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Promotion in the Marketing Mix: What Works, Where and Why

Proceedings from the NEC-63 Conference

Toronto, Ontario • Canada • Spring '94

Sponsored by

The Committee on Commodity Promotion (NEC-63)

The Dairy Farmers of Canada

Department of Agricultural Economics and Business, University of Guelph, Canada

and the National Centre for Promotion Research, Cornell University, USA

AN ASSESSMENT OF PRODUCT MARKETING STRATEGIES UTILIZED BY THE OREGON POTATO COMMISSION

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Introduction

The 26 Commodity Commissions in Oregon, with a combined annual budget of 10 to 12 million dollars, undertake marketing programs to increase demand of their respective products. This paper attempts to develop methodologies that will aid these Commissions in better evaluating their demand expansion strategies, as well as to provide useful information to the Oregon Potato Commission.

An assessment of current marketing strategies utilized by the Oregon Potato Commission (OPC) will be used to test these methodologies. Other Commissions and marketing organization may use this same framework to evaluate their domestic and/or international marketing programs.

The objectives of the study are presented first, followed by a review of the related literature. A description of the Oregon potato industry is then presented to provide a historical background and insight into the marketing programs utilized by the OPC. This section is concluded with a review of the nature and source of the data used within this study. The subsequent section explains the methodologies used for this assessment, followed by the results and a brief set of conclusions and recommendations.

Research Objectives

This research paper has four major objectives. Each objective is designed to provide information to members of the OPC so that they may evaluate the cooperative advertising programs they currently fund. The first objective is to evaluate the effectiveness of cooperative advertising in the Los Angeles and San Francisco fresh potato markets. The second is to evaluate the effectiveness of Oregon Potato Commission promotional activities for frozen french fries in the international marketplace, with particular emphasis on Malaysia. However, greater emphasis will be placed on domestic marketing promotions for these proceedings. The third objective is to determine the benefits to growers from cooperative marketing programs that are implemented in each market. Finally, based on the results of the analysis, an evaluation is made regarding the relative benefits with regard to the allocation of funding between domestic and international promotions. The goal is to ensure that marketing funds expended by the OPC will maximize benefits to Oregon potato growers.

Literature Review

The study of generic commodity advertising covers a diverse body of literature (Kinnucan et al; Armbruster and Lenz). This literature has heightened industry awareness of the factors that influence the success and effectiveness of promotion expenditures. Nonetheless, generic advertising remains a controversial practice in many industries (Wohlgenant). Evidence is available to both support and refute the effectiveness of generic promotion (Carman and Green; Halliburton and Henneberry; Brennes, Henderson and Shelton). Often promotional programs are instituted by commodity groups without a clear set of performance expectations or criteria, a problem compounded by incomplete empirical data that might be used to assess performance (Carmen, Green, and Mandour).

Large scale national or industry promotional programs, funded through grower assessments, have been the basis for detailed empirical studies. Works concerning milk and dairy products include Sun and Blaylock; Suzuki, Kaiser, Lenz and Forker. Commodity-specific analyses frequently draw upon aggregated national assessment programs as they provide the most comprehensive data available. These are not the only generic promotion programs being undertaken (Jones and Choi; Becker). State or localized generic agricultural commodity promotion is relatively common across the United States, but few empirical studies are reported, presumably because of the absence of data needed to carefully examine the performance of these efforts (Kinnucan, Thompson and Chang; Carman, Green, and Mandour).

Description of the Oregon Potato Industry

History and Background

Potatoes are one of Oregon's most important agricultural commodities. The farm gate value of potatoes was slightly over $100 million in 1993, ranking 6th overall among Oregon's agricultural products. Nationally, Oregon ranks consistently in the top potato producing states. Still, Oregon's production is dwarfed by the crops in Idaho which account for over half of the production in the three Pacific Northwest states. Washington produces 35% of the region's potatoes, followed by Oregon with 10%.

Over the past four years, Oregon's average annual potato crop has been 22,500,000 cwt. (1,022,723 metric tonnes) on 50,000 harvested acres. Potato production is concentrated in several distinct regions including the Hermiston/Boardman area, Ontario, Klamath Falls, Madras/Redmond, and the Willamette Valley. Potatoes are grown under irrigation, typically in 4 or 5-year rotations with alfalfa and grain crops.

Roughly two-thirds of the crop is destined for processing and one-third enters the domestic fresh market. Over 90 percent of the total crop is sold outside the state, making effective marketing a major goal of both producers and processors.

