

RURAL ECONOMY

Niche Markets for Fresh Canadian Pork in the Pacific Northwest: A Case Study

Peter Kuperis, Michel Vincent, James Unterschultz
and Michele Veeman

Staff Paper 97-03

Staff Paper



Department of Rural Economy
Faculty of Agriculture, Forestry
and Home Economics
University of Alberta
Edmonton, Canada

NICHE MARKETS FOR FRESH CANADIAN PORK IN THE
PACIFIC NORTHWEST: A CASE STUDY

Peter Kuperis, Michel Vincent, James Unterschultz and Michele Veeman

Staff Paper 07-03

The authors are, respectively, Research Assistants, Assistant Professor and Professor, Department of Rural Economy, University of Alberta.

This project was undertaken with financial assistance from the Federal Provincial Market Development Council, the Alberta Pork Producers' Development Corporation and the Alberta Agricultural Research Institute.

The purpose of the Rural Economy 'Staff Papers' series is to provide a forum to accelerate the presentation of issues, concepts, ideas and research results within the academic and professional community. Staff Papers are published without peer review.

NICHE MARKETS FOR FRESH CANADIAN PORK IN THE PACIFIC NORTHWEST: A CASE STUDY¹

Peter Kuperis, Michel Vincent, James Unterschultz and Michele Veeman²

1. EXECUTIVE SUMMARY

Introduction and Objectives

The Pacific Northwest of the United States, Washington and Oregon, constitutes a major export market for Western Canadian pork. Exports of fresh pork from British Columbia and Alberta to the Pacific Northwest increased from 16, 491 tonnes in 1988 to 19,595 tonnes in 1995. The Pacific Northwest is an area of growing population and represents a significant potential market for increased exports of Western Canadian pork in the future.

Increasingly, food marketers are placing an emphasis on niche markets. These markets consist of an identifiable sub-group of consumers with specific needs or preferences. One such niche market is the ethnic Asian market in the Pacific Northwest. The Asian population of Washington and Oregon is projected to increase from 429,000 persons in 1995 to 873,000 persons by the year 2010. Pork is an important component of the Asian diet, and is primarily consumed as fresh meat. Thus, the Asian ethnic market in Washington and Oregon constitutes a sizable niche market for fresh Canadian pork.

The objective of this study is to evaluate the Asian ethnic market for fresh pork in the Pacific Northwest. The specific objectives are to: (1) provide an updated background on the Western Canadian pork industry and the market for fresh pork in the Pacific Northwest, (2) identify the perceptions of Asian pork buyers regarding fresh pork from Western Canada, compared with fresh pork from the major competing source of supply, the Midwestern United States, (3) identify the fresh pork cuts commonly sold in the Asian ethnic market and (4) to propose marketing strategies for Western Canadian pork producers and packers to maintain or increase their share of the Asian ethnic market for fresh pork in the Pacific Northwest.

Methodology

The background information on the Western Canadian pork industry and on the Asian ethnic market for fresh pork was prepared using secondary data, supplemented by interviews with knowledgeable members of industry and government. The target group of grocers and meat

¹ This project was undertaken with financial assistance from the Federal Provincial Market Development Council, the Alberta Pork Producers' Development Corporation and the Alberta Agricultural Research Institute.

² The authors are, respectively, Research Assistants, Assistant Professor and Professor, Department of Rural Economy, University of Alberta.

distributors which cater to Asian consumers was identified during this process. The perceptions of Asian pork buyers were elicited directly through a direct survey, applied through personal interviews, of 22 Asian retailers and 13 meat brokers and distributors. The survey interviews were conducted in Vancouver, Seattle and Portland. Initial development of the survey was aided by interviews with retailers, brokers and distributors who cater to Asian consumers in the Edmonton market. For purposes of comparison, an assessment was made on the analogous market in Vancouver. The compilation of background data, survey design and field interviews were carried out by two graduate students in the Department of Rural Economy directed by two faculty members in the Department of Rural Economy.

The survey included two types of questions, quantitative questions and qualitative questions. The quantitative questions included a set of semantic differential scale questions which evaluated the perceptions of grocers and distributors who cater to Asian consumers of pork regarding the quality of fresh pork produced in Western Canada and in the Midwest United States. The semantic differential scale questions were also used to elicit these buyers' perceptions of the marketing and promotional activities of the Western Canadian and Midwestern United States pork industries, relative to their consumers. Semantic differential scaling was chosen due to its applicability in cross-cultural and cross-linguistic settings. The qualitative portion of the survey included a set of structured, open-ended questions. The grocers and distributors who buy pork for sale to Asian consumers gave their opinions regarding the main fresh pork attributes that influence Asian pork buyers, the marketing and distribution of fresh pork, the origin and branding of fresh pork and the future of the ethnic "Asian fresh pork market."

Background

The Pacific Northwest (Washington and Oregon) remains the main market in the United States for Western Canadian packers, particularly for fresh pork. In 1995, the Pacific Northwest accounted for 56.9 percent of fresh pork and 38.4 % of processed pork exported from Alberta and British Columbia to the United States.

The Pacific Northwest constitutes an attractive market for Alberta and British Columbia since this region is highly deficit in pork. As well, Western Canada holds a significant transportation cost advantage over the Midwest States in serving Washington and Oregon. Pork shipments from Vancouver to the Pacific Northwest represent a net advantage over Alberta and, particularly, the Midwest States, in terms of frequency, flexibility and the cost of service. For Alberta, there is a possibility of backhaul from the Pacific Northwest, for products such as vegetables and fruits, although the backhaul opportunity to Alberta is greater from the California market.

The majority of the packers surveyed in Alberta and in British Columbia want to develop further the United States market, particularly in the Pacific Northwest and California. However they were not currently pursuing aggressive strategies to increase pork sales into these markets. Western Canadian packers indicated they are giving higher priority to pork markets in Asia such as Japan and South Korea.

Retailer Results

The structure of the market for fresh pork represented by retailers catering to Asian consumers in Vancouver differs from Seattle and Portland. Retailers catering to Asian consumers in Vancouver purchase pork directly from packers and there are few pork distributors active in this market. Comparable retailers in Seattle deal with both packers and distributors and are able to purchase fresh pork from a wider variety of suppliers than is available to retailers in Vancouver. Retailers catering to Asian consumers in Portland purchase fresh pork almost exclusively from distributors. These differences in market structure are explained in greater detail below.

Vancouver

The “Asian market” in Vancouver is dominated by many small shops. A new type of retailer, the “Chinese supermarket” appears to be gaining prominence in the Asian market. Most of the retailers that specialize in sales to Asian consumers deal directly with the packers and there are very few distributors or wholesalers of pork that are active in this market. Retailers in this market segment purchase fresh pork sides directly from the packers located in the Vancouver area. The pork is processed through custom cutting into large cuts in the store and displayed on trays at the counter. Customers will indicate the type and quantity of each cut that they wish to purchase and a butcher will custom cut and wrap the customer’s order. The major cuts of pork sold in Vancouver’s ethnic Asian market are: shoulder butt, legs, loins, bellies and spareribs.

In Vancouver, members of this group of retailers do not regularly purchase American pork and thus were unable to rate it on the semantic differential scale. Meat colour, fat trim and price were identified as the most important attributes of fresh pork. The colour of Western Canadian pork was rated as acceptable. Retailers catering to Asian consumers prefer pork with a bright red colour. This colour serves as an indicator of freshness in the Asian market. The fat trim of current supplies was rated as acceptable by retailers in Vancouver, although some of these retailers indicated that they would desire pork with even less outside fat than is currently available from the packers. Price received a negative rating in the semantic differential scale. This indicates that the retailers perceived Western Canadian pork to be expensive. This group of retailers in Vancouver indicated that they were satisfied with the service and assistance they received from the packers.

Seattle

Seattle’s ethnic Asian market is also dominated by many small shops. Retailers in Seattle deal with a variety of suppliers of fresh pork, including packers, wholesalers, brokers and distributors. Asian retailers in Seattle are familiar with both Western Canadian and Midwest United States pork. The Seattle retailers purchase fresh pork as primal cuts and process these in the store. These retailers purchase the standard primal cuts offered by the packers and did not express a preference for any “specialty” cuts. Similar to non-specialized retail grocery chain outlets, like Safeway, fresh pork is cut into smaller portions which are wrapped on styrofoam trays and displayed at the meat counter. The major cuts sold in Seattle are: shoulder butt, legs, loins, bellies and spareribs.

This group of retailers identified fat trim, price and meat colour as the most important attributes

of fresh pork. Western Canadian pork was rated higher than Midwest United States pork for fat trim. Asian retailers in Seattle regard Western Canadian pork as considerably leaner than Midwest United States pork. Western Canadian pork and Midwest United States pork were considered to be equally acceptable in terms of meat colour. Western Canadian pork was perceived as being more expensive than pork produced in the Midwestern United States. Western Canadian pork received high ratings for both service and consistency of each shipment. Those retailers who dealt with Western Canadian packers were pleased with the service the packers provided and the consistency of the pork they received. Western Canadian pork was also seen as being superior to Midwest United States pork in terms of its overall quality. Retailers catering to Asian consumers were unaware of promotional activities carried out by either the United States or Western Canadian pork industries.

Portland

Retailers specializing in Asian customers in Portland purchase fresh pork from distributors, brokers and wholesalers. Asian retailers in Portland purchase fresh pork as primal cuts and process these in the store. As in Seattle, these retailers purchase the standard primal cuts and did not express a preference for any “specialty” cuts. Fresh pork is cut into smaller portions and wrapped on styrofoam trays. The major cuts sold in Portland are: shoulder butt, legs, loins, bellies and spareribs.

Retailers in Portland identified price, meat colour and fat trim as the most important attributes of fresh pork. Western Canadian and Midwest United States pork were not perceived as expensive, with Western Canadian pork being seen as the least expensive of the two. While both types of pork were rated as having acceptable meat colour, Midwestern United States pork was perceived as having a superior meat colour to Western Canadian pork. Western Canadian pork was perceived as being leaner (i.e. having a closer fat trim) than Midwest United States pork. Retailers in Portland were unaware of promotional activity by either the United States or Western Canadian pork industries. It must be noted that the majority of Asian retailers interviewed in Portland were unfamiliar with Western Canadian pork.

Distributor Results

Vancouver

There are few distributors active in Vancouver’s Asian retail pork market. Thus, there were not enough interviews with distributors in Vancouver to provide reliable ratings for analysis.

Seattle

Distributors in Seattle also considered fat trim, price and meat colour as important. Distributors gave similar ratings for fat trim and meat colour. Midwest United States pork had a higher rating for fat trim while Western Canadian pork had a higher rating for meat colour. The fat trim and meat colour of pork from both nations were rated as acceptable. Western Canadian pork was perceived as being more expensive than Midwest United States pork. Distributors were

considerably less pleased with the service they received from Western Canadian packers than were Seattle's Asian retailers. Distributors gave a negative rating for this attribute. Western Canadian pork was considered superior to Midwest United States pork in terms of overall pork quality. This perception was less pronounced among distributors than it was amongst retailers. Western Canada was seen as not providing as wide a variety of cuts as was available from Midwest United States packers. Distributors were unaware of promotional activity carried out by the Western Canadian pork industry, but had a limited awareness of promotional activity by the United States pork industry.

Portland

Distributors in Portland identified price, meat colour and fat trim as important attributes. Distributors perceived both Midwest United States and Western Canadian pork as expensive, with Western Canadian pork being the more expensive. Western Canadian pork was considered to be superior to Midwest United States pork in terms of meat colour and fat trim. Distributors rated Western Canadian pork to be superior to Midwest pork for overall quality. This result is opposite to that obtained from Portland's Asian retailers. This may be due to the distributors' greater familiarity with Western Canadian pork. Only two retailers in Portland were able to rate Western Canadian pork while all 6 distributors interviewed were able to rate Western Canadian pork. Western Canada's pork was rated similar to the Midwest for service and lower than the Midwest on awareness of promotional activity. Distributors in Portland were unaware of Western Canadian promotional activity but were aware of promotional activity by the United States pork industry.

Conclusions

Western Canadian pork enjoys an image of superior quality amongst retailers and distributors in Seattle's ethnic Asian market, however, the quality of Midwest United States pork has improved. Asian retailers in Portland are less familiar with Western Canadian pork and did not regard it as highly as retailers in Seattle did. Distributors in Portland are more familiar with Western Canadian pork and consider it to be superior to Midwest United States pork in terms of overall quality, meat colour and fat trim. In both markets, Western Canadian pork is generally considered to be expensive. Asian retailers and distributors in the Pacific Northwest are unaware of promotional activity carried out by the Western Canadian pork industry. The major cuts sold in the Asian ethnic market are: pork shoulder butt, loins, legs, bellies and spareribs.

Marketing Recommendations

Western Canadian pork presently enjoys a reputation for superior quality amongst retailers specializing in sales to Asian consumers in Seattle. This opinion is also held by distributors in this market segment in Portland. The Western Canadian pork industry should take advantage of this positive reputation. However it is also clear that many members of the trade lack information or experience with Canadian pork. If the potential of this market segment is to be achieved more information and education regarding Western Canadian pork to Asian pork buyers and consumers in the Pacific Northwest is required. The Western Canadian pork industry could provide

information to United States nutritionists and food editors regarding the characteristics and advantages of Western Canadian pork. Nutritionists and food editors may inform Asian consumers of the advantages of Western Canadian pork. Any information program should focus on quality, leanness, meat colour and freshness.

In view of the positive perceptions of Western Canadian pork amongst those members of the trade who are knowledgeable, we believe that it is useful to consider the development of procedures for Western Canadian packers to differentiate their products in the Pacific Northwest fresh pork market by identifying it as Western Canadian pork. Any identification and branding program should complement the information program, which we view to be of higher priority.

The results indicate that price is very important to Asian retailers and distributors. The quantitative results show that respondents consider Western Canadian pork to be more expensive than Midwest pork. Western Canadian pork producers and packers must maintain or improve the productivity of hog operations and the efficiency of the pork packing plants in order to remain competitive with Midwest pork producers and packers.

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY	I
1. INTRODUCTION	1
2. THE ALBERTA AND BRITISH COLUMBIA PORK INDUSTRY: BACKGROUND AND PNW MARKET ASSESSMENT	2
2.1. PORK PRODUCTION IN ALBERTA AND BRITISH COLUMBIA	2
2.2. ALBERTA AND BRITISH COLUMBIA PORK PROCESSING SECTOR.....	3
2.3. ALBERTA AND BRITISH COLUMBIA PORK MARKETS	4
2.3.1. EXPORTS TO INTERNATIONAL MARKETS (EXCLUDING UNITED STATES).....	4
2.3.2. EXPORTS TO UNITED STATES MARKETS INCLUDING THE PNW	5
2.3.3. INTERPROVINCIAL TRADE IN LIVE SLAUGHTER HOGS AND PORK.....	6
2.4. THE PACIFIC NORTHWEST PORK MARKET POTENTIAL	6
3. SURVEY METHODOLOGY	7
4. SURVEY RESULTS	10
4.1. DOMESTIC INDUSTRY PERSPECTIVE ON FUTURE PORK MARKETS	10
4.2. VANCOUVER	11
4.2.1. MARKET STRUCTURE.....	11
4.2.2. QUANTITATIVE RESULTS: THE SEMANTIC DIFFERENTIAL SCALE RESPONSES AND ANALYSIS.....	12
4.2.2.1. Retailers.....	13
4.2.2.2. Vancouver Quantitative Analysis Summary	14
4.2.3. QUALITATIVE ANALYSIS RESULTS.....	14
4.2.3.1. Retailers.....	14
4.3. SEATTLE.....	16
4.3.1. MARKET STRUCTURE.....	16

4.3.2. <i>QUANTITATIVE RESULTS: THE SEMANTIC DIFFERENTIAL SCALE RESPONSES AND ANALYSIS</i>	17
4.3.2.1. <i>Retailers</i>	17
4.3.2.2. <i>Distributors</i>	19
4.3.2.3. <i>Seattle Quantitative Analysis Summary</i>	20
4.3.3. <i>QUALITATIVE ANALYSIS RESULTS</i>	20
4.3.3.1. <i>Retailers And Distributors</i>	20
4.4. <i>PORTLAND</i>	22
4.4.1. <i>MARKET STRUCTURE</i>	22
4.4.2. <i>QUANTITATIVE RESULTS: THE SEMANTIC DIFFERENTIAL SCALE RESPONSES AND ANALYSIS</i>	23
4.4.2.1. <i>Retailers</i>	23
4.4.2.2. <i>Distributors</i>	25
4.4.2.3. <i>Portland Quantitative Analysis Summary</i>	27
4.4.3. <i>QUALITATIVE ANALYSIS RESULTS</i>	27
4.4.3.1. <i>Retailers and Distributors</i>	27
4.4.4. <i>SUMMARY OF SURVEY ANALYSIS FOR VANCOUVER, SEATTLE AND PORTLAND</i>	30
5. <i>MARKETING STRATEGIES</i>	32
5.1. <i>STRATEGIES FOR PRODUCER GROUPS</i>	32
5.1.1. <i>SEATTLE AND PORTLAND</i>	32
5.1.2. <i>VANCOUVER</i>	33
5.2. <i>STRATEGIES FOR CANADIAN PACKERS</i>	33
5.2.1. <i>SEATTLE AND PORTLAND</i>	33
5.2.2. <i>VANCOUVER</i>	34
6. <i>EVALUATION OF RESEARCH METHODOLOGY</i>	34

7. CONCLUSIONS	35
7.1. PRIMARY RESULTS	35
7.2. FUTURE RESEARCH	35
8. REFERENCES	37
9. APPENDIX A: TABLES AND FIGURES	39
10. APPENDIX B: SEMANTIC DIFFERENTIAL AND OPEN-ENDED QUESTIONS THAT WERE APPLIED IN THIS STUDY	48
11. APPENDIX C: A STATED PREFERENCE APPROACH TO EXAMINING PORK BUYERS' PREFERENCES IN VANCOUVER, SEATTLE AND PORTLAND	52
11.1. INTRODUCTION	52
11.2. THE STATED PREFERENCE METHOD.....	52
11.3. SURVEY DESIGN AND DATA DESCRIPTION	53
11.4. ANALYTICAL PROCEDURE	54
11.5. RESULTS	56
11.5.1. COMBINED MODELS: ALL RESPONDENTS	56
11.5.2. SEGMENTED MODEL: RESPONDENTS BY CITY.....	57
11.5.3. SEGMENTED MODEL: RESPONDENTS BY TYPE OF SHOP	57
11.6. STATED PREFERENCE CONCLUSIONS.....	57
11.7. STATED PREFERENCE TABLES	59
11.8. STATED PREFERENCE: SAMPLE QUESTIONNAIRE	63

TABLE OF TABLES

TABLE 1: ALBERTA SUPPLY AND DISPOSITION OF PORK* (Thousand tonnes)	39
TABLE 2: BRITISH COLUMBIA SUPPLY AND DISPOSITION OF PORK* (Thousand tonnes).....	39
TABLE 3: WESTERN CANADA (ALBERTA AND BRITISH COLUMBIA) SLAUGHTER HOGS AND LIVE SLAUGHTER HOGS EXPORTS	40
TABLE 4: WESTERN CANADA (BRITISH COLUMBIA AND ALBERTA) INTERNATIONAL PORK EXPORTS (Excluding U.S.) (Tonnes*).....	40
TABLE 5: PORK EXPORTS (BRITISH COLUMBIA AND ALBERTA) TO THE US (Tonnes*)	41
TABLE 6: POPULATION OF VANCOUVER, SEATTLE AND PORTLAND.....	41
TABLE 7: CURRENT AND PROJECTED POPULATION, WASHINGTON AND OREGON (THOUSANDS)	41
TABLE 8: PER CAPITA CONSUMPTION OF RED MEATS (Kg).....	42
TABLE 9: WASHINGTON SUPPLY AND DISPOSITION OF PORK (Thousand tonnes*)...	42
TABLE 10: OREGON SUPPLY AND DISPOSITION OF PORK (Thousand tonnes*).....	43
TABLE 11: VANCOUVER QUANTITATIVE SEMANTIC DIFFERENTIAL SCALE RESULTS ON PRODUCT QUALITY AND PROMOTIONAL ACTIVITY (RETAILERS AND DISTRIBUTORS)	43
TABLE 12: SEATTLE QUANTITATIVE SEMANTIC DIFFERENTIAL SCALE RESULTS ON PRODUCT QUALITY AND PROMOTIONAL ACTIVITY.....	44
TABLE 13: PORTLAND QUANTITATIVE SEMANTIC DIFFERENTIAL SCALE RESULTS ON PRODUCT QUALITY AND PROMOTIONAL ACTIVITY.....	44
TABLE 14: SEATTLE AND PORTLAND COMBINED QUANTITATIVE SEMANTIC DIFFERENTIAL SCALE RESULTS ON PRODUCT QUALITY AND PROMOTIONAL ACTIVITY (RETAILERS AND DISTRIBUTORS).....	45

TABLE OF FIGURES

FIGURE 1: SEATTLE RETAILER SEMANTIC DIFFERENTIAL SCALE RATINGS OF
SELECTED ATTRIBUTES 46

FIGURE 2: SEATTLE DISTRIBUTOR SEMANTIC DIFFERENTIAL SCALE RATINGS OF
SELECTED ATTRIBUTES 46

FIGURE 3: PORTLAND DISTRIBUTOR SEMANTIC DIFFERENTIAL SCALE RATINGS
OF SELECTED ATTRIBUTES..... 47

NICHE MARKETS FOR FRESH CANADIAN PORK IN THE PACIFIC NORTHWEST: A CASE STUDY

1. INTRODUCTION

The Pacific Northwest of the United States, consisting of Washington and Oregon, constitutes a major market for Western Canadian pork; this region has potential for further export growth. Exports of fresh pork from British Columbia and Alberta to the Pacific Northwest increased from 16,491 tonnes in 1988 to 19,595 tonnes in 1995 (Alberta Agriculture, Food and Rural Development, 1988, 1995). This is a region with growing population and represents a significant potential market for increased exports of Western Canadian pork.

