated for EU, Japan, and the rest of the world (see Table 1) indicate clearly that a given percentage increase in expenditures in either the EU or Japan has a smaller percentage impact on demand in those countries than that same percentage increase in expenditures has on demand in the rest of the world. Moving expenditures out of the EU and Japan into other, newer markets, therefore, should be expected to enhance the returns to international export promotion with two caveats. First, while the effects of promotion activities often persist beyond the period when the expenditures are made, they do not last forever. A decay in those effects occurs if the expenditures are reduced or terminated. Research shows that the

promotion message will be forgotten if the potential users are not continuously exposed to it (see Zielske 1959, for example). Consequently, as expenditures are shifted away from the EU and Japan, any increase in export sales in those countries from past promotion expenditures will tend to taper off over time. So a strategy to maintain at least a minimum level of promotion expenditures in those countries to maintain some of the gains achieved from previous promotional efforts would seem reasonable. The second caveat is that re-directing international market promotion expenditures from mature to new markets must achieve at least the same return to the checkoff dollars spent as might have been achieved without re-directing those expenditures to avoid revenue losses. As emphasized in the 2009 study, it can take years of expenditures in new markets before substantial returns are generated but only a short period of no expenditures to lose any gains previously achieved. Determining the optimal country/region mix of promotion expenditures to maximize the returns from international market promotion would also be a complex undertaking which was also clearly beyond the mandate of the 2009 study.

5. Finally, an unavoidable fact of international promotion is that, while such expenditures may increase foreign demand for soybeans and products, U.S. competitors will benefit from those efforts as well. While this study shows that U.S promotional efforts have successfully created foreign demand for soybeans and products, that increase in demand has also tended to raise world market prices which has benefitted producers in Brazil, Argentina, and elsewhere and not just in the United States. Assuring that any new demand created by U.S. promotion in foreign markets results in additional foreign purchases of only U.S. soybeans and products is difficult at best. While the hope may be that little of the overall benefit will accrue to U.S. export competitors, such an outcome cannot be guaranteed. Clearly the foreign promotion strategy must include more than simply generating demand. The strategy must also focus on providing service, developing business relationships with foreign buyers, and building confidence in the U.S. as a reliable supplier of consistently high quality soybeans and products.

REFERENCES

International Monetary Fund (IMF), *International Financial Statistics Yearbook*, On-line at: http://www.imfstatistics.org/imf/, various years.

Rickard, Matt, Director of Finance, U.S. Soybean Export Council, Personal Communication, August 2008.

Williams, G.W., O. Capps, Jr., and D.A. Bessler, *Is the Soybean Checkoff Program Working?* Commodity Market Research Report No. CM-01-09, Texas Agribusiness Market Research Center, Texas A&M University, College Station, Texas, February 2009.

Williams, G.W., C.R. Shumway, and H.A. Love, "Returns to Soybean Producers from Investments in Promotion and Research." *Agricultural and Resource Economics Review* 31:97-111, April 2002.

Zielske, H.A., "The Remembering and Forgetting of Advertising," *Journal of Marketing* 239-243, 1959.