Much of the crop for processing is produced under contracts negotiated annually with processors, while fresh production is grown for the open market. In either case, prices received by growers reflect consumer demand for the respective end-products, fresh potatoes or french fries. Growers and processors make production decisions based on projected demand, crop yields, and potato production in other states. Given these variables, along with weather, average prices received by growers can very by 20 to 35

percent annually.

The Oregon Potato Commission was established in 1949 to assist and represent producers in marketing, production research, public relations and educational activities. It is directed by an eight member producer board and is funded through a check-off. The current assessment is $0.04 per cwt, levied at the first point of sale.

Marketing Programs Utilized By the Oregon Potato Commissions.

The OPC's promotional programs are a combination of: 1) purchase of media advertising; 2) providing point-of-purchase materials to stores and restaurants; 3) participating in domestic and international trade shows and food fairs; 4) sponsorship of "trade teams" to or from specific countries and markets; and 5) offering promotional prizes and incentives to distributors. Due to the structure of domestic and international markets, the OPC focuses on promotion of fresh potatoes within the United States while advocating processed potatoes overseas.

Since Los Angeles and San Francisco are the two largest volume markets for Oregon fresh potatoes, it is not surprising that the OPC has concentrated its efforts in these two cities. Given the limited promotional budget of the OPC, the focus of the California cooperative promotions have been on media advertising, point-of-purchase material, and trade show participation.

Cooperative funds are distributed to retailers based on market share. The OPC offsets a portion of the media advertisements that retailers place in local newspapers. During the promotional period, retailers can earn additional cash incentives when they increase their order of Oregon potatoes over the previous year. Retailers are also provided point-of-purchase materials to support in-store sales activities.

Each retailer accepting cooperative funds is required to provide data to the OPC regarding all Oregon fresh potato sales made during the promotion period. Unfortunately, the potato commission has not engaged in a systematic review of sales preceding or following a cooperative promotion. Such data would provide a benchmark from which to measure the effectiveness of the cooperative advertising. Most of the remainder of the OPC domestic marketing budget is used to attend trade shows (United Fresh Fruit and Vegetable, Produce Marketing Association, and Fresh Perspectives).

Total budget and promotional funds vary from year to year based on the overall assessments paid to the Commission. Since fiscal year 1988, the OPC has allocated its promotional budget equally between international and domestic activities[1]. However, the domestic and international marketing expenditures are maintained under a single budget category by the OPC. For the purposes of this study, we assume that the total amount of funds disbursed are divided equally between domestic and international promotional programs. These estimates should be fairly accurate since they were obtained by reviewing disbursements from the OPC. Table 1 details the OPC promotional budget. It should be noted that total expenditures for promotional activities were usually less than what the Commission budgeted.

Almost all international promotional activities by the OPC are targeted to the utilization of frozen french fries in the fast food industry. The international market program consists of three activities. The first involves bringing buyers from various fast

Table 1. Total OPC Promotional Funds By Fiscal Year

Fiscal Year	Budgeted Promotional Funds	Total Expenditures	Domestic Expenditures
	Dollars		
1988-89	170,000	139,227	69,614
1989-90	165,124	141,179	70,590
1990-91	113,050	106,916	53,458
1991-92	117,200	119,827	59,914
1992-93	200,000	187,884	93,942
1993-94	250,000	150,000*	70,000*
* Estimated			
Source: Oregon Potato Commission			

food chains to Oregon to meet with potato growers and processors. The second activity consists of trade development missions representing Oregon producers and processors traveling to target markets in Asia. The final activity provides point-of-purchase materials to restaurants serving frozen potato products.

Nature and Source of the Data

Domestic shipment unload data was obtained from the USDA Market News Service. A time series of fresh potato deliveries by shipping state, to 22 major market destinations within the United States was constructed. This data is compiled on a crop year (July-June) basis, to monitor Oregon potato shipments before, during, and after the cooperative programs funded by the OPC. Corresponding advertising expenditures by year, in each market, are supplied by the OPC.

International sales data from a single source is more difficult to obtain. Data detailing the volume and source of frozen french fries and other processed vegetables moving from the Columbia-Snake River Customs District to the country of Malaysia was obtained from the PIERS database. This data was used to assess the effectiveness of the international marketing efforts of the OPC. Although the data has certain constraints, efforts have been made to reduce errors by examining ship manifests and conducting interviews with the industry regarding the volume of frozen french fries produced in Oregon and moving to Malaysia.

The country of Malaysia was chosen for study due to the fact that Oregon is the only state that has undertaken cooperative advertising with Malaysia's fast-food industry. Second, few other foreign producers of french fries are selling into the market. Third, the OPC has records of its expenditures for its Malaysian cooperative marketing programs.