Increasingly, food marketers are placing an emphasis on niche markets. These markets consist of an identifiable sub-group of consumers with specific needs or preferences. One such niche market is the ethnic Asian market in the Pacific Northwest. The Asian population of Washington and Oregon is projected to increase from 429,000 persons in 1995 to 873,000 persons by the year 2010 (United States Department of Commerce, 1996). Pork is an important component of the Asian diet, and is primarily consumed as fresh meat. Thus, the ethnic Asian market in Washington and Oregon constitutes a sizable niche market for fresh Canadian pork. In order to effectively service a niche market it is necessary to identify particular product or service needs within that market and to understand the perceptions held by buyers servicing that market.

Thus the objectives of this study are to evaluate the Asian ethnic markets for fresh pork in the Pacific Northwest. The specific objectives are to: (1) provide an updated background on the Western Canadian pork industry and the market for fresh pork in the Pacific Northwest, (2) identify the perceptions of Asian pork buyers regarding fresh pork from Western Canada, compared with fresh pork from the major competing source of supply, the Midwestern United States, (3) identify the fresh pork cuts commonly sold in the Asian ethnic market and (4) to propose marketing strategies for Western Canadian pork producers and packers to maintain or increase their share of the Asian ethnic market for fresh pork in the Pacific Northwest (PNW).

A two stage process was employed to evaluate the PNW Asian niche market for pork. Stage I reviewed existing literature, data on market disappearance and export trends. Interviews with Canadian industry experts identified potential markets for Canadian pork in the Pacific Northwest. Seattle and Portland were identified as the major centers of Asian population in the PNW during Stage I. Vancouver was also identified as a significant Asian market and included in the study as a comparison to the PNW. Retailers and meat distributors who cater to the ethnic Asian market were identified as the most suitable target group to survey. This group was chosen due to their familiarity with fresh pork and potential knowledge about the Asian ethnic market.

During Stage II Asian retailers and distributors in Vancouver, Seattle and Portland were surveyed by direct interview during November and December 1996. The survey involved semantic differential scaling questions, open-ended questions and a stated preference task. The survey examined pork retailer's and distributor's perceptions of fresh pork produced in Western Canada and in the Midwest United States. This allowed a comparison of the "product image" of pork from these two sources in the ethnic Asian market. This information can be used to develop marketing strategies for fresh pork in this segment market, evaluate branding strategies and evaluate perceptions about pork quality.

The report is organized in the following manner. Section 2 describes the structure of the Western Canadian pork industry emphasizing production and exports by Alberta and British Columbia. The size of the ethnic Asian market in the PNW is also described in Section 2. The development and methodology of the survey instrument are presented in Section 3. Section 4 analyzes and discusses the results of the survey conducted in Seattle, Portland and Vancouver. This portion of the report deals with the results of the semantic differential scale and open-ended questions. The results of the stated preference component are given in Appendix C (Section 11). Market implications of the analysis and suggested marketing strategies for the Canadian pork industry are presented in Section 5. An evaluation of the research methodology employed in this study is presented in Section 6. Section 7 concludes the paper.

2. THE ALBERTA AND BRITISH COLUMBIA PORK INDUSTRY: BACKGROUND AND PNW MARKET ASSESSMENT

This section describes briefly the pork industry in Alberta and British Columbia. The focus on Alberta and British Columbia reflects their proximity to the PNW and their dominance of pork exports from Canada to the PNW. Manitoba and Saskatchewan export very little pork to the PNW. Relevant information from Stage I interviews with Canadian industry experts are also incorporated in this section. The size of the PNW Asian ethnic market is also discussed. This information assists in evaluating the potential fresh pork markets and the ability of Western Canada to supply the PNW market.

2.1. PORK PRODUCTION IN ALBERTA AND BRITISH COLUMBIA

Alberta marketed the third largest number of slaughter-weight hogs in Canada in 1995. Alberta marketed 2,540,448 hogs in 1995, accounting for 15.7 percent of live slaughter-weight hogs marketed in Canada that year. The number of slaughter hogs marketed in British Columbia was smaller than in Alberta with 328,909 hogs marketed, accounting for only 2 percent of Canadian live slaughter hogs marketed in Canada in 1995. In 1988, 2,103,410 slaughter hogs, 13.5 percent of Canadian marketings, originated from Alberta. British Columbia marketed 7.8 per cent fewer hogs in 1995 than 1988. (Agriculture and Agri-Food Canada, 1988, 1995).

Production of pork in Alberta increased 53.3 percent between 1988 and 1995 from 120,000 tonnes to 184,000 tonnes (Table 1). In British Columbia, production of pork decreased by 9.7 percent from 45,300 tonnes in 1988 to 41,300 tonnes in 1995 (Table 2). Pork production in Alberta and British Columbia accounted for approximately 17 percent of Canadian pork production in 1995 (Agriculture and Agri-Food Canada, various years).

Heavier hogs tend to be produced in Alberta than in British Columbia or other provinces in Canada. In 1995, the average warm carcass weight of Alberta slaughter hogs was 86.1 kg compared to 79.3 kg in British Columbia. The Canadian average, including Alberta and British Columbia, was 84.1 kg. This difference is attributed to the fact that Alberta changed its grading grid for pork in 1994. The new carcass grading grid encourages producers to market heavier hogs. The highest index (114) requires a minimum of 83 kg (carcass weight) (George, 1994; Klassen, 1995). In addition to encouraging the production of heavier carcasses, the new grading grid emphasizes the need to have high yielding lean pigs in order to meet the needs of the domestic and the export market for lean pork. Although the increase in average carcass weight improves efficiency for pork processors, it appears that pork packers still need lighter hogs. Light hogs are desired in the fresh market, particularly for the Asian population in North America and for export to Asia (Personal communication with Western Canadian pork packers, October and November 1996).

2.2. ALBERTA AND BRITISH COLUMBIA PORK PROCESSING SECTOR

The processing sector for slaughter hogs in Western Canada is very concentrated, reflecting the substantial economies of scale in modern high throughput killing plants. The processing sector has been marked by consolidation and this is expected to continue. Consequently, at the time of the study, in Alberta, there are two high speed pork killing plants which supply “large” markets and several smaller packers which focus on niche markets. The two high speed plants are Gainers Meats³ in Edmonton and Fletcher’s Fine Foods Ltd. in Red Deer.

The two largest pork plants have an individual capacity of about 50,000 hogs per week. However, they are utilized at approximately 50 percent of their capacity which implies a large excess capacity for hog processing in Alberta, relative to the current supply of hogs.

In British Columbia, there are two major pork packers. Both are located in the Vancouver area and in aggregate these have a total capacity of about 10,000 thousand hogs/week. However, Intercontinental Packers announced in the fall of 1996 their intention to close their British Columbia pork plant in 1997 and centralize operations in their plant in Saskatoon. This will leave only one local pork packer, Britco Export Packers Ltd., a subsidiary of Fletcher’s Fine Foods, to serve the Vancouver area (Tjaden, December 1996).

In 1988, 1,563,800 hogs and 592,200 hogs were slaughtered in Alberta and in British Columbia respectively, compared with 14,875,606 hogs in Canada (Table 3). By 1995, the total number of hogs slaughtered in Alberta increased by 42 percent to 2,225,000 hogs but decreased by 8 percent in British Columbia to 542,200 hogs. 15,551,853 hogs were slaughtered in all of Canada in 1995 (Table 3). In 1988, hogs slaughtered in Alberta accounted for 10 percent of total hogs slaughtered in Canada. By 1995, Alberta’s share of the total number of hogs slaughtered in Canada increased to 14 percent, accounting for a large part of the increase in hogs slaughtered in Canada during this time period. The total number of hogs slaughtered in Québec and Ontario rose after 1988, then dropped in the early 1990’s to the same level in 1995 as in 1988 (Agriculture and Agri-Food Canada, 1988,1995). In summary,

³ Gainers Meats is now owned by Maple Leaf Food (Duckworth, September 19 and 26, 1996)

Alberta was the only province that experienced a significant increase in the number of hogs slaughtered between 1988 and 1995. There is, nonetheless a large excess of packer slaughter capacity in Alberta.

The majority of pork packers in British Columbia and Alberta have introduced HACCP⁴ (Hazard Analysis Critical Central Points system) into their plants. Packers are aware that wholesomeness, and an emphasis on food safety, is crucial for marketing, particularly for the Japanese market. This is one reason for introduction of HACCP in packing plants (Personal communication with pork packers, October and November 1996). Another reason relates to the fact that HACCP is now mandatory in the United States where slaughter and processing plants will be required to adopt the HACCP system of process controls to prevent food safety hazards (USDA, July 1996). Some packers note a need to extend HACCP to the production sector to encompass the food chain and maintain consistent high quality for the domestic and export markets.

2.3. ALBERTA AND BRITISH COLUMBIA PORK MARKETS

Alberta and British Columbia supply pork and hogs to both the domestic market and to selected foreign markets. The current destinations of pork products is briefly described.

2.3.1. EXPORTS TO INTERNATIONAL MARKETS (EXCLUDING UNITED STATES)

The quantity of pork exported from Alberta and British Columbia to international markets other than the United States is shown in Table 4. Between 1988 and 1995, exports of fresh pork increased by 360 percent from 3,179 tonnes in 1988 to 14,623 tonnes in 1995. Japan is the main off-shore market for Western Canadian fresh pork. In 1995, Japan purchased 60 percent of the fresh pork exported from Alberta and British Columbia. The other destinations were mainly Hong Kong, Taiwan, Australia and Mexico.

A large part of Japanese pork imports of fresh pork are in the form of high quality frozen cuts and offal (Alberta Agriculture, Food and Rural Development, 1995). The Japanese are quality conscious and have specific needs regarding pork. They are concerned about the meat color, freshness of the product, leanness of the meat, the absence of pale soft exudative (PSE) meat and the quality of the packaging (Personal communication with Canadian packers, October and November 1996; Morris, June 1996). Japanese buyers are particularly concerned about drug residues in meat.

Exports to Japan are expected to continue to grow in the future, due to low Japanese pork production and population growth projections (Barrie, June 1995). However, Japan remains a difficult market to penetrate, due to stiff competition from other exporting countries such as Taiwan, Denmark and United States. In addition, under safeguard provisions Japan has the right to impose tariffs if imports exceed certain levels. This limits access to the Japanese market during certain periods of the year, forcing Canadian packers and other pork exporters to other markets (Morris, June 1996; Friesen, October 1996). Other markets that Canadian exporters would like to develop are Korea, Taiwan (as a door to Japan) and Mexico (Personal communications with pork packers, October and November 1996; Morris, June 1996).

⁴ The HACCP system requires meat processors to identify all critical points along the processing chain where contamination could occur. This allows meat processors to analyze their operations and make improvements which ensure the safety and wholesomeness of the products (Tower, July 1996 and Nunes, May 1996).

Exports of processed pork increased between 1988 and 1995 from 99 tonnes to 4,760 tonnes in 1995, an increase of 4708 percent. Japan is also the main off shore buyer of processed pork, accounting for 95.7 percent of the processed pork exported from Alberta and British Columbia in 1995 (Table 4). Fresh or frozen pork is the largest portion of offshore exports.

2.3.2. EXPORTS TO UNITED STATES MARKETS INCLUDING THE PNW

Table 3 shows the number of live slaughter hogs exported from Alberta and British Columbia to the United States between 1988 and 1995. These amounted to 249,400 live slaughter hogs in 1988. Exports of live hogs dropped in 1994 to 49,500 hogs and then increased again to 101,000 hogs in 1995. Exports have been influenced by the countervailing duties that have been applied, during this period, on live hogs exported to the United States (Wilson, Oct 1996; Veeman, 1994).

Exports of live slaughter hogs in 1995 represented about 8,000 tonnes⁵ of pork and accounted for only 3.5 percent of the total production of pork in British Columbia and Alberta. Exports of live slaughter hogs from British Columbia between 1989 and 1995 were minor (Table 3).

Exports of fresh and processed pork from Alberta and British Columbia to the United States increased between 1988 and 1995 by 40 percent, from 36,204 tonnes to 50,847 tonnes (Table 5). Exports of fresh pork increased by 22 percent, from 28,253 tonnes to 34,434 tonnes, while exports of processed pork increased by 106 percent, from 7,951 tonnes to 16,413 tonnes. Washington and Oregon are the main United States market for Western Canadian pork, particularly for fresh pork. In 1995, this region accounted for 56.7 percent of fresh pork and 38.3 percent of processed pork exported from Alberta and British Columbia to the United States (Table 3). The other major United States pork market is California (Alberta Agriculture, Food and Rural Development, 1995).

The region of the PNW constitutes an attractive market for Alberta and British Columbia since this region is highly deficit in pork. As well, these two Western Canadian provinces retain a significant transportation cost advantage over the Midwest States in serving Washington and Oregon (Dawson et al., 1980). Pork shipments from Vancouver to the PNW have a cost advantage over Alberta, and particularly over the Midwest States⁶, in terms of the frequency, flexibility and economy of service (Brown, 1983). For Alberta, there is a possibility of backhaul of products such as vegetables and fruits from the PNW region, although the possibility of backhaul to Alberta is greater from California. However, Alberta has only a slight distance advantage over the Midwest States to serve Northern California, and has a disadvantage relative to the Midwest for Southern California (Brown, 1983).

Despite these advantages, from an Albertan and British Columbian perspective, the PNW market has been changing. Washington used to be a large buyer of fresh pork from Alberta and British Columbia. However, shipments of fresh pork from Alberta and British Columbia to Washington decreased significantly between 1988 and 1995 (Table 5) by 50 percent, from 14,920 tonnes to 7,323 tonnes, while exports of processed pork remained steady at approximately 4,800 tonnes. Shipments of fresh pork to

⁵ Based on an average carcass weight of 86.1 kg

⁶ The main Midwest United States pork packers are located in Nebraska and Iowa.

Oregon rose by 1,113 percent from 1,007 tonnes in 1988 to 12,212 tonnes in 1995, while shipments of processed pork more than doubled from 559 tonnes to 1,476 tonnes. In the Oregon fresh pork market, between 1994 and 1995 pork imports from Alberta and British Columbia increased by 55 percent, from 7,859 tonnes to 12,212 tonnes. The recent opening of a pork processing plant in Portland, Oregon, by Fletcher's Fine Foods may explain this large increase in fresh pork shipments⁷.

In summary, the best market in the United States for Alberta and British Columbia pork remains Washington and Oregon. Although pork exports from Alberta did not increase substantially between 1988 and 1995, there are several advantages associated with shipping pork into the Pacific Northwest. As well, there are no explicit trade barriers for pork⁸ between Canada and the United States. Nonetheless, border inspections apply and regulations regarding packaging and labeling are not harmonized (Personal communication with Canadian pork packers; MacMillan et al., 1994).

2.3.3. INTERPROVINCIAL TRADE IN LIVE SLAUGHTER HOGS AND PORK

The interprovincial movement of live slaughter hogs from Alberta to other provinces is significant, particularly to British Columbia. In 1995, 231,798 hogs that originated in Alberta were slaughtered out of province; 208,065 of these were slaughtered in British Columbia. Some 13,713 of the balance were slaughtered in Saskatchewan and 10,020 in Ontario. In contrast, Alberta packers only slaughtered 16,657 hogs which originated from British Columbia and Saskatchewan. The number of live hogs shipped to British Columbia from Alberta decreased in 1995, compared to the last three years (Agriculture and Agri-Food Canada, 1995).

Table 1 shows that interprovincial pork shipments from Alberta increased sharply between 1988 and 1995. These increased by 139 percent, from 24,140 tonnes in 1988 to 57,620 tonnes in 1995. Statistics on the destination of interprovincial pork shipments from Alberta are not available from Alberta Agriculture, Food and Rural Development or other sources. However, our discussions with pork packers revealed that the main domestic market for Alberta pork is British Columbia, followed by Saskatchewan. In 1995, interprovincial pork exports accounted for 31 percent of Alberta production, while international exports accounted for 29 percent. Approximately 40 percent of Alberta pork production is consumed locally (Table 1).

2.4. THE PACIFIC NORTHWEST PORK MARKET POTENTIAL

In order to assess the potential PNW market for fresh Canadian pork, it is necessary to examine market size in the large cities surveyed. Information on Vancouver is also provided, for purposes of comparison. Table 6 presents the total population of the metropolitan areas of Vancouver, Seattle and Portland. The size of the Asian population in each of these areas is also presented.

⁷ The U.S. Midwest took over supplying the Washington market. This may reflect improved U.S. quality and lower prices.

⁸ Tariffs on Canadian pork exported to the U.S. were eliminated in 1991 (Agriculture and Agri-Food Canada, personal communication, 1997).

The PNW is an area of rapidly growing population. Seattle and Vancouver are two of the fastest growing metropolitan areas in the United States and Canada (Gale Research, 1993; Statistics Canada, 1996). Table 7 presents data on the population of Washington, Oregon and British Columbia. Population projections for Washington and Oregon to the years 2000 and 2010 are also given.

As can be seen from Table 8, pork consumption in Canada decreased slightly, from 28 kg per person in 1988, to 27.7 kg per person in 1995. During the same period, pork consumption in the United States was stable at approximately 30.5 kg per person. Tables 9 and 10 show the production and consumption of pork in Washington and Oregon. Neither of these areas produce enough pork to meet demand. The resulting deficit is filled by interstate and international imports. Table 9 indicates that Washington has a large pork deficit. Pork production in Washington decreased by 35 percent from 1988 to 1994, while the estimated consumption of pork increased from 141.5 thousand tonnes in 1988 to 168.4 thousand tonnes in 1994. Thus, the self-sufficiency ratio for pork decreased from 6.9 percent in 1988 to 3.8 percent in 1994.

Table 10 shows that Oregon also has a large pork deficit. Local pork production decreased by 42 percent between 1988 and 1994, from 20,300 tonnes to 11,800 tonnes. During this time, estimated total pork consumption in Oregon increased by 14.5 percent, from 83,600 tonnes to 95,700 tonnes, due to population growth. Thus, the self-sufficiency ratio for pork in Oregon decreased between 1988 and 1994. In 1988, this ratio was 24 percent, while by 1994, the ratio declined to 12 percent. As was stated earlier, the market share of Alberta and British Columbia significantly increased in Oregon between 1988 and 1995. However, the Midwest United States pork packers have maintained their market share in Oregon.

There are no data that identify international imports by state in the United States. However, little pork is exported from Denmark to Oregon, due to the long distance between the east coast of the United States and Oregon.

The Asian population in the PNW is sizable. Vancouver has experienced a rapid growth in Asian population, mainly due to immigration from Hong Kong (Agriculture and Agri-Food Canada, 1994). This trend is now tending to moderate. Persons of Chinese origin form the largest Asian ethnic group in Vancouver, while the Asian populations of Seattle and Portland are more diverse. Seattle and Portland have not experienced sizable immigration from Asia in the past few years. However, Table 7 shows that the Asian populations of Washington and Oregon are expected to grow considerably during the next fifteen years.

In summary, the Asian-American population of Washington and Oregon is expected to grow rapidly in the next 15 years. The ethnic Asian market represents a significant opportunity for increased sales of Western Canadian pork in the Pacific Northwest.

3. SURVEY METHODOLOGY

The survey process for this study involved two stages. In the first stage, preliminary investigation of previous research and interviews with industry experts in Canada aided in selecting the Asian

target group and in designing the survey instrument. The interviews conducted during Stage I involved open-ended, unstructured discussion with industry experts and government officials. These interviews were exploratory and intended to elicit the views of Canadian experts on the ethnic Asian market in the Pacific Northwest. This stage also involved interviews with Asian retailers in Edmonton, Alberta and meat distributors who service retailers catering to Asian consumers in Vancouver, to determine the relevant attributes of fresh pork to include in the survey instrument directed at retailers.

The first stage of the study involved interviews with appropriate representatives of the following list of firms: Fletcher's Fine Foods , Red Deer; Gainers, Edmonton; Intercontinental Packers Limited, Saskatoon; Trochu Meat Processors Limited, Calgary; Owner, Ouellette Packers, Edmonton; Alberta Agriculture, Food and Rural Development , Market Branch; Agriculture and Agri-Food Canada, Market and Industry Services Branch; Representatives from the Alberta Pork Producer's Marketing Board; seven Asian retailers in Edmonton (store owners or head butchers); Manager, Britco Export Packers, Vancouver; Supreme Meat Distributors, Vancouver; Gainers, Vancouver; Sales staff, Fletcher's Fine Foods Ltd., Tukwila, Wa.

The second phase of the study involved a major effort to apply a systematic survey, in the specified cities in the Pacific Northwest, to gather qualitative and quantitative data from retailers dealing with Asian consumers and distributors servicing these retailers. Specific questions were designed and pre-tested with industry experts in Vancouver and Edmonton to evaluate the applicability of the survey questions. The survey asked respondents to give quantitative ratings for a series of attributes to assess their perceptions towards the quality of fresh pork and the effectiveness of promotional activities. Perceptions about fresh pork from Western Canada and from the Midwest United States were assessed through these questions.

The field work was carried out in November and December of 1996, in Seattle and Portland. The comparable market segment in Vancouver was similarly studied. The respondents were selected according to geographic location (i.e. located in "Chinatown"), by referral through local packers and with the assistance of Asian business and cultural organizations in Vancouver and in Seattle. A listing of the respondents interviewed in each city is given below.

Vancouver respondents included: eight Asian retailers (store owner or butcher); two meat distributors (1 owner, 1 sales manager). Additional open-ended interviews were undertaken with two meat packers. Seattle respondents included: seven Asian retailers (owner or butcher); three meat distributors (owner or sales manager); one packer-wholesaler (owner). Additional open-ended interviews were conducted with: one Canadian consular official and one meat packer (sales staff). Portland respondents included: eight Asian retailers (owners); three meat distributors or wholesalers (sales managers); one broker; one packer-wholesaler (manager); one retailer-wholesaler (sales manager). Additional open-ended interviews were conducted with one USDA statistician⁹.

⁹ The interviews in Vancouver were conducted jointly by Peter Kuperis and Michel Vincent. The interviews in Seattle were conducted by Peter Kuperis while Michel Vincent conducted the interviews in Portland.

The methodology used in this study involved semantic differential scales. In this approach the respondent is asked to rate a particular attribute in terms of two broad adjectives. A seven-level semantic differential scale with bipolar adjectives was used in the survey to evaluate the attitudes towards fresh pork of the target group of retailers and distributors towards fresh pork. The semantic differential scale has been used by Nagashima (1970), Papadopoulos (1994) and Kim et al. (1996). The approach allows researchers to examine both the direction and intensity of respondents' attitudes towards such concepts as corporate image, advertising image, brand or service image, and country image (Green, Tull and Albaum, 1988). For an example, a respondent could be asked to rate a product's price on a scale of -3 to +3, with -3 representing "expensive" and +3 representing "inexpensive". In designing a semantic differential scale task, the selection of an appropriate sample of adjective pairs is central to the ability to generate a score for the attribute and product being examined (Churchill, 1991). The product can then be compared to other products using this score. Nagashima (1970) states that semantic differential scales are an effective tool in cross-cultural and cross-linguistic settings.

The quantitative (semantic differential) questions were divided into two sub-groups. One set focused on product quality evaluation, using nine profiles. The second focused on promotional activity evaluation, based on two profiles. The product quality factors were based on the results of interviews with industry experts and Asian retailers in Edmonton and on the previous experience of use of the semantic differential scale methodology (Kim et al., 1996; Vincent et al., 1996). To prevent sequence bias and response routinization, the semantic differential scale was randomly rotated (Papadopoulos, 1994). A copy of the survey incorporating both the quantitative and qualitative questions is included as Appendix B. The meat attributes identified as important during the Stage I interviews are discussed next.

Meat freshness was identified as the most important quality attribute of pork by most of the interviewed retailers in Stage I. In this context, "freshness" refers to the number of days since the pig was slaughtered. The acceptable level of freshness varies in each market, according to the nearness of pork slaughtering facilities. Price was also identified as an important attribute. Edmonton Asian retailers indicated that their customers are very price conscious but would not be willing to accept a lower quality product at a reduced price.

Meat colour was identified as another important attribute. Targeted retailers in Edmonton indicated that their customers prefer pork of a pink to bright red colour. A pale colour is seen as indicating pork that is not fresh. A dark colour is taken to indicate that the pork is bruised or otherwise damaged during transport and slaughtering. A meat colour chart produced by Agriculture Canada (Pub. 5180/B) was used in the interviews to identify meat colour. Leanness was also identified as an important attribute. Asian consumers prefer extremely lean pork. The retailers interviewed during this study indicated that they trim all visible outside fat from the fresh pork they sell. Marbling was not identified as an important pork attribute.

Pork produced in Western Canada and pork produced in the Midwest United States may differ in the colour of fat. These regions supply most of the pork consumed in the PNW. There is a tendency for Western Canadian pork to have white fat, due to the predominance of barley in pig feeding in Western Canada, while pork produced in the Midwest United States may tend to have

more yellow fat, due to the use of corn in pig rations. It was hypothesized that Asian consumers would prefer pork with white fat to pork with yellow fat. Fat colour was included in the survey to test this hypothesis.

Other attributes were assessed to determine the respondents' perceptions of the services connected with fresh pork. Thus semantic differential scales were used for food safety standards, the consistency of each shipment, the variety of cuts, service and assistance from packers, overall product quality and awareness of promotion. This information was also used to develop a stated preference task. Complete details on the stated preference tasks are in Appendix C.

Descriptive profile analysis was used to analyze the quantitative responses. Analysis of variance, using Anova tests, was used to determine if significant differences existed among respondents' ratings of fresh pork from Western Canada and the Midwest United States. The perceptions of fresh pork held by retailers and meat distributors who cater to the Asian target market were also explored using a structured set of open-ended questions and a form of the Delphi technique. The Delphi technique is often used in opinion polling. Each respondent is questioned independently for his or her opinion on a specific subject and the resulting opinion can be used in the development of long term forecasts for a product or a country (Green et al., 1988).

The results of the survey are presented in Section 4. The results are grouped by city. In each case the semantic differential scale results are presented as separate ratings by retailers and ratings by distributors. The results from applying open-ended questions are presented separately for each city.

4. SURVEY RESULTS

The interviews conducted in Stage I and Stage II form the basis for the analysis in this section. The Canadian domestic industry perspective elicited in Stage I by direct unstructured interviews is discussed first. Stage II interviews in Vancouver, Seattle and Portland using structured direct interviews were conducted in the establishments of the respondents. This allowed the interviewers to observe directly the way in which fresh pork is retailed in the Asian food markets of Vancouver, Seattle and Portland. These observations, together with information collected in supplementary open-ended interviews with packers and other industry experts, provide the basis of the descriptions of the structure of the Asian market in each city. These descriptions and the results of the semantic differential scale and open-ended questions for each city are presented below.

4.1. DOMESTIC INDUSTRY PERSPECTIVE ON FUTURE PORK MARKETS

Stage I involved consultations with Canadian industry representatives. The majority of the packer personnel surveyed in Alberta and in British Columbia want to develop further the United States market, particularly the Pacific Northwest and California markets. However no existing aggressive strategies to increase pork sales into these markets were observed or discussed by the industry respondents. This may in part be due to the shortfall in domestic production to service potential export markets and a perception that the Japanese and Korean markets are presently more profitable than the United States markets.

The overseas Asian market, particularly Japan and Korea, are also viewed to be of priority by Western Canadian packers and they plan to increase their pork shipments to these countries. Most of the packers in British Columbia and in Alberta have chilling capacity in their plants and intend to ship more fresh chilled pork products to Asia and the Pacific Northwest in the future.

Pork packers in Alberta and British Columbia do not intend to utilize case-ready technology in their selling strategies¹⁰ in the short and medium term. It was stated that costs of production, such as labor, are too high in Canada to make the utilization of case-ready technology profitable. Concerns about the shelf life of such products are noted for shipments to Asia. Packers stated their belief that the market faces too much price competition to justify a focus on export of case-ready pork products to the United States.

Alberta and British Columbia packers do not consider the domestic Canadian pork market to be an expanding market. Packers expect that Canadian per capita consumption of pork will remain steady and that population growth will be relatively low. However, they anticipate that Western Canadian packers should maintain their market share of the domestic pork market in Alberta, British Columbia and Saskatchewan, since there is no competition from imports in these provinces. In 1995, imports of pork from Denmark and the United States were insignificant for Alberta, British Columbia and Saskatchewan.

Stage I, through discussions with packers, industry experts and local Edmonton Asian meat retailers, also identified pork is an important component of the Asian diet. Pork is primarily consumed in its fresh form by Asians. The main cuts sold by pork retailers specializing in sales to Asian consumers were identified as shoulder butt, legs, loins, and bellies. In Vancouver there is also a considerable market for offal in the Asian market segment, such as kidneys, lungs and intestines. The market for offal in the Asian segment is smaller in Seattle and Portland. The analysis now switches to the Stage II results, based on interviews with retailers and distributors in Vancouver, Seattle and Portland.

4.2. VANCOUVER

4.2.1. MARKET STRUCTURE

The Asian fresh pork market in Vancouver is dominated by many small specialty meat shops. The majority of these shops are located in Chinatown, near downtown Vancouver. There are also some specialty meat shops in Richmond, an affluent suburb of Vancouver. These specialty shops primarily purchase fresh pork in the form of sides from two local packers, Britco Export Packers (a subsidiary of Fletcher's Fine Foods Ltd.) and Intercontinental Packers. Both of these plants are located in or near Vancouver. Many of the retailers go directly to the plant and purchase sides that they have selected from that day's kill. The sides are transported to the store and are processed there.

Fresh pork is displayed on trays at the counter. The fresh pork is displayed as sub-primal cuts (i.e. loins, shoulder butts, bellies) with the bone in and the skin attached. The customer selects the type

¹⁰ The fundamental principle of case-ready technology is to process primal meat cuts into retail cuts in a central location and distribute these to retail outlets (Gill and Jones, 1994)

of cut he or she wishes to purchase and indicates to a butcher the desired quantity. The butcher then trims away the skin and removes any bones. The pork is wrapped in paper and given to the customer. No “western style” (i.e. Styrofoam trays and clear plastic wrap) packaging is used in these shops.

Vancouver’s Chinatown is a small area of approximately 6 blocks. Within this area we observed six specialty meat shops and at least two general Asian grocery stores that also featured a meat counter. The fresh pork market in Chinatown initially appears to be very competitive. As interviews were conducted in Chinatown it was discovered that three of the specialty meat shops are owned by one company. A second company owns two more meat shops in Chinatown. Thus it may be that competition among meat shops in Chinatown is not as high as initially appeared.

Vancouver’s ethnic Asian market also includes T and T, a “Chinese” retail grocery chain and Yaohan, a large “Japanese” grocery store. T and T has one store in Richmond and one in Burnaby. The chain T and T has also recently opened a store in Chinatown. Yaohan is located in Richmond. It appears that these and other “chain stores” are gaining market share (Pan-Atlantic, 1994)). These stores have a similar format to general-purpose chain stores, such as Safeway stores, in that they offer fruit, vegetables, dry goods, dairy products and meat. Fresh pork is purchased as sides and is sold in the same manner as in the Asian specialty meat shops. The new T and T store in Chinatown may result in a further increase in market share for this chain in Vancouver.

As was noted earlier, at the time of the study there were two packing plants located in the Vancouver area. Some pork is also imported into British Columbia from Alberta, Saskatchewan and Manitoba. Since most of the retailers purchase directly from the local packing plants or from local representatives of other packers, such as Gainers, meat distributors and wholesalers play a small role in Vancouver’s Asian fresh pork market. Interviews with the two larger distributors in this market revealed that most of the distributors sell to restaurants rather than to retail stores. Sales to retailers occurred when the local packers (Britco and Intercontinental) could meet the retailers’ demands. Intercontinental has announced that its Vancouver plant will close . This may make it more difficult for retailers to obtain fresh pork sides in the Vancouver area, thus distributors and wholesalers may have an increased role in the retail fresh pork market in future.

4.2.2. QUANTITATIVE RESULTS: THE SEMANTIC DIFFERENTIAL SCALE RESPONSES AND ANALYSIS

Since only two of the respondents in Vancouver were familiar with United States pork, it is not possible to compare perceptions of fresh pork from Western Canada and the Midwest United States. Thus, the discussion of perceptions of fresh pork in Vancouver is limited to Western Canadian pork. This lack of familiarity with United States pork may also explain a lack of significance between the mean scores of the Semantic Differential results. Since the majority of retailers in the Vancouver market were interviewed, the mean scores can be considered to be indicators of the general perception of Western Canadian fresh pork in this market. The results for Vancouver also provide a benchmark against which perceptions of Canadian pork by respondents

in Seattle and Portland can be judged. The following discussion of factors is ordered according to the attribute importance revealed by the responses to the qualitative questions.

Results of the semantic differential scale survey for Vancouver are presented in Table 11. Readers are reminded that the full text of the survey is in Appendix B and that responses were numerically rated on the 7 point scale from +3 (most preferred adjective) to -3 (least preferred adjective). The responses by the Asian retailers are now discussed in detail.

4.2.2.1. Retailers

4.2.2.1.1. Product Quality Assessments

4.2.2.1.1.1. Meat Colour

The mean score for meat colour was 1.40, indicating that the respondents found the colour of Western Canadian fresh pork to be acceptable. Customers in this market prefer pork with a bright red colour. This colour is associated with freshness. The preference is for a colour that is slightly darker than the usual colour of Canadian pork.

4.2.2.1.1.2. Fat Trim

The mean score for fat trim was 1.50, indicating that respondents rated a fat trim that is closer to ¼ inch than to 1 inch to be acceptable. Several respondents did indicate that they would desire even closer trimming than ¼ inch. Leanness is a very important attribute for Asian pork buyers.

4.2.2.1.1.3. Price

The Vancouver respondents rated Western Canadian pork to be expensive (this mean score was -1.6). The survey was conducted during a period when the price of hogs in Western Canada were relatively high. The packers and distributors interviewed during this study indicated that retailers catering to Asian customers are very price conscious.

4.2.2.1.1.4. Other Attributes

Most retailers are able to access pork slaughtered within one day due to the presence of two slaughter plants in the Vancouver area. Pork older than one day is in general not acceptable to retailers. Respondents rated overall pork quality positively. The mean score of 1.60 indicates reasonable satisfaction with the quality of fresh pork, but also suggests that this could be improved. Responses to the open-ended questions indicate that the pork from British Columbia is perceived to be of lower quality than pork from Alberta or Saskatchewan.

For fat colour, the mean score of 1.90 indicates that respondents perceived the fat colour of Western Canadian pork to be white, though this was not a highly rated attribute according to the open-ended questions. The water content mean score rating (1.20) suggests that retailers found this to be reasonably acceptable, but requiring improvement. The “service” attributes of pork

(Food safety standards, Variety of cuts, Consistency of each shipment) all received positive mean scores. Asian pork buyers found these to be generally acceptable.

4.2.2.1.2. Promotional Activity Assessments

4.2.2.1.2.1. Service And Assistance

Service and assistance from packers was rated positively (1.80), more positively than for other attributes in the survey. Asian retailers in Vancouver were quite satisfied with the service they receive from the packers.

4.2.2.1.2.2. Awareness Of Promotion

In contrast, awareness of promotion had the lowest mean score of all service attributes (0.30). Retailers catering to Asian consumers were generally unaware of promotional activities and materials dealing with fresh pork. This is likely due to the fact that Chinese language promotional materials are not available and that the generic advertising done by the pork industry is targeted at the mass market and not specialty markets, such as Asian consumers.

4.2.2.2. Vancouver Quantitative Analysis Summary

To summarize, meat colour, fat trim and price were considered to be the most important attributes of fresh pork by Asian retailers and distributors in Vancouver. Western Canadian pork was rated favorably on fat trim and meat colour, but was perceived to be expensive by pork buyers in Vancouver's Asian market. The respondents were generally pleased with the products and service they receive from the packers. There was very little awareness of promotion among the respondents.

4.2.3. QUALITATIVE ANALYSIS RESULTS

4.2.3.1. Retailers

4.2.3.1.1. The Main Pork Attributes Influencing Pork Buyers In Vancouver

The respondents rated the most important attribute of pork to be meat colour. Approximately 70 percent of the respondents mentioned this attribute. Most respondents chose "normal" on the pork colour chart (Agriculture Canada, Pub. 5180/B), but many of them indicated that a somewhat brighter red colour was closer to the colour their customers preferred. This meat colour is associated with freshness. The respondents also listed fat trim and price as very important attributes. Asian retailers in Vancouver prefer pork with 1/4 inch outside fat trim. Some retailers indicated that they would choose pork with a fat trim of less than 1/4 inch if it was available.