Methodologies

Descriptive time-series statistics were calculated for the major U.S. wholesale markets to analyze the possible shifts in market share between supplier states. Linear regression and analysis of variance models were employed to evaluate the effectiveness of marketing strategies employed by the Oregon Potato Commission. Both price and quantity-dependent regression models were be formulated, testing the hypothesis that promotional activity is positively correlated with shipments, revenues, and prices received over time. The five-year time series data set available from the Oregon Potato Commission to test these models (1989-93) is a constraint on both methodology and the rigor of conclusions, particularly for annual data. These relationships will be tested over both annual and monthly (seasonal) data relating promotional expenditures to unloads in specific domestic and international markets.

Results

The analysis of potato shipment data suggests that total fresh market potato shipments from all states into major U.S. markets during the past ten years has been steady to slightly increasing (about 1% annually), but with significant year-to-year variation. Oregon's shipments to the 22 major markets have declined significantly during this same time period, resulting in a decrease in aggregate market share from around 8 percent in the mid 1980s to about 5 percent in the 1992/93 marketing year. Idaho has gained approximately ten percent in total market share of fresh potato shipments into the major markets.

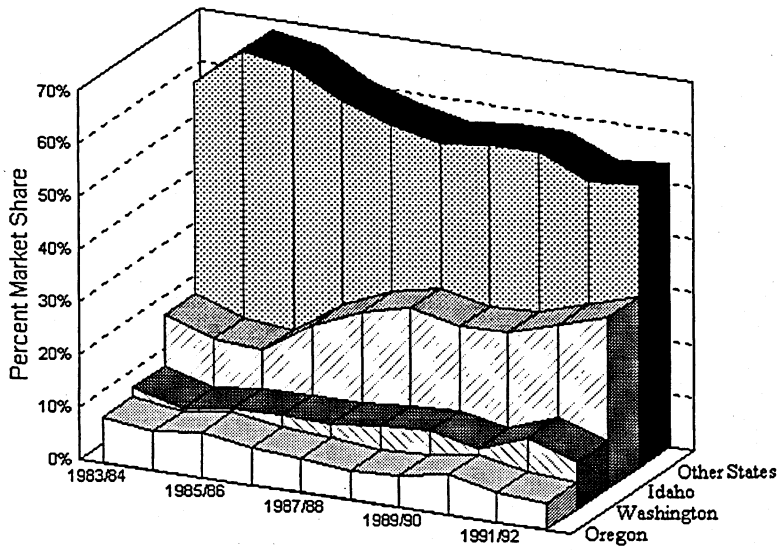

Figure 1. Market share of Potato Shipments by State of Shipment

Source: USDA, Market News Service

Potato shipments into the San Francisco/Oakland market are reported to have declined by nearly one-third since 1983, although the Oregon potato market share in San Francisco has remained relatively stable at around 30 to 40 percent. Thus, Oregon has maintained market share in San Francisco. The overall size of the market, as measured by unloads, has declined significantly. Table 2 details Oregon's market share in 18 of the 22 major markets U.S. markets, the other 4 major markets are in Canada.

The drop in potato shipments to San Francisco is a matter of concern since this has been an important destination for Oregon fresh potatoes and a point of concentrated promotional activity by the OPC. Given stable to increasing populations in Northern California during this ten years period, it appears counter-intuitive that total potato shipments or consumption might actually decline in this market.

One possible explanation for this apparent decline in Bay area market importance lies in the nature the data used for this analysis. The shipment data for 22 major U.S. cities is based on unloads reported within the Standard Metropolitan Statistical Areas (SMSAs) defined for these markets. To the extent that major receiving points or buyers for fresh potatoes have shifted out of the San Francisco Bay area and into adjacent locations might account for some of the apparent decline in total shipment volume. That is, potato shipments into the 22 major markets may not be a representative measure of total potato shipments to all markets during this time period. Dallas and Buffalo also exhibited significant declines in potato unloads during the past decade.

With only four years of promotional expenditures, there is insufficient data to provide statistically significant results. Although definitive conclusions cannot be drawn from the

Table 2. Oregon Market Share of 18 major U.S. Markets, (Percent of total fresh potato shipments)