Other characteristics such as leanness, availability, water content and reliability of supply were mentioned during the interviews. Leanness was the most frequently mentioned attribute. Asian consumers have a strong preference for lean pork. Some retailers indicated that the water content of fresh pork is more variable than they would prefer.

4.2.3.1.2. Marketing And Shipping Specifications

The ability of the local packers to consistently supply pork that meets the requirements of the Asian market was a concern to some retailers. The frequency and timing of deliveries by suppliers from outside of the Vancouver area was also mentioned as a concern. As was stated earlier, there was very little awareness of promotional activities by either packers or by the pork industry in general.

All the respondents in Vancouver preferred to purchase sides of pork rather than primal cuts. Asian consumers in Vancouver demand freshness and the retailers meet this demand by processing sides in-store. Primal cuts are purchased when there are not enough sides to meet a store's daily sales of fresh pork or for use in preparing processed pork products for the Asian market. On the question of case ready product, most of Vancouver's targeted retailers are not interested in case ready products. Case ready products are not suited to the personalized service offered by the Asian retailers. The distributors interviewed stated that their Asian customers would not be willing to pay a higher price for case ready products.

The respondents were also asked to list and describe the pork cuts they buy, or wish to buy. When primal cuts were purchased, the major cuts were: shoulder butt (bone-in and boneless); legs (boneless or bone-in; loins (boneless or bone-in); bellies (boneless or bone-in); and spareribs.

Asian retailers in Vancouver have a marked preference for lean cuts. The size of the cuts does not appear to be a concern and the respondents were generally pleased with the "standard" cuts offered by packers. Asian retailers also purchase pork offal, such as stomachs, kidneys, feet and necks.

4.2.3.1.3. Branding And Origin

Asian retailers and distributors interviewed in Vancouver were unfamiliar with pork from the Midwest United States. Therefore, a preference for pork originating from either Canada or from the United States could not be expressed. It should be noted, however, that some retailers considered pork from Alberta to be superior to pork produced in British Columbia. Respondents were asked to name their five most preferred packers. The two local packers, Britco and Intercontinental, were mentioned frequently. Gainers was also mentioned frequently. Two brands of pork products, Schneiders and Burns, were also mentioned. This serves as an indirect identification of Maple Leaf Packers and the Schneider plant in Manitoba.

The majority of the respondents did not favor branding fresh pork. They stated that their customers were concerned with the quality and freshness of fresh pork and not its origin.

4.2.3.1.4. Views On The Future Of The Vancouver Asian Fresh Pork Market

Most of the retailers and distributors stated that pork consumption in the Asian market would increase. This was seen as arising from growth in Vancouver's Asian population. The respondents believed that per capita consumption of fresh pork would remain steady. Most of the respondents did not anticipate major structural changes in the market. The majority of the respondents did not believe that the market share of small specialty meat shops would decline. However, if the new T and T store in Chinatown is successful, this more "western style" store may signify a new trend in Vancouver's Asian market. Results for Seattle are presented next.

4.3. SEATTLE

4.3.1. MARKET STRUCTURE

The Asian retail pork market in Seattle is also dominated by many small stores. These stores tend to be less specialized than is the case with the specialty meat shops found in Vancouver. That is, most of the stores selling fresh pork to members of Seattle's Asian community offer a wider range of goods, including produce, dry goods and meats. The majority of Seattle's "Asian stores" are found in "Chinatown" and "Little Vietnam". Both of these areas are located near downtown Seattle. Seattle's Chinatown is noticeably less busy than Vancouver's. This is also true of Little Vietnam. This may be due to the smaller Asian population of Seattle and to the higher degree of assimilation found in this community. There is one "Asian chain" selling fresh pork in the Seattle market. This chain, Uwajimaya, concentrates on selling to Japanese-Americans. Ownership of the stores in this market does not appear to be as concentrated as in Vancouver.

In contrast to the Vancouver market, in Seattle fresh pork is purchased by the retailers as primal cuts and further processed in the stores. The stores do not have the facilities to process sides and did not express any desire to purchase sides if they were available. The fresh pork is packaged using styrofoam trays and plastic wrap. This is markedly different from the way in which fresh pork is sold in Vancouver. During the time period that interviews were conducted with retailers in Seattle, it was observed that the ethnicity of the customers at the stores is also quite different than in Vancouver. Customers in Seattle's Chinatown are of many different ethnic backgrounds. The main groups observed were Chinese, Vietnamese, Japanese, Korean and African-American. In Vancouver, persons of Chinese origin are the largest group observed shopping in Chinatown.

There are no plants slaughtering hogs in the Seattle area. The pork sold in this market is mainly imported from the Midwest United States and Western Canada. There is one small plant, located south of Seattle, which imports live hogs from Alberta and processes these for the Asian fresh pork market in Seattle. Because there are no large plants in the Seattle area, brokers, distributors and wholesalers play a large role in this market. It appears that there are more pork suppliers to Seattle's Asian market than were observed in Vancouver. Most of the retailers interviewed indicated that a substantial portion of the fresh pork they purchased came from distributors or brokers. Gainers does not appear to be active in the Seattle Asian retail market. Fletcher's does have a processing plant in Tukwila, near Seattle, and is active in the Asian market. Intercontinental has also been active in Seattle's Asian community but the level of this activity has

declined in recent years. With the closing of the Vancouver plant, Intercontinental's presence in this market may decline further. The presence of these two packers in the Seattle fresh pork market has raised retailers' and distributors' awareness of Canadian pork.

4.3.2. QUANTITATIVE RESULTS: THE SEMANTIC DIFFERENTIAL SCALE RESPONSES AND ANALYSIS

Pork buyers for the Asian market in Seattle are familiar with fresh pork from Western Canada and the Midwest United States. This makes possible the comparison of their perceptions of Canadian and American pork. As can be seen from Table 12, none of the mean scores for individual attributes are significantly different between Western Canadian or Midwest United States pork. However, since the majority of Asian-community retailers of pork in Seattle were surveyed, the mean scores can be regarded as a reliable indicator of perceptions of fresh pork in the Seattle Asian ethnic market (Table 12, Figures 1 and 2).

The rating of respondents in Seattle to the qualitative question on the importance of attributes led to the order in which the semantic differential results are discussed below. The results for retailers and distributors are discussed separately.

4.3.2.1. Retailers

4.3.2.1.1. Product Quality Assessments

4.3.2.1.1.1. Fat Trim

Canadian pork was perceived by retailers as being leaner than United States pork. Asian-community retailers rated Western Canadian pork (with a mean score of 2) considerably higher than pork from the Midwest United States on this attribute (mean score of 0.73). This has been the most important "quality advantage" of Canadian pork in United States markets (Hawkins, 1972; Pan Atlantic, 1994). The difference in leanness between Canadian and American pork appears to be decreasing. (Personal communications with packers, 1996). Leanness is a very important attribute to Asian pork buyers and it appears that Canadian pork has a "quality advantage" in Seattle's Asian market.

4.3.2.1.1.2. Price

Western Canadian pork was rated lower than pork from the Midwest United States (at -1 versus -0.09 respectively). Canadian pork is perceived to be expensive by Asian-community retailers. Similar to Vancouver, fresh pork buyers for this market segment appear to be very price conscious.

4.3.2.1.1.3. Meat Colour

The mean scores for meat colour were similar for pork from both sources. Western Canadian pork received a mean score of 2.5 indicating a slight preference over pork from Midwest United

States, which had a mean score of 1.82. The retailers interviewed perceived the colour of pork from both nations to be acceptable. The higher score for Western Canadian pork may be due to the perception, which became evident during the interview process, that Canadian pork is somewhat darker and “redder” than United States pork.

4.3.2.1.1.4. Other Attributes

Western Canadian pork received a higher mean score for overall pork quality (2.75) than Midwestern pork (1.30), indicating that Asian retailers in Seattle perceive Canadian pork to be of higher quality than American pork. The “overall pork quality” attribute appeared to be thought of as a combination of leanness, meat colour and consistency of pork produced. This finding concurs with previous studies (Hawkins, 1972; Pan Atlantic, 1994). During the interviews it became apparent that most respondents thought that this “quality gap” between Canadian and American pork was narrowing, due to improvements in pork quality in the United States. The perception of high quality of Canadian pork was mainly attributed to its leanness.

Western Canadian pork was rated slightly higher than Midwest pork on fat colour, (2.00 versus 1.09, respectively). Canadian pork was generally perceived to have slightly whiter fat than pork produced in the Midwest United States. A white fat colour is a desirable attribute for Asian pork purchasers. On the variety of cuts, pork from the Midwest United States was rated somewhat higher than Western Canada. The mean scores were 1.45 for the Midwest United States and 1.25 for Western Canada. No explanations for this higher rating were evident from the interviews.

The mean scores for water content were similar for pork from both sources. Asian-community retailers in Seattle found the water content of pork from both regions to be acceptable. The Midwest United States was rated more highly than Western Canada for food safety standards. This rating may have resulted from the respondents’ unfamiliarity with Western Canadian packing plants. Western Canadian pork received a considerably higher mean score for the consistency of each shipment (3.00) than Midwestern pork (1.27). The retailers interviewed generally viewed the Canadian pork industry to produce pork of a very consistent quality.

4.3.2.1.2. Promotional Activity Assessments

4.3.2.1.2.1. Service And Assistance

Western Canadian packers received a higher rating (3.0) than Midwest packers (1.1). This may be due to the presence of a Fletcher’s plant in the Seattle region.

4.3.2.1.2.2. Awareness Of Promotion

Western Canada and the Midwest both received negative ratings on awareness of promotion (-0.25 and -0.45). Retailers in this market segment were not aware of promotional activity by either Canadian or United States pork industry groups. Again, this is probably due to the lack of Asian language promotional materials and the targeting of generic advertising efforts at a general audience.

4.3.2.2. Distributors

4.3.2.2.1. Product Quality Assessments

4.3.2.2.1.1. Fat Trim

On fat trim, distributors rated Western Canadian pork slightly lower (at 1.33) than Midwest pork (1.6). No explanation for this rating was given.

4.3.2.2.1.2. Price

Distributors in Seattle's Asian market rated Western Canadian pork to be considerably more expensive than Midwestern pork. These mean scores were -1.33 and 0.4, respectively. Many of the distributors interviewed sell to Asian restaurants as well as Asian retailers. This is a very price-driven market. The orientation of distributors towards sales to restaurants may have contributed to this rating.

4.3.2.2.1.3. Meat Colour

Distributors gave similar ratings for meat colour for pork from both sources. Western Canadian pork had a mean score of 1.67 while Midwestern United States pork had a score of 1.4.

4.3.2.2.1.4. Other Attributes

Distributors rated Western Canadian pork lower on overall quality (1.67) than did retailers. However, as for retailers, Western Canadian pork was rated higher by distributors than Midwest pork on this attribute, at 1.67 and 1.20 respectively. Distributors perceived a noticeable difference in fat colour of pork from Western Canada and the Midwest United States. Distributors rated Western Canadian pork at 1.33 for fat colour and Midwest pork at 0.20. The distributors interviewed perceived Western Canadian pork to be whiter in colour than pork from the Midwest United States.

While food safety standards were seen to be acceptable in both nations, there was a perception of lower standards in Canadian packing plants. Thus distributors rated Western Canadian pork lower than pork from the Midwest on food safety standards, at 0.67 and 1.4 respectively. The assessment may be due to a lack of knowledge of Western Canadian packing plants.

Western Canadian pork rated higher for consistency of each shipment. Ratings for this attribute were 1.33 for Western Canada and 0.60 for pork from the Midwest. Thus distributors shared retailers' perceptions that Western Canada produces pork of a more consistent quality than does the Midwest United States, although ratings by distributors are lower than those given by retailers. The ratings suggest that distributors are not completely satisfied with the consistency of pork produced in either nation.

On the variety of cuts, distributors rated Midwest pork at 2.00 while Western Canadian pork received a rating of 1.00 for this attribute. Evidently distributors felt that they were offered a greater range of cuts by Midwest packers than by Western Canadian packers. The mean scores for

water content were similar for both types of pork. Asian retailers in Seattle found the water content of pork from Canada and the United States to be acceptable.

4.3.2.2.2. Promotional Activity Assessments

4.3.2.2.2.1. Service And Assistance

Distributors generally gave low ratings for this attribute. Western Canada received a rating of -0.67 while the Midwest received a rating of 0.0. Seattle distributors were evidently not satisfied with the service they received from packers.

4.3.2.2.2.2. Awareness Of Promotion

Distributors also gave negative ratings for this attribute. Distributors were not aware of promotional activities carried out by the pork industries of the United States or Canada.

4.3.2.3. Seattle Quantitative Analysis Summary

In summary, fat trim and price were the most important attributes of fresh pork for Asian pork buyers in Seattle. Pork from western Canada was rated higher than the Midwest United States for fat trim. Western Canadian pork was perceived as considerably more expensive than pork from the Midwest. Western Canada was also considered to supply pork of a more consistent quality than the Midwest. The respondents were unaware of promotional activity by either the Western Canadian or United States pork industries. Other potential concerns for the Western Canadian industry is the lower perception both retailers and distributors had for safety standards for pork from Canada versus the Midwest United States. This difference is small, however, studies in Canada indicate that food safety is viewed as a very important issue by consumers (Unterschultz, Quagraine and Veeman, 1996).

Asian retailers gave higher ratings for Canadian pork than did the distributors. Asian retailers in Seattle rated Western Canadian pork much higher than Midwest pork on consistency of each shipment, overall quality, fat trim and service and assistance. Western Canadian pork has a “quality advantage” over Midwestern United States pork in the Asian retail market in Seattle.

4.3.3. QUALITATIVE ANALYSIS RESULTS

Generally, retailers and distributors in Seattle gave similar responses to the open-ended questions. The responses of retailers and distributors are discussed below.

4.3.3.1. Retailers And Distributors

4.3.3.1.1. The Main Pork Attributes Influencing Asian Pork Buyers In Seattle

The most important pork attributes listed by the respondents were fat trim and price. Approximately 54 percent of the respondents listed these attributes. Asian pork buyers in Seattle

favor lean pork cuts with a maximum of 1/4 inch outside fat trim. The price of Western Canadian pork was perceived as being too high. Many of the respondents indicated that they would increase the proportion of Western Canadian pork they purchased if its price decreased.

Meat colour and freshness were also mentioned as important. The respondents preferred the “normal” colour on the pork colour chart (Agriculture Canada, Pub. 5180/B). The Seattle respondents appeared to prefer pork of a slightly paler colour than did respondents in Vancouver. Although freshness was listed by several respondents as an important attribute, no indication was given as to the acceptable level of freshness.

Consistency of product and packaging were also mentioned by some Seattle respondents. Packaging appeared to be more important to distributors and wholesalers than to retailers. In “Little Vietnam”, the colour of the pork skin was cited as an important attribute by some retailers. These retailers prefer pork with a pale white skin and mentioned that they particularly favored one supplier because of this attribute. The colour of pork skin did not appear to be an important attribute in the Chinatown portion of the Seattle market. Regular and consistent supply was also stressed by some respondents who perceived a need for Western Canadian packers to improve in this area.

4.3.3.1.2. Marketing And Shipping Specifications

All the Seattle respondents indicated that they preferred to purchase primal cuts rather than sides. Retailers and distributors in Seattle do not have the facilities to process sides. Primal cuts were also favored as a way to reduce labour costs. The majority of the respondents did not express interest in case-ready products. Most respondents stated that case-ready products were “western style” cuts and not “Asian cuts” and therefore were not suitable for the Asian market. In addition, case ready products were seen to be too expensive.

Respondents were asked to list and describe the pork cuts they purchase or would prefer to purchase. The cuts most commonly listed were: shoulder butt (bone-in or boneless); shoulder picnic (boneless or bone-in); loins (bone-in or boneless); legs (bone-in); spareribs; and bellies (boneless or bone-in). Respondents stated that all the cuts must be lean and of a consistent shape and size. Western Canadian shoulder butts were perceived as having a superior “square” shape.

4.3.3.1.3. Branding And Origin

Respondents in Seattle showed a marked preference for pork from Midwestern packers. Approximately 64 percent of respondents indicated that they would choose pork from the Midwest United States, all other things being equal. This conflicts with the high ratings Western Canadian pork received in the semantic differential portion of the survey. A variety of reasons, such as loyalty to country, perceived nearness of supply and customer familiarity with United States pork, were given for this choice. When asked why they would choose Midwest pork over Western Canadian pork (qualitative question 4) respondents most frequently listed price, availability and familiarity with United States pork as reasons. Support for American products was also given as a reason for this choice.

The respondents were asked to list their five most preferred pork suppliers (qualitative question 3). The respondents most frequently listed IBP, Montford and Excel as good suppliers of pork. Among Western Canadian packers, Fletcher's was mentioned most frequently. Intercontinental was also mentioned, but not as frequently as Fletcher's. These Canadian suppliers were not mentioned as frequently as IBP, Montford and Excel. Several distributors and brokers were also mentioned. The respondents were familiar with a variety of pork suppliers. However, the closure of Intercontinental's Vancouver plant may result in less familiarity with Western Canadian pork in the Seattle market in the future.

The majority of the respondents (64 percent) favored branding Western Canadian pork. They stated that pork branded as Western Canadian would be positively received by their customers due to the reputation of Canadian pork as a high quality product. The two respondents who did not favor branding gave two distinct reasons. These were (1) that they did not sell Canadian pork and therefore did not care about branding, and (2) that Asian consumers are concerned with the quality of pork and not its origin.

4.3.3.1.4. Views On The Future Of The Seattle Asian Fresh Pork Market

According to many of the respondents, consumption of pork among the Asian-origin population in Seattle should remain steady or increase slightly. This growth was attributed to population growth and not to an increase in per capita consumption. Most of the respondents indicated that per capita consumption would remain stable at its current level. Some respondents expected an increase in the number of "Asian grocery" stores due to a shift away from specialized meat shops and growth in the Asian population. A few respondents indicated that they expected more Asians to shop at "western" stores as the Asian population gradually assimilates to "American" purchasing patterns. One respondent expected that more pork would be consumed in restaurants and less pork would be purchased at retail stores. Results for Portland are presented next.

4.4. PORTLAND

4.4.1. MARKET STRUCTURE

As was also found for Seattle, the retail pork market that caters to Asian consumers in Portland is dominated by many small groceries. None of these specialize in meat sales. The Asian groceries selling fresh pork also offer a variety of goods that are traditionally sold in a grocery. In Portland, Chinatown overlaps the "Old Town" near downtown. Portland's Chinatown is less busy than Vancouver's and Seattle's due to the fact that Portland's Asian community is smaller (Tables 5 and 6) and the Asian population in Portland is more scattered throughout the city.

In metropolitan Portland, at least 12 Asian groceries were observed which offer meat and fresh pork. A few of these are located in Chinatown and the others are located in different parts of the city. The majority of them are located in the southeast part of the city and there are some Asian groceries in Beaverton, a southwest suburb of Portland. There are no "Asian chains" in Portland although we observed at least one large supermarket which offers fresh pork. As observed for Seattle, fresh pork is purchased by retailers as sub-primal cuts and is further processed at the store

and packaged using styrofoam trays and plastic wrap. Only one Asian grocer operates in the same style as in Vancouver's Chinatown. In this grocery, fresh pork is displayed unwrapped on trays at the counter. The customer can choose the type of cuts and desired quantity.

In Portland, customers of Asian groceries are of many different ethnic backgrounds. The main groups observed were Chinese, Vietnamese, Japanese and Korean. There are no pork packers in the Portland metropolitan area. However, two small pork packers are located south of Portland and these supply fresh pork in Portland. One of them is also a wholesaler and supplies several Asian groceries in the Portland metropolitan area.

As also noted for Seattle, brokers, distributors and wholesalers in Portland service a large part of this market. Product from Canadian packers is present in the Portland fresh pork market, mainly from Fletcher's and Gainers. However, both packers have a limited role in Portland's Asian fresh pork market.

4.4.2. QUANTITATIVE RESULTS: THE SEMANTIC DIFFERENTIAL SCALE RESPONSES AND ANALYSIS

The Portland respondents' qualitative ratings on important pork attributes led to the order in which the semantic differential results are discussed below. Retailers and distributors results are discussed separately. The semantic differential scale ratings for Portland respondents are given in Table 13 and Figure 3.

4.4.2.1. Retailers

Only three retailers were able to give semantic differential scale ratings for Western Canadian pork. Thus, the results discussed below must be viewed with some caution.

4.4.2.1.1. Product Quality Assessments

4.4.2.1.1.1. Price

Table 13 shows that price was considered by retailers to be more reasonable for Western Canadian pork (1.67) while Midwest United States pork was considered to be more expensive (0.62). Canadian pork prices are largely based on prices in the United States, since this is the longest North American market, which in turn implies that United States and Canadian pork prices should be competitive (Peat Marwick, 1989). However, differences in production costs arising from economies of scale and labor costs between Canadian pork packing plants and United States pork packing plants may explain any price differences between Midwest United States and Western Canadian pork (Macmillan et al., March 1994 and Wilson, Dec., 1996) As noted earlier, in Section 2, British Columbia and Alberta have a slight transport cost advantage over the Midwest United States. This may offset some differences in production costs. However, few respondents purchase Canadian pork on a regular basis. Most of the Portland respondents, particularly the small Asian grocery outlets, believe that Alberta pork plants are situated further

from Oregon than are Midwest United States pork plants. Most of these respondents were unable to give semantic differential scale ratings for Western Canadian pork.

4.4.2.1.1.2. Meat color

Asian retailers in Portland reported the meat colour of pork from the Midwest United States and Western Canada to be acceptable. Mean scores were 1.33 for Western Canada and 2.12 for the Midwest. Meat color is usually associated with freshness which is viewed to be the most important attribute of pork for this market. The higher rating for United States pork may be due to the perception that Midwestern packers are closer to Portland than Western Canadian packers. It may also be due to the lack of familiarity with Western Canadian pork. Some respondents in Portland stated that they would accept meat color a little paler than normal. Fresh pork in Portland is sold to retailers in cryovac, as boxed pork, in contrast to being sold as carcasses, as in the Vancouver market. This may explain the difference in buyers' preferences regarding meat color between these two regions.

4.4.2.1.1.3. Fat trim

The fat trim of Western Canadian pork was rated on average at 2.67 and Midwest pork was rated at 1.12.¹¹ Western Canadian pork was perceived to be trimmed close to 1/4 inch while United States pork is perceived to be trimmed close to 1 inch. Published opinion (Nunes, March 1996) suggests that international pork importers perceive United States pork to contain too much external fat.

4.4.2.1.1.4. Other attributes

Portland retailers rated overall pork quality positively for United States and Canada. The mean score was lower for pork from Western Canada (1.33) than the Midwest United States (2.0). Although most respondents did not purchase Canadian pork on a regular basis, they perceive it as being acceptable in terms of overall quality. The perception that the fat color of United States pork is more yellow than is the fat color of Canadian pork does not exist among Asian retailers in Portland. Respondents gave a higher rating to Midwest United States pork (2.0) compared with 0.67 for Western Canadian pork, suggesting that they perceived the fat color of United States pork to be whiter than Canadian pork.

Western Canada obtained a higher score for food safety standards (2.0), relative to Midwest United States (1.5). However, most respondents were not aware of food safety standards in Western Canada and so these results must be interpreted with caution. Respondents were more aware of the food safety standards of the United States, but the results may indicate a perception that food safety standards could be improved in the United States. Pork from Western Canada was rated higher than from the Midwest on water content, with a score of 3.0 for Canada and 2.14 for the United States. Respondents appear to be satisfied with water content in pork originating from both the Midwest and Western Canada.

¹¹ Differences between mean scores are statistically significant

Retailers were not satisfied with the variety of cuts offered by suppliers from either nation. However, the Midwest was perceived to be a slightly better supplier in terms of the variety of pork cuts, with a mean score of 0.37, compared with 0 for Western Canada. Western Canada was also rated lower in terms of consistency of shipments, with a mean score of 0.67 compared with 1.14 for the Midwest. Again, the results suggest that this feature could be improved for both sources. The low rating for Canadian pork reflects retailers' lack of familiarity with Western Canadian pork. In the United States there is trade opinion that international pork importers would like United States pork to be more consistent (Nunes, March 1996).

4.4.2.1.2. Promotional Activity Assessments

4.4.2.1.2.1. Service and assistance

Table 13 shows that the mean score for service and assistance was rated higher for Midwest packers (1.25) than for Western Canada (0.67). Again, these results suggest that service and assistance could be improved for both Midwest and Western Canadian pork suppliers. For Western Canada, the rating suggests that pork buyers are almost neutral regarding service and assistance from pork packers. However, these results must be interpreted with caution since in Portland, Asian retailers do not directly trade with packers and are unfamiliar with the service and assistance of Canadian packers.

4.4.2.1.2.2. Awareness of promotion

Mean scores were negative for both the Midwest and Western Canada regarding awareness of pork promotion. The Midwest was rated lowest, at -1.12, compared with -0.67 for Western Canada. Asian retailers were unaware of any promotional activities conducted by the Canadian pork industry.

4.4.2.2. Distributors

4.4.2.2.1. Product Quality Assessments

4.4.2.2.1.1. Price

Similar to Seattle, distributors in Portland considered Western Canadian pork to be more expensive than Midwest pork. Canadian pork was rated at -1.0 while Midwest pork was rated at -0.33.

4.4.2.2.1.2. Meat Colour

Distributors in Portland gave very different ratings for meat colour. The distributors interviewed rated Western Canadian pork at 2.0 and Midwest United States pork at 1.33. The colour of pork from both nations was considered to be acceptable with Western Canadian pork seen as having a more desirable colour. This difference in ratings from those reported by retailers most likely arises from the distributors' greater familiarity with Western Canadian pork.

4.4.2.2.1.3. Fat Trim

Distributors share the perception that Western Canadian pork is leaner than Midwest pork, but did not rate the pork from either source to be as lean as did the retailers. Distributors rated Western Canadian pork at 2.0 and Midwest pork at 0.33.

4.4.2.2.1.4. Other Attributes

Distributors in Portland rated Western Canadian pork higher than Midwest pork for overall pork quality. The mean scores were 2.17 for Western Canada and 0.83 for the Midwest. This rating is very different from the ratings given by retailers in Portland and may be due to the distributors' greater familiarity with Western Canadian pork. Western Canadian pork and Midwest United States pork were rated positively on fat colour. The mean scores were 1.67 for Western Canada and 1.5 for the Midwest, suggesting that the fat colour of pork from both regions was perceived to be white, rather than yellow.

Western Canada was rated lower (0.6) than the Midwest (1.0) for food safety standards. Distributors in Portland perceive that the Midwest United States has higher food safety standards than does Western Canada. The relatively low scores for both nations indicate that the distributors perceive a need for improved food safety standards in both the United States and Canada.

Distributors in Portland gave similar ratings for water content for pork from both sources, at 1.67 for Western Canada and 1.5 for the Midwest. The water content of pork from both nations was acceptable. However, the Midwest was rated higher than Western Canada for the variety of cuts. Western Canada received a mean score of 1.0 while the Midwest received a mean score of 1.83. The Midwest is thus seen to be providing a greater variety of pork cuts.

Western Canada received a higher mean score for consistency of each shipment. Western Canada is thus perceived to produce pork of a more consistent quality than the Midwest United States. The mean scores for this attribute were 1.5 for Western Canada and 0.83 for the Midwest. Respondents did not explain why they rated Midwest United States pork lower for this attribute. Some respondents mentioned that loins from Western Canada are occasionally too large or too small. This is less of a concern for small Asian retailers, but is important for retail chains and large supermarkets.

4.4.2.2.2. Promotional Activity Assessments

4.4.2.2.2.1. Service and Assistance

Portland distributors did not mention any major problems with Western Canadian packers but did express a general lack of satisfaction with their service and assistance. Mean scores were 1.0 for Western Canada and 1.33 for the Midwest United States. The discussion of the qualitative results provides more details on this issue.

4.4.2.2.2. Awareness of Promotion

Distributors rated the Midwest positively in terms of promotion, with a mean score of 1.0, while Western Canada received a score of -0.83. This suggests a need for the Western Canadian pork industry to promote its product amongst distributors in Portland.

4.4.2.3. Portland Quantitative Analysis Summary

In summary, price, meat color and fat trim were considered to be major attributes of pork by Asian retailers and distributors in Portland. Western Canada is perceived to be the source of superior pork in terms of fat trim. However, Western Canada's pork was rated by distributors as more expensive, compared with Midwest United States pork. Meat color was considered to be acceptable for pork from both sources. Asian distributors rated Western Canadian pork more highly for the consistency of each shipment and overall pork quality than did Asian retailers. It appears that Western Canadian pork has a better "image" amongst distributors. Nonetheless, respondents were unaware of any promotional activities conducted by either the Western Canadian or United States pork industries.

4.4.3. QUALITATIVE ANALYSIS RESULTS

Generally, retailers and distributors in Portland gave similar responses to the open-ended questions. These are grouped in the following discussion.

4.4.3.1. Retailers and Distributors

4.4.3.1.1. The Main Pork Attributes Influencing Pork Buyers In Portland.

The most important pork attribute stressed by respondents was freshness. Approximately 86 percent of respondents cited this criteria. Most respondents did not mention what freshness means for them in terms of the number of days after slaughtering. However, some respondents noted that they do not accept pork cuts more than three days after the pig is slaughtered if they order from Midwest packers. Respondents who order pork from a local packer usually accept pork for a maximum of one day after the hog is slaughtered. Freshness is the main factor explaining why Asian grocers prefer to purchase their pork from a local packer. As was stated earlier, respondents also considered price, color and fat trim to be important pork attributes. The quality of packaging was mentioned, particularly by wholesalers. They want standard packaging which means cryovac boxed pork in the form of fresh, chilled pork.

Other characteristics that were mentioned were leanness, product availability and water content. Leanness was mentioned many times during the interviews. Asian and non-Asian consumers have a strong preference for lean pork in the Portland market. The availability of pork products from Western Canada seemed to be a concern for Portland pork buyers. It appears that pork from Western Canada is not always available. One respondent mentioned that pork bellies should be more available. In addition, pork buyers do not appreciate the fact that in the past some Western

Canadian packers were “in and out” in the Portland market and not always able to supply the Portland market on a regular basis.

4.4.3.1.2. Marketing and shipping specifications

Portland respondents were asked what Western Canadian packers could do to increase their market share in the United States Asian fresh pork market (Question # 5). Many respondents stressed that the Western Canadian pork industry should provide more information regarding its pork products and should conduct more promotional activities. One respondent suggested that education among United States food editors and nutritionists would help to convince Asian and non-Asian consumers and buyers to purchase Western Canadian pork. Another respondent suggested that the Western Canadian pork industry should initiate in-store demonstrations among Asian grocers, particularly those who are perceived to be the leaders in the city. If the leaders purchase Western Canadian pork, the other Asian grocers may follow. Other respondents mentioned that Western Canadian pork suppliers must convince pork buyers that Western Canadian pork is fresh and lean which is very important in the Asian fresh pork market. Some respondents mentioned that they would like to see more representatives or brokers of the Western Canadian packers, in order to increase the quality of service. As well, respondents stressed that regular and consistent supplies are important in the Asian fresh pork market and that Western Canadian pork packers must take these characteristics into consideration if they want to increase their market share.

Portland respondents noted that they prefer purchasing pork in sub-primal cuts rather than pork carcasses. Retailers and wholesalers do not have the facilities and the labor to cut meat in-store or in-warehouse. Boxed pork is the standard in Oregon in both Asian and non-Asian fresh pork markets.

Most Asian retailers are not interested at this time in purchasing case ready pork from the Midwest United States or Western Canada (Question # 8). They prefer cutting meat themselves. This allows them to cut different sizes and trims, depending on customer needs. Some Asian grocers could be interested in case-ready pork, in order to reduce labor costs, but expressed concern about the price of case-ready products. Some brokers and wholesalers showed an interest regarding case-ready pork, but only for non-Asian markets. They believe that Asian retailers will continue to purchase sub-primal cuts and further process pork in-store.

Portland respondents were asked to list and describe the pork cuts they would prefer to buy (Question #3). Those cuts were: shoulder butt (boneless or bone-in); shoulder picnic (cushion meat - boneless or bone-in)¹²; legs (boneless or bone-in); loins (boneless or bone-in); bellies (boneless or bone-in); and spareribs.

Respondents expressed a strong preference for lean cuts. The size of the cuts did not seem to be a concern for pork buyers, although some respondents mentioned that they have a preference for

¹² Cushion meat is the leanest part of the shoulder picnic. Asian retailers can separate this cut themselves if the cut is not available from the pork packers.

large loins. Asian retailers also purchase pork offal such as stomachs, pig feet, neckbones, ears and kidneys.

4.4.3.1.3. Branding and origin

Portland respondents were divided regarding the best North American source of pork (Question # 2). Approximately 45 percent of them would choose Midwest pork and 45 percent would choose Western Canadian pork. Other respondents did not make a choice between Canada and the United States. Some respondents stressed that they would choose Midwest pork because it is a local product and others simply because they do not know Canadian pork. Some respondents would choose Canadian pork because of its flavour, leanness and smaller sizes of specific cuts, such as the shoulder.

Respondents were asked why they would buy Midwest pork instead of Western Canadian pork (Question # 4). Several respondents mentioned price and availability as a reason to choose Midwest pork. They consider Midwest pork to be cheaper and more available than Canadian pork. Asian retailers supplied by local packers mentioned that freshness and frequent deliveries are the reasons why they purchase pork from local packers. Some brokers and wholesalers prefer Midwest pork due to standard cut sizes and because they want to support United States products.

Qualitative question # 3 asked respondents to list and rank their five most preferred packers/processors involved in the fresh pork market in their region. Several Asian retailers mentioned the name of a local packer or local distributors and wholesalers who supply the Asian market. None of these retailers were able to name a Midwest United States pork packer or a Western Canadian pork packer since they do not directly trade with large pork packers. Distributors first mentioned Midwest United States packers such as IBP, Excel and Farmland and then the Western Canadian packers, Gainers and Fletcher's. Intercontinental was not mentioned.

Respondents were equally divided regarding branded pork products in the Portland fresh pork market. Approximately 50 percent of them stressed that branding would not be positively received by Asian consumers. They stated that Asian consumers mainly purchase pork based on freshness and price and are not concerned with the origin of pork. Another 50 percent of respondents (mainly distributors) indicated interest in branded pork products from Western Canada. A large majority of those who support branding believe that it would be useful to mention the origin of pork from Canada, since Canadian products are well perceived in the United States. Some respondents cited that the identification of the national origin, and a brand name such as a packer name, would be positively received by consumers. Only one respondent mentioned that identifying the origin of Western Canadian pork might be harmful, since American consumers prefer to purchase United States products. It was observed that the majority of Asian retailers were opposed to branding, while the majority of distributors were in favor of the branding and identification of Western Canadian fresh pork.

4.4.3.1.4. Views On The Future Of The Portland Asian Fresh Pork Market

According to several Portland respondents, consumption of pork should increase among the Asian population. Asian people consider pork to be leaner than beef and as meat consumption increases

among Asian people, pork will be the preferred meat. Few respondents foresee a drop in pork consumption, while some respondents expect that the demand for pork will remain steady. The majority of respondents believe that total pork consumption should increase in the Portland metropolitan due to Asian newcomers from California and immigration from Asia. Respondents stressed that Asian demand for fresh lean pork will continue in the future. Some respondents mentioned that the new Asian generation will gradually be assimilated into the American “style” of eating and that consumption patterns will become similar to other American peoples. It was suggested that the new generation will shop more in “Western style” supermarkets, at the expense of small Asian groceries. However, it was suggested that small Asian groceries should remain in business, particularly for older Asian consumers and other Asian consumers who desire a personalized service. It appears that more fresh pork will be sold to Asian people through large supermarkets or club stores because pork is usually cheaper in these stores.

4.4.4. SUMMARY OF SURVEY ANALYSIS FOR VANCOUVER, SEATTLE AND PORTLAND

The structure of the Asian ethnic market for fresh pork is different in each city that was surveyed. In Vancouver, fresh pork sides are purchased directly from local packers and are processed in the store. Styrofoam trays and clear plastic wrapping are not used. There are few distributors involved in the Asian market in Vancouver. In Seattle, fresh pork is purchased as primal cuts and processed in store. Styrofoam trays and plastic wrap are used. The way in which fresh pork is sold by Seattle’s Asian retailers closely resembles that of a non-Asian, e.g. Safeway, store. Asian retailers in Seattle purchase fresh pork directly from local or Midwest packers and through brokers and distributors. Asian retailers in Portland also purchase fresh pork as primal cuts. Styrofoam trays and plastic wrap are used. Asian retailers in Portland purchase pork almost exclusively through distributors, wholesalers, brokers or the local packer.

Respondents in Vancouver gave higher semantic differential scale ratings to Western Canadian pork. This may be due to the fact that only Western Canadian pork is available in Vancouver and the respondents had no other pork to compare it to. Vancouver respondents rated Western Canadian pork favorably for overall quality, meat colour, fat trim and fat colour. Service and assistance from packers was viewed to be very good. Respondents in Vancouver perceived Western Canadian pork as expensive. Vancouver respondents were unaware of promotional activity by the Western Canadian pork industry.

Asian retailers in Vancouver identified meat colour, fat trim and price as the most important attributes of fresh pork. Meat colour serves as an indicator of freshness to Asian consumers. Some of the respondents consider pork from Alberta to be superior to pork produced in British Columbia.

Freshness is also a very important attribute in the Vancouver Asian market. Several of the respondents stressed the importance of frequent deliveries of fresh pork by packers who are not located near Vancouver. The closing of Intercontinental’s Vancouver plant will increase the importance of delivery schedules in this market. Respondents in Vancouver were unaware of promotional activity by the pork industry.

Retailers in Seattle and Portland rated Western Canadian pork as superior to Midwest pork in terms of overall quality, fat trim and consistency of each shipment. This is shown in Tables 12 and 13. Table 14 which combines the responses from Portland and Seattle, confirms the conclusions from the individual analysis of each of these United States cities. Western Canadian pork enjoys a reputation for superior quality, particularly among Seattle's Asian retailers. Distributors in Seattle and Portland rated Western Canadian pork to be superior to Midwest pork for overall quality, fat colour, fat trim and consistency of each shipment. Figures 1,2 and 3 graph the ratings of Asian retailers and distributors in Seattle and Portland for these attributes.

Distributors and retailers in Seattle and distributors in Portland perceived Western Canadian pork as expensive and were unaware of promotional activity by the Western Canadian pork industry. For most American respondents, Canadian safety standards are perceived to be slightly lower than United States standards. Western Canadian suppliers are also believed to provide less variety in cuts than are Midwest United States suppliers.