	Year									
	83/84	84/85	85/86	86/87	87/88	88/89	89/90	90/91	91/92	92/93
Market	Percent									
Atlanta	5.1	3.8	3.0	3.3	2.4	0.7	1.4	1.3	1.7	2.0
Baltimore	5.7	2.2	2.9	3.6	2.2	1.2	1.9	1.6	2.0	2.0
Boston	2.3	1.8	2.5	1.4	0.6	0.6	0.6	0.5	1.1	0.4
Buffalo	0.7	0.5	3.5	2.5	0.5	3.3	0.2	0.3	1.7	0.0
Chicago	1.1	1.0	0.9	0.7	1.4	1.3	1.5	1.1	0.7	2.0
Cincinnati	1.7	1.4	0.9	0.6	0.5	0.2	0.2	0.4	1.7	0.3
Columbia	2.5	1.3	0.8	2.7	2.2	3.0	0.3	0.0	0.0	0.0
Dallas	4.2	1.9	0.3	0.3	0.3	0.2	0.4	0.6	0.0	0.1
Denver	0.3	0.2	0.4	0.5	0.0	0.4	0.3	NA	NA	NA
Detroit	5.1	2.6	1.7	1.4	1.2	0.5	0.1	1.1	0.8	0.2
Los Angeles	17.8	22.2	24.8	23.4	20.7	17.9	23.9	29.1	17.5	14.6
New Orleans	0.2	0.6	2.6	0.7	0.3	0.4	0.1	0.0	0.0	0.0
New York	3.4	3.9	1.4	1.8	2.2	1.4	1.9	1.4	1.4	0.8
Philadelphia	2.6	3.8	3.6	3.9	1.9	0.8	1.7	0.8	0.8	0.3
Pittsburgh	0.7	1.7	0.4	0.5	0.1	0.1	0.1	0.2	0.1	0.0
St. Louis	3.1	1.8	4.1	3.3	1.6	0.9	0.4	0.2	0.3	0.1
San Francisco	53.9	34.8	38.1	29.8	35.9	33.1	25.4	33.2	32.2	41.1
Seattle	1.1	4.3	1.5	0.6	0.9	1.7	1.4	5.0	5.6	6.1
Source: USDA, Market News Service										

data, some relationship can be inferred. First, there are generally positive relationships between the promotional expenditures reported and nominal prices received, and/or sales volume.

The strongest relationship, as illustrated in equation 1, is between domestic promotional expenditures and the average prices received by growers the following year. The lagged effect of promotional expenditures reflects the interval between appropriation of funds by the OPC domestic marketing committee, and actual expenditures of the funds. However, it is not possible to conclude definitively that the OPC promotional expenditures actually caused this higher return to growers. The role of other possible variables (i.e. Idaho promotional activities, quality, prices of substitute goods, promotion by the National Potato Board, etc.) could not be isolated in this analysis with only four years of data available.

(1) Nominal Price =	-1.023	$+9.541*10^{-5}$ x Lagged Promotional Expenditures	
	$(0.98)^3$	$(1.537*10^{-5})^3$	$R^2 = 0.95$

Second, there is a weak statistical relationship between the OPC expenditures and frozen french fry exports to Malaysia out of the Columbia-Snake customs region. Equation 2 details this relationship. While the association is weak, the analysis indicates that a $1 expenditure for promotion yields a 114 kg increase in sales of frozen french fries. This relationship is somewhat overstated because certain expenditures (i.e. MPP funds, third-party cooperators, etc.) cannot be fully determined. It appears that the overseas sales of frozen french fries is influenced mainly by price of the product, consistent with a normal demand relationship.

(2) Frozen French = Fry Exports, (Kgs)	243,747,426 (Kgs)	-282,409,853 X Export Price	+113.70 X Promotional Expenditures	
	$(45,976,582)^2$	$(64,902,184)^2$	$(114.99)^2$	
				$R^2 = .91$

Despite the tenuous statistical relationship, the results suggest that foreign promotional expenditures generate a larger return per dollar expended than the domestic promotional programs. This relationship requires further testing with additional years of data and better data collection techniques.

In summary, the available data weakly supports the hypothesis that promotional expenditures may be having the desired sales/price influence, or at least there is no indication that these expenditures are detracting from sales. Further data collection and analysis by the OPC will allow refinement of such causality studies in the future.

Conclusions and Recommendations:

Potato producers appear to be receiving benefits, through higher volume movement of goods, by promoting fresh potatoes and frozen french fries. Initial results indicate that higher returns are made from the movement of frozen french fries into foreign markets than fresh potatoes to California.

To further test the effectiveness of promotional programs, it is recommended that the OPC implement the following:

- Carefully delineate the total promotional dollar expenditures by activity from all

sources for domestic and international marketing programs initiated;

- Examine frozen french fry imports into a market from all sources prior to, during, and after the promotion;
- Continue to collect unload data for future analysis;
- Continue to refine the cooperative advertising program to better measure the increase in Oregon potato purchases for the dollars provided to retail outlets; and,
- Implement a more detailed monitoring program to assess the effectiveness of all OPC promotional expenditures.

ENDNOTES

[1]The OPC made promotional expenditures prior to 1988, but specific data are not available.

[2]Standard error of estimate.

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