Respondents in Seattle and Portland also stressed freshness, meat colour, fat trim and price as the most important attributes of fresh pork. An exact definition of freshness was not determined but it appears to be influenced by the proximity of packing plants to the buyer. Three days may be acceptable to certain buyers in Portland but this drops to one day if the pork is ordered from a local packing plant. Asian retailers in Seattle consider Western Canadian pork to be superior to Midwest United States pork. Retailers and distributors in Seattle purchase fresh pork from a wide variety of suppliers, implying a need for producers and suppliers of Western Canadian pork to clearly differentiate their product in this market.

In Portland, distributors are very influential in the Asian market. Distributors in Portland also consider Western Canadian pork to be superior to American pork. Asian retailers in Portland are not familiar with Western Canadian pork. This lack of familiarity appears to serve as a barrier to increased sales in Portland's Asian market. It appears that sales of Western Canadian pork in Portland's Asian market are limited, despite its reputation for superior quality. However, in terms of volume, the potential of Portland's Asian market is clearly lower than for Seattle.

There are no major pork slaughtering plants near Seattle or Portland. This fact, combined with Asian buyers' emphasis on freshness, makes the frequency and timing of deliveries in the Asian market very important. Respondents in Seattle and Portland rated Western Canadian pork as more expensive than Midwest United States pork. This appears to be a major barrier to increased sales of Western Canadian pork in the Asian market. Many of the respondents believe that the overall quality of Midwest pork is increasing. The importance of price in pork buying decisions can be expected to increase as the perceived quality of Midwest pork improves.

5. MARKETING STRATEGIES

5.1. STRATEGIES FOR PRODUCER GROUPS

5.1.1. SEATTLE AND PORTLAND

Western Canadian pork presently enjoys a reputation for superior quality amongst retailers in Seattle and distributors in Portland. The Western Canadian pork industry should take advantage of this reputation.

There is a need to provide more information and education regarding Western Canadian pork to pork buyers and consumers in the PNW, particularly in Portland. The Western Canadian producer groups could provide information to United States nutritionists and food editors regarding the characteristics and advantages of Western Canadian pork. Nutritionists and food editors may inform Asian consumers of the advantages of Western Canadian pork. This information program would have to focus on freshness, leanness, meat colour and quality. In-store demonstrations among Asian grocers, particularly those who are perceived to be the leaders in their respective cities, should be considered. If the leaders purchase Western Canadian pork, the other Asian grocers may follow. Local wholesalers and brokers represent a good resource in organizing in-store demonstrations among Asian retailers. It is essential to inform Asian retailers in Portland regarding the proximity of Western Canadian packers to the PNW, compared with Midwest packers.

Respondents were divided regarding the merits of identification of origin and branding Western Canadian pork. However, based on our findings, we believe that it is necessary for Western Canadian producers to differentiate their products in the PNW fresh pork market by identifying this as Western Canadian pork. It is of interest to note the strategy of Farmland.¹³ To follow Farmland's strategy would involve the use of a small label that indicate the origin as being "Western Canada" or "Canada". Pork packers could also include a brand name, such as a packer name, on the same label. Labels would have to be supplied to all Asian retailers to be put on individual fresh pork packaging. Contact with retailers to stimulate and check use would be necessary. This identification and branding program could be considered as a close complement to the proposed informational and promotional program.

Western Canadian pork was perceived to be expensive. Western Canadian hog producers must maintain and improve the productivity and efficiency of their operations in order to remain competitive with Midwest United States producers. Western Canadian hog packers and producers should consider contracting arrangements to supply the high quality, lighter weight hogs required in the Asian market. The targeting of some hog production to this market would help in ensuring a reliable supply of high quality fresh pork.

¹³ Fred Meyer, a large retail chain in Portland, puts Farmland's labels on individual fresh pork packaged items sold in its stores.

5.1.2. VANCOUVER

Asian retailers in Vancouver were unaware of promotional activity by the Western Canadian pork industry. Pork groups should consider a promotional program targeted at the Asian ethnic market. The program should focus on the leanness and overall quality of Western Canadian pork. Such a program would also reinforce, and perhaps strengthen, the reputation of Western Canadian pork and help to deter the entry of pork from other nations in this market. This program may also result in an increase in the demand for fresh pork by Asian consumers.

Hog producers should also consider targeting a portion of hog production to the Vancouver Asian market. This market demands lean hogs of a lighter weight than normally produced in Western Canada. Targeted production would help to ensure a consistent supply of high quality pork for this market. The closing of the Intercontinental packing plant in Vancouver will increase the importance of reliable supplies of fresh pork.

Hog producers in British Columbia must ensure that hogs produced in their province are of equal quality to those produced in Alberta. Western Canadian pork was perceived to be expensive. Western Canadian hog producers must maintain and improve the productivity and efficiency of their operations in order to remain competitive with pork from other sources and with other meats, such as beef and chicken.

5.2. STRATEGIES FOR CANADIAN PACKERS

5.2.1. SEATTLE AND PORTLAND

Because freshness is so important to Asian pork buyers, it is essential to provide timely and frequent deliveries to Asian grocers and distributors. It is also essential to ensure that there is enough fresh pork available to meet demand. Consistency and availability of supply were frequently identified as areas that Western Canadian packers can improve. To pursue this market segment, Western Canadian packers should consider contracting with producers to supply hogs that meet the specific preferences of this market.

The best strategy to extend Western Canadian sales to Asian pork buyers in the Portland market is to establish sales through an existing wholesaler/distributor or a well known broker. It is not recommended to pursue direct sales to Asian retailers since they are not used to trading with packers, but are used to trading with local distributors. In contrast, Seattle's Asian retailers deal directly with packers, therefore entry through a broker or distributor is less desirable. Any expansion of activity in this market by a major packer, such as Fletcher's or Gainers, should be done through direct sales. A smaller packer wishing to enter the Seattle market will most likely have to use a distributor. In this case, we recommend dealing with one of the larger and more influential distributors in Seattle's Asian market, such as Tri-City or Plymouth Poultry. Such a packer should consider establishing contracts with individual hog producers to ensure an adequate supply of fresh pork for this market segment. Since Seattle's retailers and distributors are able to deal with a wide variety of suppliers, failure to provide a reliable supply may result in a loss of market share.

The results of the qualitative sector of the survey indicate that price is very important to Asian grocers and distributors. The quantitative results show that respondents consider Western Canadian pork to be more expensive than Midwest United States pork. Western Canadian packers must price competitively.

5.2.2. VANCOUVER

Packers located outside the Vancouver area should pay careful attention to the frequency and timing of deliveries to the Asian market. This is an issue on which the respondents indicated a need for improvement by non-local packers. Packers in the Vancouver area should consider contracting with local hog producers to obtain the hogs needed to fulfill the demands of the Asian market. This could help to reduce the variability of quality and supply perceived by respondents in Vancouver. Western Canadian pork packers must maintain and improve the efficiency of their operations in order to remain competitive with other meats such as beef and chicken.

Consumer perceptions of a product and the marketing practices related to it have a major influence on the decision to purchase that product. As the Asian populations of the PNW and Vancouver grow, the demand for fresh pork in these markets can be expected to increase, as will competition among suppliers. The perceptions of Asian retailers and distributors regarding fresh pork from Western Canada are likely to have an increasing effect on the sales of Western Canadian pork in the Asian ethnic market.

6. EVALUATION OF RESEARCH METHODOLOGY

This project applied three types of survey questions: semantic differential, stated preference (Appendix C) and open-ended questions. All three types of questions were used to determine the importance of various attributes of fresh pork to Asian pork buyers. Two of the methods, semantic differential scales and open-ended questions, proved most useful in this task.

The semantic differential questions worked very well in interviews with Asian retailers. These interviews were usually conducted in the store. The semantic differential questions were suited to this busy environment and were also useful in this cross-cultural and cross-linguistic setting. The open-ended questions also worked well in this environment. The respondents were knowledgeable about the attributes of fresh pork and about their market. Thus, they were able to provide both ratings of and opinions about fresh pork attributes. Many of the respondents stressed freshness. This attribute should be included in future semantic differential scale questions for Asian retailers and distributors. The semantic differential scale question dealing with service and assistance from packers should be made more specific. Such a question or questions should deal specifically with the frequency and timing of deliveries and the reliability of supply.

As with all personal interview methods, there is the possibility of an “interviewer effect” during the questioning. That is, some of the ratings and responses may have been given in an effort to please the interviewer. An alternative approach is to conduct future surveys by mail, although it would be more difficult to identify and obtain feedback from the target group for a mail survey.

Cultural and linguistic barriers may also be more difficult to overcome in a mail survey. A mail survey may require much assistance from an industry or cultural group.

While the stated preference questions worked well with distributors, they proved to be unsuitable for interviews with Asian retailers. Stated preference questions require a quiet atmosphere and more concentration than was available in the retail store environment. We do not recommend the use of stated preference questions when interviewing retailers and butchers in the place of work. Future stated preference tasks should not include the “cuts” attribute. Since only sides are purchased in Vancouver, and only primal cuts are purchased in Seattle and Portland, this attribute does not reflect a relevant trade-off in these markets.

7. CONCLUSIONS

7.1. PRIMARY RESULTS

The respondents in this study identified freshness, meat colour, price and fat trim as the most important attributes of fresh pork in the Asian ethnic market. Western Canadian pork enjoys a reputation for superior quality amongst retailers and distributors catering to Asian consumers in Seattle, and among distributors in Portland. Western Canadian pork is considered to be superior to Midwest pork for meat colour, fat trim, overall quality and consistency of each shipment. Western Canadian pork was perceived to be expensive by respondents in this study. The respondents to this survey were unaware of promotional activity by the Western Canadian pork industry.

Asian retailers and distributors in Vancouver prefer to purchase sides of pork. Asian retailers and distributors in Seattle and Portland prefer to purchase primal cuts. The cuts that are most commonly sold in Asian retail stores are: shoulder butt, legs, loins, bellies, and spareribs. Asian retailers in Vancouver deal directly with the packers. Distributors play a small role in Vancouver’s retail market. Asian retailers in Seattle deal with a variety of suppliers, including both packers and distributors. In Portland, retailers catering to Asian consumers trade almost exclusively with distributors.

7.2. FUTURE RESEARCH

A survey of Asian consumers in Vancouver, Seattle and Portland may be useful to determine if consumers share retailers’ emphasis on freshness, meat colour, fat trim and price. Such a survey would also determine if the reputation for superior quality of Western Canadian pork is also perceived by Asian consumers. Such a survey could be conducted by mail, with the assistance of Asian cultural or community groups. Shopper intercept surveys would require interviewers have appropriate linguistic skills for this market segment. A consumer-level survey would also be useful in determining the amount of shopping Asian consumers do in large supermarket chains (i.e. Safeway, Fred Meyers) and how much fresh pork they purchase in these stores. A consumer survey may also identify changes in shopping patterns that may be followed by second and third generation Asian -Americans.

San Francisco and Los Angeles have large Asian populations. Surveys of retailers and distributors in these markets should be undertaken to assess the potential for increased sales of Western Canadian pork in these markets. Such surveys should employ semantic differential and open-ended questions, as these proved to be the most effective techniques in this study. It may also be useful to survey Asian restaurants in the Pacific Northwest. Asian restaurants may also be a significant niche market for Western Canadian pork. A stated preference survey may be a useful tool for such a survey.

8. REFERENCES

- Agriculture and Agri-Food Canada. An Assessment of Selected Ethnic Food Markets in Canada. Market and Industry Services Branch. 1994.
- Agriculture and Agri-Food Canada. Livestock Market Review, Various issues from 1988 to 1995.
- Agriculture Canada. Pork Quality: A Guide to Understand Colour and Structure of Pork Muscle. Publication 5180/B. Unknown Date.
- Alberta Agriculture, Food and Rural Development. Imports-Exports. Market Analysis and Statistics Branch, unpublished data, 1988-1995.
- Barrie, A.J. "Market Opportunities for Alberta Pork: Connection to the World". Alberta Pork Congress, Red Deer, June 13-15, 1995.
- Brown, Don. The Pacific Northwest: Potential Markets for Alberta's Beef. Alberta Agriculture, Agri-Food Development, June 1983.
- Churchill, Gilbert A. Marketing Research: methodological foundations. 5th ed. Dryden Press, Chicago 1991.
- Dawson, Dau and Associates Ltd. Marketing Potentials for Alberta Pork in the Western United States. Northwest Economic Association, prepared for Alberta Agriculture, 1980.
- Duckworth, Barbara. "Industry anxiously awaits Maple Leaf's next move". The Western Producer, September 26, 1996.
- Duckworth, Barbara. "Maple Leaf buys major stake in Burns". The Western Producer, September 19, 1996.
- Friesen, Ron. "Pork producers claim some importers unfair". Manitoba Co-operator, October 24, 1996.
- Gale Research Inc. Statistical Record of Asian Americans. Gale Research Inc. 1993.
- George, Alan E. "A new Grading Grid for Alberta means thinking". Western Hog Journal, Fall Issue, 1994, p.41-42.
- Gill, C.O. and T. Jones. "The Display of Retail Packs of Ground Beef after their Storage in Master Packages under Various Atmospheres". Meat Science (37), 1994, p.281-295.
- Green, Paul E. Tull, Donald S., Albaum. Research for Marketing Decisions. Prentice Hall. N.J. (1988).
- Hawkins, Murray, H. North American Hog/Pork Study. Canada Department of Agriculture, Economics Branch. 1972.
- Kim Bo young, Renee. Unterschultz, J. R, Veeman, M., and Jelen, Paul. Analysis of the Korean Beef Market: A Study of Hotel Buyers' Perspectives of Beef Imports from three Major Sources Part I. Department of Rural Economy, University of Alberta. Staff Paper 96-07. 1996.
- Klassen, Mark. "What is Happening to Grading Grids in Western Canada". Proceedings, Alberta Pork Congress, June 13-15, 1995, p.32-35.
- Macmillan, J.B. Chorney and R. Richmond. "Red Meat Forum Project". Department of Agricultural Economics and Farm Management, University of Manitoba, Winnipeg, March 1994.

- Morris, Jim. “Real World Market Opportunities”. Alberta Pork Congress, Red Deer, June 11-13, 1996, p.21-28.
- Nagashima, A. “A Comparison of Japanese and U.S. Attitudes Towards Foreign Products”. Journal of Marketing. 34(1): 68-74 (1970).
- Nunes, K. “Global HACCP”. Meat and Poultry, May 1996 p. 16-18.
- Nunes, K. “United States Beef and Pork: Attitude Adjustment”. Meat and Poultry, March 1996, p.18-22.
- Pan Atlantic Consultants. Report on United States Processed Pork Markets. Volume 1: Strategic Market Report. Prepared for Canada Pork International and Agriculture and Agri-Food Canada, April 1994.
- Papadopoulos, N., Heslop, L.A. “An International Comparative Analysis of Consumer Attitudes Towards Canada and Canadian Products”. Canadian Journal of Administrative Sciences. 11(3) : 224-39 (1994).
- Peat Marwick. Studies in Canadian Export Opportunities in the United States Market: Pork and Processed Meat. Ottawa, July 1989.
- Statistics Canada, Quarterly Demographic Statistics. Cat 91-002, 1996.
- Statistics Canada. Apparent per Capita Food Consumption in Canada. Cat. 32-229, 1996.
- Tjaden, Tracy. “Provinces Feud over Intercon Cuts”. The Western Producer, December 12, 1996.
- Tower, C. “Meat Inspection Rules, not a problem”. The Western Producer, July 18, 1996, p.70.
- U.S. Department of Commerce. Statistical Abstract of the United States. Economics and Statistics Administration. 1996.
- United States D. A. and Oregon Department of Agriculture Service. Oregon Agriculture and Fisheries Statistics, 1994-1995.
- United States D. A. “The Final Rule on Pathogen Reduction and Hazard Analysis and Critical Control Point (HACCP) Systems”. Background Papers, Food Safety and Inspection Service, Washington, July 1996.
- United States D.A. Dairy, Livestock and Poultry: World Livestock Situation, October 1993.
- United States D. A. Livestock and Poultry: World Markets and Trade, October 1996.
- Unterschultz, James, Quagraine K.K., and Veeman, M. Consumer Preferences for Biopreservatives in Beef and Pork Packaging and Testing the Importance of Product Origin. Department of Rural Economy, University of Alberta. Project Report 96-03. 1996.
- Unterschultz, James, Quagraine K.K., and Vincent, M. Evaluating Quebec’s Preference for Alberta Beef. Department of Rural Economy, University of Alberta. Staff Paper 96-14. 1996.
- Veeman, Michele M. “Implications of NAFTA and GATT for the Canadian Red Meat Sector,” Canadian Journal of Agricultural Economics 42 (December 1994):473-483.
- Vincent, M., J. Unterschultz, M. Price and M. Lerohl. Evaluating the Quebec Beef Market: An Alberta Perspective. Department of Rural Economy, University of Alberta. Staff Paper 96-15. 1996.
- Wilson, B. “Canadian Packers Lose Hogs to the United States”. The Western Producer, December 19, 1996, p.15.
- Wilson, B. “Hog Exporters to Get Countervail Duty Rebate”. The Western Producer, October 10, 1996., p. 15.

9. APPENDIX A: TABLES AND FIGURES¹⁴

TABLE 1: ALBERTA SUPPLY AND DISPOSITION OF PORK (Thousand tonnes)*

Year	Production	International imports **	Total supply	Alberta Consumption ***	International exports **	Interprovincial exports ****
1988	120.0	0.5	120.5	68.8	27.6	24.1
1989	121.0	0.5	121.5	71.7	20.9	28.9
1990	144.0	0.5	144.5	66.6	39.3	38.6
1991	148.0	0.4	148.4	68.9	42.9	36.6
1992	179.0	1.9	180.9	74.8	43.1	63.0
1993	167.0	1.7	168.7	73.7	44.5	50.5
1994	169.0	3.1	172.1	76.8	44.0	51.3
1995	184.0	3.8	187.8	76.1	54.1	57.6

* Carcass weight ** Including fresh and processed pork *** Estimate, based on Canadian pork consumption **** Estimate including fresh and processed pork

Sources: Alberta Agriculture, Food and Rural Development (1988-1995)
Statistics Canada, Cat. 32-229 (1996)

TABLE 2: BRITISH COLUMBIA SUPPLY AND DISPOSITION OF PORK (Thousand tonnes)*

Year	Production	International imports **	Interprovincial imports ***	Total supply	British Columbia consumption ****	International exports **
1988	45.3	1.8	54.0	99.3	87.4	11.9
1989	45.3	2.1	60.3	107.8	91.9	15.8
1990	37.6	2.2	56.1	95.8	86.0	9.9
1991	35.0	2.8	58.7	97.2	89.5	7.7
1992	41.4	0.5	66.8	108.8	98.2	10.5
1993	40.9	0.6	69.0	110.5	97.9	12.6
1994	45.2	2.0	71.7	118.9	103.6	15.3
1995	41.3	0.8	78.0	120.1	104.2	15.9

* Carcass weight ** Including fresh and processed pork *** Estimate, including fresh and processed pork **** Estimate based on Canadian pork consumption

Sources: Alberta Agriculture, Food and Rural Development (1988-1995), Statistics Canada, Cat. 91-002 and Cat. 32-229, 1996
Agriculture and Agri-Food Canada: Livestock Market Review (1988-1995)

¹⁴ Tables 1,2,6,8,9 and 10 were constructed from several different sources. Some of the data given in these tables are estimates.

TABLE 3: WESTERN CANADA (ALBERTA AND BRITISH COLUMBIA) SLAUGHTER HOGS AND LIVE SLAUGHTER HOGS EXPORTS

Year	Slaughter hogs (thousand head*)			Live slaughter hogs exports (US) (thousand head)		
	Alberta	British Columbia	Total	Alberta	British Columbia	Total
1988	1,563.8	592.2	2,156.0	237.5	11.9	249.4
1989	1,605.6	592.0	2,197.6	243.1	---	243.0
1990	1,896.9	496.2	2,393.1	167.3	---	167.3
1991	1,898.5	461.9	2,360.4	157.1	---	157.1
1992	2,287.3	535.6	2,822.9	77.2	---	77.2
1993	2,135.2	539.2	2,674.4	53.3	---	53.3
1994	2,125.3	591.0	2,716.4	49.3	0.2	49.5
1995	2,225.0	542.2	2,767.6	100.5	0.5	101.0

* Carcass weight
Source: Livestock Market Review (1988-1995)

TABLE 4: WESTERN CANADA (BRITISH COLUMBIA AND ALBERTA) INTERNATIONAL PORK EXPORTS (Excluding U.S.) (Tonnes*)

Year	Japan				Others (excluding US)		Total	
	Fresh	Processed	Percent Fresh	Percent Processed	Fresh	Processed	Fresh	Processed
1988	1,397	24	43.4	24.2	1,782	75	3,179	99
1989	3,926	46	59.4	23.4	2,688	151	6,614	197
1990	1,906	88	42.8	40.4	2,545	130	4,451	218
1991	2,344	169	61.7	77.2	1,454	50	3,798	219
1992	5,869	610	70.0	61.8	2,517	377	8,386	987
1993	5,568	2,200	64.9	78.2	3,009	614	8,577	2,814
1994	7,224	1,508	68.6	73.8	3,306	199	10,530	1,707
1995	8,779	4,555	60.0	95.7	5,844	205	14,623	4,760

* Carcass weight
Source: Alberta Agriculture, Food and Rural Development (1988-1995)

TABLE 5: PORK EXPORTS (BRITISH COLUMBIA AND ALBERTA) TO THE US (Tonnes)*

Year	Washington		Oregon		PNW		Total US	
	Fresh	Processed	Fresh	Processed	Percent Fresh	Percent Processed	Fresh	Processed
1988	14,920	4,754	1,007	559	56.4	66.8	28,253	7,951
1989	9,844	4,947	2,763	604	58.9	65.0	21,390	8,546
1990	10,390	5,553	1,810	555	36.3	56.5	33,597	10,848
1991	9,182	5,642	2,102	451	33.3	48.2	33,893	12,646
1992	8,534	6,060	5,951	244	49.6	41.8	29,212	15,070
1993	8,313	7,155	5,444	212	51.8	38.1	26,570	19,344
1994	8,790	7,838	7,859	490	59.3	43.9	28,060	18,978
1995	7,323	4,806	12,212	1,476	56.7	38.3	34,434	16,413

* Carcass weight

Source: Alberta Agriculture, Food and Rural Development (1988-1995)

Note: Manitoba ships fresh pork to Washington, however the volume is relatively low compared to Alberta and British Columbia.

TABLE 6: POPULATION OF VANCOUVER, SEATTLE AND PORTLAND

City	Total Population	Total Asian Population	Chinese Population	Japanese Population	Vietnamese Population
Vancouver	1,380,729		130,680	10,340	7,705
Seattle-Tacoma	1,972,961	128,656	27,940	22,835	12,617
Portland	437,319	43,768	9,143	6,832	7,554

Sources: Statistics Canada 1994

Gale Research, Statistical Record of Asian Americans, 1993

TABLE 7: CURRENT AND PROJECTED POPULATION, WASHINGTON AND OREGON (THOUSANDS)

State	Current Population	Current Asian Population	Projected Population Year 2000	Asian Population Year 2000	Projected Population Year 2010	Asian Population Year 2010
Washington	5,431,000	318,000	6,070,000	424,000	7,087,000	635,000
Oregon	3,141,000	111,000	3,404,000	153,000	3,876,000	238,000

Source: Statistical Abstract of the United States, 1996

TABLE 8: PER CAPITA CONSUMPTION OF RED MEATS (Kg)

Year	Beef *		Pork *	
	Canada	United States	Canada	United States
1988	36.2	45.3	28.0	30.5
1989	35.2	44.2	28.6	30.2
1990	33.9	43.8	26.1	29.0
1991	33.2	43.7	26.5	29.4
1992	32.1	43.6	28.2	31.0
1993	30.8	42.7	27.4	30.6
1994	31.4	44.2	28.2	31.0
1995	31.4	44.6	27.7	30.7

* Carcass weight

Sources: Statistics Canada, Cat. 32-229, 1996

United States D.A., World Livestock Situation, 1992 and Livestock and Poultry; World Markets and Trade, 1996

TABLE 9: WASHINGTON SUPPLY AND DISPOSITION OF PORK (Thousand tonnes*)

Year	Production	Washington Consumption ***	Canadian Imports (AB and BC)	Market Share- Western Canada (%)	International/ Interstate Imports**	Total Supply
1988	9.8	141.5	19.7	13.9	112.0	141.5
1989	10.1	143.3	14.8	10.8	117.7	143.3
1990	10.4	141.1	15.9	11.3	114.8	141.1
1991	7.9	147.5	14.8	8.8	126.6	147.5
1992	7.9	159.9	14.6	9.1	137.4	159.9
1993	6.7	167.6	15.5	9.2	145.4	167.6
1994	6.4	168.4	16.6	9.9	145.4	168.4

* Carcass weight ** Estimate *** Estimate based on United States pork consumption

Sources: United States D. A. Agricultural Statistics 1988-1995

Alberta Agriculture, Food and Rural Development (1988-1995)

TABLE 10: OREGON SUPPLY AND DISPOSITION OF PORK (Thousand tonnes*)

Year	Production	Oregon Consumption ***	Canadian Imports (AB and BC)	Market share- Western Canada (%)	International/ Interstate imports **	Total supply
1988	20.3	83.6	1.6	1.9	61.7	83.6
1989	18.2	84.3	3.4	4.0	62.7	84.3
1990	14.8	82.4	2.4	2.9	65.2	82.4
1991	12.2	85.8	2.6	3.0	71.0	85.8
1992	12.0	92.1	6.2	6.7	73.9	92.1
1993	11.9	92.8	5.7	6.1	75.2	92.8
1994	11.8	95.7	8.3	8.7	75.6	95.7

* Carcass weight ** Estimate *** Estimate based on United States pork consumption

Sources: Oregon Agriculture and Fisheries Statistics, 1994-1995

United States D.A., World Livestock Situation, 1992 and Livestock and Poultry: World Markets and Trade, 1996

United States, Department of Commerce, 1996

Alberta Agriculture, Food and Rural Development (1988-1995)

TABLE 11: VANCOUVER QUANTITATIVE SEMANTIC DIFFERENTIAL SCALE RESULTS ON PRODUCT QUALITY AND PROMOTIONAL ACTIVITY (RETAILERS AND DISTRIBUTORS)

Attributes	Western Canada	Midwest United States
Overall pork quality	1.60 (10)***	0 (2)
Meat color	1.40 (10)	-1 (2)
Fat color	1.90 (10)	0 (2)
Fat trim	1.50 (10)	-0.50 (2)
Food safety standards	1.33 (9)	2.00 (1)
Water content	1.20 (10)	0.50 (2)
Price	-1.60 (10)	1.00 (2)
Variety of cuts	1.30 (10)	-1.00 (2)
Consistency of each shipment	1.40 (10)	1.00 (2)
Service and Assistance	1.80 (10)	1.00 (2)
Awareness of promotion	0.30 (10)	-1.00 (2)

* Mean scores. None of the mean scores are statistically significantly different from each other at the at 5% level

*** Number of respondents of each question is the number in brackets.

TABLE 12: SEATTLE QUANTITATIVE SEMANTIC DIFFERENTIAL SCALE RESULTS ON PRODUCT QUALITY AND PROMOTIONAL ACTIVITY

Attributes	Retailers		Distributors	
	Western Canada	Midwest US	Western Canada	Midwest US
Overall pork quality	2.75 (4) ***	1.30 (5)	1.67 (3)	1.20 (5)
Meat color	2.50 (4)	1.82 (6)	1.67 (3)	1.40 (5)
Fat color	2.00 (4)	1.09 (6)	1.33 (3)	0.20 (5)
Fat trim	2.00 (4)	0.73 (6)	1.33 (3)	1.60 (5)
Food safety standards	1.50 (2)	1.78 (4)	0.67 (3)	1.40 (5)
Water content	2.00 (4)	2.18 (6)	1.67 (3)	2.00 (5)
Price	-1.00 (4)	-0.09 (6)	-1.33 (3)	0.40 (5)
Variety of cuts	1.25 (4)	1.45 (6)	1.00 (3)	2.00 (5)
Consistency of each shipment	3.00 (4)	1.27 (6)	1.33 (3)	0.60 (5)
Service and Assistance	3.00 (4)	1.10 (5)	0.67 (3)	0.00 (5)
Awareness of promotion	-0.25 (4)	-0.45 (6)	-1.00 (3)	-0.20 (5)

* Mean scores.

** Mean scores are statistically significantly different from each other at the 5% level.

*** Number of respondents of each question is the number in brackets.

TABLE 13: PORTLAND QUANTITATIVE SEMANTIC DIFFERENTIAL SCALE RESULTS ON PRODUCT QUALITY AND PROMOTIONAL ACTIVITY

Attributes	Retailers		Distributors	
	Western Canada	Midwest US	Western Canada	Midwest US
Overall pork quality	1.33 (3) ***	2.00 (6)	2.17** (6)	0.83** (6)
Meat color	1.33 (3)	2.12 (8)	2.00 (6)	1.33 (6)
Fat color	0.67 (3)	2.00 (8)	1.67 (6)	1.50 (6)
Fat trim	2.67 (3)	1.12 (8)	2.00 (6)	0.33 (6)
Food safety standards	2.00 (3)	1.50 (8)	0.60 (5)	1.00 (6)
Water content	3.00 (2)	2.14 (7)	1.67 (6)	1.50 (6)
Price	1.67 (3)	0.62 (8)	-1.00 (5)	-0.33 (6)
Variety of cuts	0.00 (3)	0.37 (8)	1.00 (5)	1.83 (6)
Consistency of each shipment	0.67 (3)	1.14 (7)	1.50 (6)	0.83 (6)
Service and Assistance	-0.67 (3)	1.25 (8)	1.00 (5)	1.33 (6)
Awareness of promotion	-1.33 (3)	-1.12 (8)	-0.83 (6)	1.00 (6)

* Mean scores.

** Mean scores are statistically significantly different from each other at the 5% level.

*** Number of respondents of each question is the number in brackets.

TABLE 14: SEATTLE AND PORTLAND COMBINED QUANTITATIVE SEMANTIC DIFFERENTIAL SCALE RESULTS ON PRODUCT QUALITY AND PROMOTIONAL ACTIVITY (RETAILERS AND DISTRIBUTORS)

Attributes	Western Canada	Midwest US
Overall pork quality	2.06 (16)***	1.42 (24)
Meat color	1.94 (16)	1.80 (25)
Fat color	1.47 (16)	1.58 (25)
Fat trim	2.00 (16) **	0.76 (25)
Food safety standards	1.08 (13)	1.48 (23)
Water content	1.93 (14)	2.00 (23)
Price	-0.53 (15)	0.08 (25)
Variety of cuts	0.87 (15)	1.20 (25)
Consistency of each shipment	1.69 (16)	1.125 (24)
Service and Assistance	0.87 (15)	1.21 (24)
Awareness of promotion	-0.8 (16)	-0.32 (25)

* Mean scores.

** Mean scores are statistically significantly different from each other at the 5% level.

*** Number in brackets is the number of respondents for each question.

FIGURE 1: Seattle Retailer Semantic Differential Scale Ratings of Selected Attributes

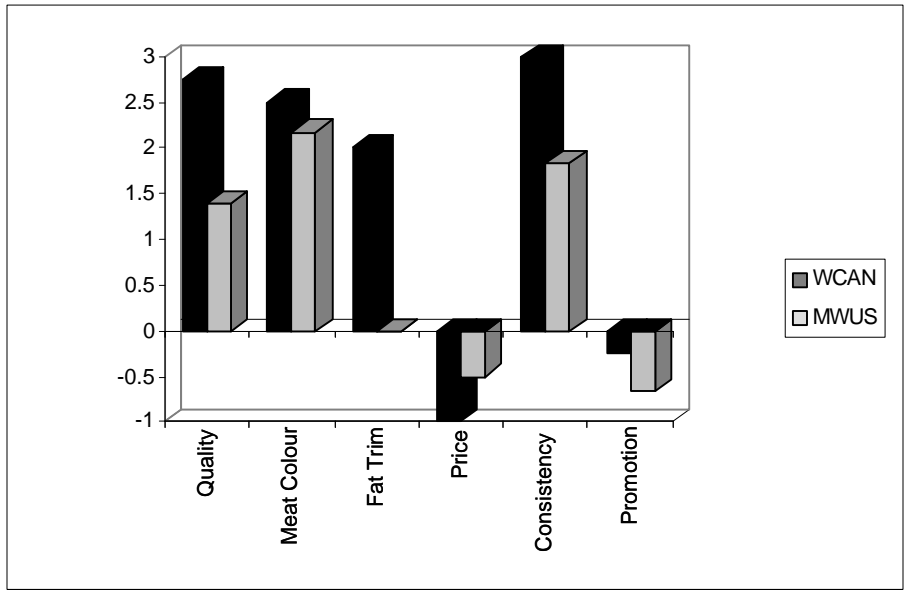


FIGURE 2: Seattle Distributor Semantic Differential Scale Ratings of Selected Attributes

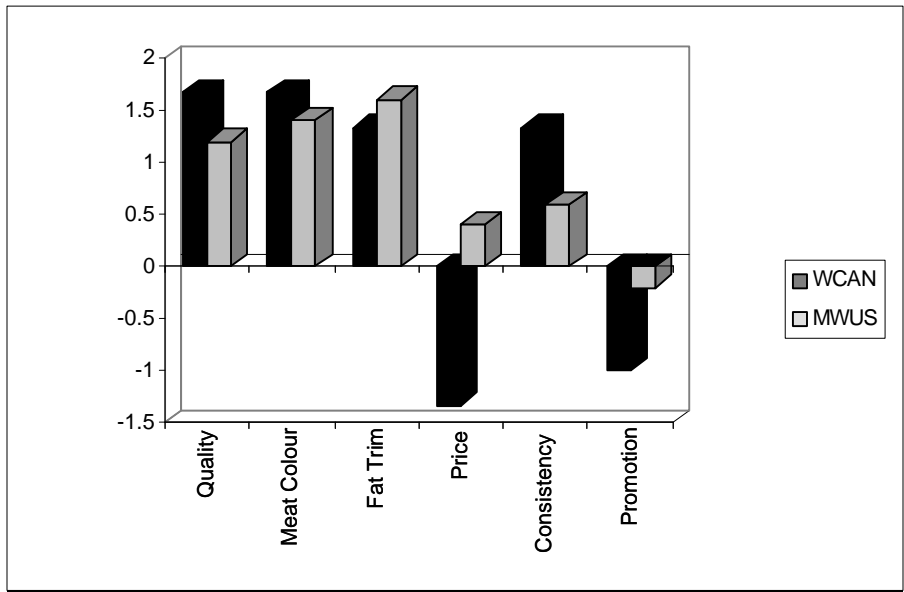
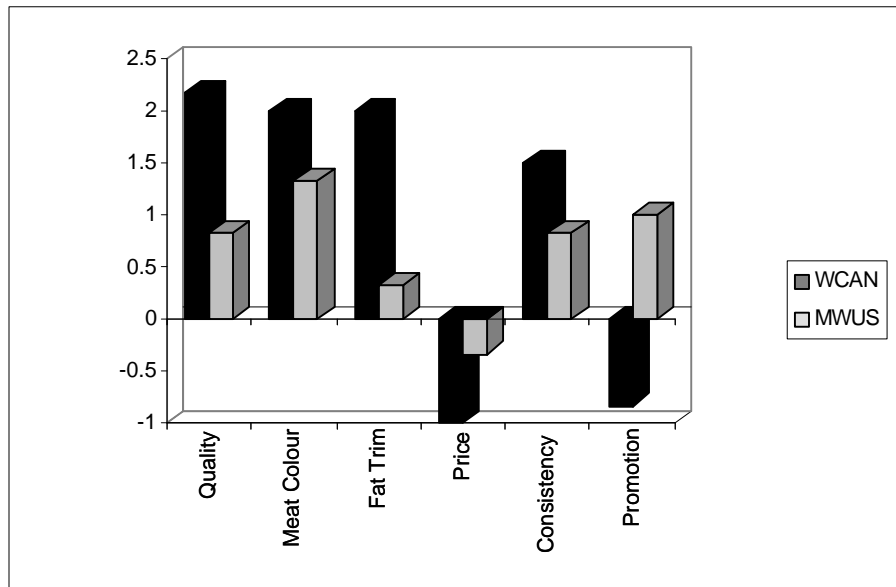


FIGURE 3: Portland Distributor Semantic Differential Scale Ratings of Selected Attributes



10. APPENDIX B: SEMANTIC DIFFERENTIAL AND OPEN-ENDED QUESTIONS THAT WERE APPLIED IN THIS STUDY

QUESTIONNAIRE (Brokers, wholesalers, retailers, butchers)

Name of organization: _____

Name: _____

Position: _____

Interview Preamble

The purpose of the study is to obtain a better understanding of expectations of buyers of fresh pork for the ethnic Asian market in the Pacific Northwest and British Columbia on product quality and marketing practices of the pork purchased from Western Canada . Your participation in the survey is voluntary and all individual replies are confidential. Please indicate your rating on the following scales.

Example:

Automobile quality		<u>Excellent</u>		<u>Poor</u>
	<i>Japan</i>	_____:	_____:	_____:
	<i>Germany</i>	_____:	_____:	_____:

1) Product quality (major cuts: shoulder butt and loin)

1. Overall pork quality		<u>Excellent</u>		<u>Poor</u>
	<i>Western Canada</i>	_____:	_____:	_____:
	<i>Midwest US</i>	_____:	_____:	_____:

2. Meat color		<u>Acceptable</u>		<u>Unacceptable</u>
	<i>Western Canada</i>	_____:	_____:	_____:
	<i>Midwest US</i>	_____:	_____:	_____:

3. Fat color		<u>Yellow</u>	<u>White</u>
	<i>Western Canada</i>	_____:	_____:
	<i>Midwest US</i>	_____:	_____:
4. Fat trim		<u>1/4 inch</u>	<u>1.0 inch</u>
	<i>Western Canada</i>	_____:	_____:
	<i>Midwest US</i>	_____:	_____:
5. Food safety standards		<u>Low</u>	<u>High</u>
	<i>Western Canada</i>	_____:	_____:
	<i>Midwest US</i>	_____:	_____:
6. Water content		<u>Acceptable</u>	<u>Unacceptable</u>
	<i>Western Canada</i>	_____:	_____:
	<i>Midwest US</i>	_____:	_____:
7. Price		<u>Inexpensive</u>	<u>Expensive</u>
	<i>Western Canada</i>	_____:	_____:
	<i>Midwest US</i>	_____:	_____:
8. Variety of cuts		<u>Narrow</u>	<u>Broad</u>
	<i>Western Canada</i>	_____:	_____:
	<i>Midwest US</i>	_____:	_____:
9. Consistency of each shipment		<u>Inconsistent</u>	<u>Highly Consistent</u>
	<i>Western Canada</i>	_____:	_____:
	<i>Midwest US</i>	_____:	_____:

2) Promotional activity

1. Service and Assistance (from packers)		<u>Excellent</u>		<u>Poor</u>
	<i>Western Canada</i>	_____:	_____:	_____:
	<i>Midwest US</i>	_____:	_____:	_____:

2. Your awareness of promotion		<u>Unaware</u>		<u>Highly aware</u>
	<i>Western Canada</i>	_____:	_____:	_____:
	<i>Midwest US</i>	_____:	_____:	_____:

2) Qualitative questions (British Columbia Asian fresh pork market)

1. What are the main characteristics you consider before making a pork purchasing decision?
Which meat color is acceptable ?
2. Please list and rank your five most preferred packers/processors involved in the fresh pork market in your region (in terms of service and product quality)?
3. What should Western Canadian packers do in order to increase market share in the British Columbia Asian fresh pork market in terms of marketing practices and product quality ?

Shipping specifications

4. Would you prefer purchasing a whole side or cuts from your pork supplier ? Please give your reasons.
5. Which pork cuts would you prefer to buy ? Please describe the specifications for each cut.
6. Would you prefer preparing your own case ready products or prefer buying case ready products directly from the packers ? Please give your reasons.

Branding

7. Do you think Western Canada should brand its fresh pork products ?
If yes: What method (s) should it use to brand its products ?
If no : Please give your reasons.

Future

8. What changes do you foresee in the Asian fresh pork market in the future, in the retail sector ?

2) Qualitative questions (United States Asian fresh pork market)

1. What are the main characteristics you consider before making a pork purchasing decision?
Which meat color is acceptable ?
2. If all the competitors offer items equal in price, quality and promotion, which country's pork product would you select ?
3. Please list and rank your five most preferred packers/processors involved in the fresh pork market in your region (in terms of service and product quality)?
4. If possible, please give two reasons why you would buy United States pork or Denmark pork instead of Western Canadian pork ?
5. What should Western Canadian packers do in order to increase market share in the United States Asian fresh pork market in terms of marketing practices and product quality ?

Shipping specifications

6. Would you prefer purchasing a whole side or cuts from your pork supplier ? Please give your reasons.
7. Which pork cuts would you prefer to buy ? Please describe the specifications for each cut.
8. Would you prefer preparing your own case ready products or prefer buying case ready products directly from the packers ? Please give your reasons.

Branding

9. Do you think Western Canada should brand its fresh pork products ?
If yes: What method (s) should it use to brand its products ?
If no : Please give your reasons.

Future

10. What changes do you foresee in the Asian fresh pork market in the future, in the retail sector?

11. APPENDIX C: A STATED PREFERENCE APPROACH TO EXAMINING PORK BUYERS' PREFERENCES IN VANCOUVER, SEATTLE AND PORTLAND

11.1. INTRODUCTION

Export of Alberta fresh pork to the United States Pacific Northwest (Washington State and Oregon) has increased over the past ten years. It is estimated that the Asian population of Washington and Oregon will increase from the 1995 level of about 429,000 to about 873,000 by the year 2010 (United States Bureau of Census, 1996)¹⁵. Fresh pork is an important part of ethnic Asian diets. Thus, there is a potential for increased export of fresh pork into the Asian ethnic market in Washington and Oregon states.

In order to effectively service this market it is necessary to understand the preferences of buyers' regarding fresh pork products in that market. This will help identify product or service needs within that market. This study examines the preferences for fresh pork attributes of retailers and meat distributors serving Asian markets in the Pacific Northwest. Specifically, the study examined the preferences of buyers in the cities of Portland, Seattle and Vancouver. This portion of the report deals with the results from the stated preference component of the survey instrument. Details on the development of the survey attributes and the groups interviewed are found in Section 3 of this report.

This appendix first, briefly reviews the stated preference methodology. A description of the survey design and the data collected is then presented. A description of the analytical procedure follows. The results are discussed based on three different estimating models. Conclusions based on the results complete this appendix.

11.2. THE STATED PREFERENCE METHOD

The stated preference method (SPM) is also referred to as experimental or stated choice analysis. The SPM is an extension to conjoint analysis which has the objective of understanding preference formation and predicting choice. It involves asking individuals to simulate discrete choice behavior, where the choices available are descriptions of different alternatives. From the stated choices of respondents, the probability of an individual n choosing an alternative i can be expressed as:

$$p_n(i) = \frac{\exp(V_{in})}{\sum_j \exp(V_{jn})} \quad (1)$$

where;

¹⁵ Please see Section 2 of this report for more background on the PNW market.

$\pi_n(i)$ = the probability of individual n choosing alternative i , and

V_{in} = respondents n 's utility of choosing alternative i .

Assuming that V_{in} is linear-in-parameters, the functional form can be expressed as:

$$V_{in} = \beta_1 + \beta_2 X_{in2} + \dots + \beta_k X_{ink} \quad (2)$$

where;

X_{ink} = k^{th} attribute values for alternative i as viewed by individual n , and

β_1 , β_2 and β_k are coefficients to be estimated.

The SPM was used in this study to enable us to estimate the strength of country-of-origin on institutional purchasers' decisions to buy fresh pork from different national sources. The SPM is flexible, capable of dealing with a wide variety of product attributes, is cheap to apply and has good ability to predict future choices.

11.3. SURVEY DESIGN AND DATA DESCRIPTION

Important pork attributes that affect a buyer's perceptions and purchase decisions were identified in Stage I of this study¹⁶. These included price, days from slaughter, fat color, type of cut, meat color and origin of the product. These factors were chosen after consultation with government and industry officials. The factors and levels were used to design a fractional factorial experiment with orthogonal main effects. Thirty two questions in all were required and these were blocked into four groups of eight questions resulting in four versions of the questionnaire. Each question gave three choice alternatives involving pork product profiles and respondents were requested to choose only one of the three alternatives. Choices A and B involve two different pork product descriptions which varied for each question. Choice C is the option of not making a purchase if neither descriptions of pork product in alternatives A and B are preferred¹⁷. The variable descriptions in Table C1 indicate the different factors and levels used to develop the stated preference questions.

The survey was conducted by means of direct interview of pork brokers, owners of meat shops and supermarkets specializing in Asian consumers in the cities of Vancouver, Seattle and Portland. In all, 14 respondents answered the stated preference questions providing 112 data points as the total sample size. The respondents are made up of 2 brokers and 1 owner of a meat shop in Vancouver; 5 brokers and 1 meat shop owner in Seattle; and 5 brokers in Portland. A total of 12 pork brokers, 1 meat shop owner and 1 supermarket owner responded to the stated preference questions. The stated choices of the respondents were then analyzed using the stated

¹⁶ See the Introduction and Section 3.

¹⁷ A sample questionnaire appears at the end of this paper.

preference technique described above. The analytical procedure followed in the study is presented below.

11.4. ANALYTICAL PROCEDURE

In this study, dummy variables (-1, +1) were used to effects code the attribute levels of price changes, slaughter day, meat color, fat color, type of cut and product origin. For any occurrence of the omitted variable, the included variables take a value of -1. A non-nested multinomial logit model was specified and the data analyzed using equation 2. The data for the entire sample size of 14 respondents (112 data points) was initially analyzed as Model 1 using the coded price variables. The same model was rerun but using a continuous price variable. This was estimated as Model 2. A third model was estimated segmenting the data according to location of respondents. For this model, the sample size is made up of 3 respondents for Vancouver (24 data points); 6 respondents for Seattle (48 data points); and 5 respondents for Portland (40 data points). In this model version, all right hand side variables are interacted with dummy variables that represent each of the three segments in order to evaluate whether there are any appreciable differences in the perceptions and responses of these groups. A fourth model was also estimated, just as Model 3, but segmenting the data according to the type of shop. For this model, the sample size is made up of 12 brokers (96 data points); 1 meat shop owner (8 data points); and 1 supermarket owner (8 data points). It is recognized that the small number of observations for owners of meat shops and supermarkets in this model will pose some econometric difficulties. The non-linear logit procedure of the statistical program Limdep was used for estimation of the multinomial logit models. A summary of the estimated models is as follows:

Model 1: Combined Model with Effects Coded Price Variables

$$V(A) = V(B) = \sum_{k=1}^4 \mathbf{b}_{1k} \text{Price}_k + \sum_{k=1}^4 \mathbf{b}_{2k} \text{Days}_k + \sum_{k=1}^2 \mathbf{b}_{3k} \text{Fcolor}_k + \sum_{k=1}^2 \mathbf{b}_{4k} \text{Cut}_k + \sum_{k=1}^4 \mathbf{b}_{5k} \text{Mcolor}_k + \sum_{k=1}^2 \mathbf{b}_{6k} \text{Origin}_k + \mathbf{e} \quad (3)$$

where;

$V(A)=V(B)$ = utility of choosing alternatives A and B,

Price_k = effects coded price variable level k,

Days_k = days since slaughter level k indicator variables,

Fcolor_k = fat color level k indicator variables,

Cut_k = cut level k indicator variables,

$Mcolor_k$ = meat color level k indicator variables,

$Origin_k$ = product origin level k indicator variables, and

e = error term.

β_{1k} to β_{6k} are coefficients to be estimated.

Model 2: Combined Model with Continuous Price Variables

$$V(A) = V(B) = \mathbf{b}_1 \text{Price} + \sum_{k=1}^4 \mathbf{b}_{2k} \text{Days}_k + \sum_{k=1}^2 \mathbf{b}_{3k} \text{Fcolor}_k + \sum_{k=1}^2 \mathbf{b}_{4k} \text{Cut}_k + \sum_{k=1}^4 \mathbf{b}_{5k} \text{Mcolor}_k + \sum_{k=1}^2 \mathbf{b}_{6k} \text{Origin}_k + \mathbf{e} \quad (4)$$

where;

Price = a continuous price variable.

All other variables are as previously defined.

Model 3: Segmented Model (by city) with Continuous Price Variables

$$V(A) = V(B) = \mathbf{b}_{1l} \text{Price}_l + \sum_{k=1}^4 \mathbf{b}_{2kl} \text{Days}_{kl} + \sum_{k=1}^2 \mathbf{b}_{3kl} \text{Fcolor}_{kl} + \sum_{k=1}^2 \mathbf{b}_{4kl} \text{Cut}_{kl} + \sum_{k=1}^4 \mathbf{b}_{5kl} \text{Mcolor}_{kl} + \sum_{k=1}^2 \mathbf{b}_{6kl} \text{Origin}_{kl} + \mathbf{e} \quad (5)$$

where;

l = Vancouver, Seattle or Portland.

Model 4: Segmented Model (by type of shop) with Continuous Price Variables

$$V(A) = V(B) = \mathbf{b}_{1s} Price_s + \sum_{k=1}^4 \mathbf{b}_{2ks} Days_{ks} + \sum_{k=1}^2 \mathbf{b}_{3ks} Fcolor_{ks} + \sum_{k=1}^2 \mathbf{b}_{4ks} Cut_{ks} + \sum_{k=1}^4 \mathbf{b}_{5ks} Mcolor_{ks} + \sum_{k=1}^2 \mathbf{b}_{6ks} Origin_{ks} + \mathbf{e} \quad (6)$$

where;

s = broker, meat shop or supermarket.

All other variables are as defined earlier.

11.5. RESULTS

Tables C1 to C4 presents the estimated coefficients for the models outlined above. Tables C1 and C2 present results for the combined model while Tables C3 and C4 present estimated coefficients for the segmented models. The pseudo R² statistic calculated for the models indicate a reasonable measure of fit for this type of models.

11.5.1. COMBINED MODELS: ALL RESPONDENTS

Results from the analyses suggest that price is not an important factor to pork buyers. None of the coded price levels is statistically significant (Table C1). However, the continuous price variable is positive and statistically significant suggesting that buyers prefer higher prices (Table C2). A possible explanation for such a finding is that, brokers form about 86 percent of the entire sample (respondents) and these buyers are in the margin business, therefore, the difference between the purchase and selling prices is more important to them than absolute price levels. A commodity broker places less importance on the purchase price as long as some margin can be made on the commodity.

Buyers do not prefer hogs that have been slaughtered eight days earlier, suggesting freshness of pork products is important to them. Coefficients obtained for hogs slaughtered six days and earlier all have positive signs and are not statistically significant. Regarding fat color, buyers show a positive preference for white-colored fat and a negative reaction for yellow-colored fat. Similarly, buyers show a positive preference for primal cuts and a negative preference for side cuts. This result is driven by the PNW market that does not purchase sides but purchases primal cuts¹⁸. The results also indicate that buyers prefer fresh pork from western Canada than from the Midwest. Regarding meat color, buyers show a preference for the “normal” pork color and a “negative preference” for extremely dark pork products. These results agree with the semantic

¹⁸ See Section 6 for further comments on this research methodology.

differential scale questions and qualitative questions that were also a part of the survey instrument and discussed in the main body of this report.

11.5.2. SEGMENTED MODEL: RESPONDENTS BY CITY

Coefficients on prices obtained for buyers in Vancouver, Seattle and Portland all have a positive sign and are statistically significant. This appears to be contrary to economic logic but, as suggested earlier, might be due to the importance of margins, versus absolute price to the brokers who make up most of the respondents. However, there may also be a problem associated with the small sample size. Regarding the number of days since slaughter, the results indicate that respondents in Seattle do not prefer hogs slaughtered eight days earlier. Others seem to be indifferent to this factor. Respondents in Vancouver prefer hogs slaughtered six days earlier. This does not agree with the high importance placed on freshness in responses to the qualitative questions included in the survey.

Regarding fat color, all respondents prefer white instead of yellow and for meat color all respondents strongly reject extremely dark colored meat. However, respondents in Seattle show a strong preference for “normal” pork color. Seattle and Portland respondents seem to prefer primal cuts while Vancouver respondents prefer side cuts. This agrees with other information obtained during the survey process. The latter group also shows a strong local bias in terms of origin of pork. They prefer pork from Western Canada. However, as indicated in the main body of this report, most respondents in Vancouver were unfamiliar with United States pork.

11.5.3. SEGMENTED MODEL: RESPONDENTS BY TYPE OF SHOP

Type of shop categories consist of brokers, meat specialty stores and supermarkets. None of the coefficients for meat specialty stores and supermarkets was significant. This is because there were not enough observations from respondents. As stated earlier, out of the 14 respondents, only one is an owner of a meat specialty store and one an owner of a supermarket. There is therefore not much variance in the data to allow a reasonable estimation of coefficients. In fact, the variance for the coefficients of these two types are extremely large. Many more observations were obtained from brokers. Results indicate that brokers prefer primal cuts, pork with white colored fat and originating from Western Canada. They seem not to prefer hogs slaughtered eight days earlier, pork with yellow colored fat, sides cuts and originating from the United States.

11.6. STATED PREFERENCE CONCLUSIONS

The stated preference methodology was used to examine the preferences of fresh pork buyers in the Vancouver, Seattle and Portland area. The study entailed a direct interview of pork brokers, owners of meat specialty stores and supermarkets. Pork brokers make up most of the respondents in the survey. Results from the analysis indicate that, in general, a lower price for the product is not necessarily preferred by the buyers. This is probably due to the fact that these buyers are in the margin business so purchase price is of less concern to them. However, regarding product quality, buyers prefer fresh products in primal cuts and with normal meat color and white fat color. They

also prefer hogs slaughtered six days earlier to hogs slaughtered eight days earlier. Western Canada is a preferred source of fresh pork than the Midwest United States.

When the preferences of respondents were examined by their location, i.e. city of residence, they were found to have similar preferences. They prefer fresh pork from Western Canada to fresh pork from the Midwest United States. Also, they all show a strong negative reaction to dark colored meat and yellow colored fat. However, some differences exist in their preferences. For example, while respondents in Vancouver preferred hogs slaughtered within six days, respondents from Seattle and Portland were mainly indifferent to the days of slaughter. Also, Vancouver buyers seem to prefer side, while buyers in Seattle and Portland prefer primal cuts.

It was hoped to compare the preferences of brokers, owners of meat shops and owners of supermarkets. However, since only one respondent each was obtained for meat shops and super markets, this comparison was not feasible. For brokers, preferences were virtually the same as indicated for the entire sample since most of the respondents are in fact brokers. Overall the numbers of respondents to the stated preference section of the study was disappointing, reflecting the lack of time for responses by retailers and butchers, who were queried during their work hours and in their work locations. The numbers of responses are insufficient for us to place much confidence on this group of results. However, it is encouraging that even with such a small sample size, the results obtained tend to confirm many of the major conclusions that were derived using the semantic differential scaling questions and the qualitative questions. These are discussed in the main body of this paper.

11.7. STATED PREFERENCE TABLES

Table C1: Estimated Coefficients using Coded Prices (All Respondents)^s

Variables	Estimated Coefficient	Standard Error
<u>Price:</u>		
Same as last price paid	-0.035	0.291
10% less than last price paid	-0.059	0.293
20% less than last price paid	-0.088	0.266
10% more than last price paid	0.182	0.278
<u>Days of Slaughter:</u>		
8 days	-0.738*	0.309
6 days	0.446	0.291
4 days	0.202	0.280
2 days	0.090	0.272
<u>Fat Color:</u>		
Yellow	-0.455*	0.174
White	0.455*	0.174
<u>Type of Cut:</u>		
Sides	-0.408*	0.165
Primal cut	0.408*	0.165
<u>Meat Color:</u>		
Dark	0.142	0.294
Normal	1.004*	0.279
Extremely dark	-0.896*	0.308
Pale	-0.250	0.278
<u>Origin:</u>		
Midwest US	-0.345*	0.169
Western Canada	0.345*	0.169
Pseudo R²	0.180	

* Indicates significance at 95% confidence level.

^s The total number of respondents is 14

Table C2: Estimated Coefficients using Continuous Price Variable(All Respondents)^s

Variables	Estimated Coefficient	Standard Error
Price	4.020*	1.438
<u>Days of Slaughter:</u>		
8 days	-0.720*	0.314
6 days	0.425	0.302
4 days	0.198	0.285
2 days	0.097	0.286
<u>Fat Color:</u>		
Yellow	-0.511*	0.180
White	0.511*	0.180
<u>Type of Cut:</u>		
Sides	-0.451*	0.176
Primal cut	0.451*	0.176
<u>Meat Color:</u>		
Dark	0.117	0.301
Normal	1.089*	0.301
Extremely dark	-0.967*	0.319
Pale	-0.239	0.281
<u>Origin:</u>		
Midwest US	-0.400*	0.177
Western Canada	0.400*	0.177
Pseudo R²	0.212	

* Indicates significance at 95% confidence level.

^s The total number of respondents is 14

Table C3: Estimated Coefficients by City using Continuous Price Variable^s

Variables	Estimated Coefficients		
	Vancouver	Seattle	Portland
Price¹	19.742 ^a	0.744	8.267*
<u>Days of Slaughter:</u>			
8 days	-1.374	-1.168*	-0.657
6 days	2.337 ^a	0.320	0.652
4 days	-0.0622	0.684	-0.076
2 days	-0.901	0.164	0.081
<u>Fat Color:</u>			
Yellow	-2.587*	-0.589 ^a	-0.791*
White	2.587*	0.589 ^a	0.791*
<u>Type of Cut:</u>			
Sides	0.790	-0.726*	-0.181
Primal cut	-0.790	0.726*	0.181
<u>Meat Color:</u>			
Dark	1.307	-0.680*	0.415
Normal ¹	-0.478	2.093	0.340
Extremely dark	-3.298*	-0.810	-1.150 ^a
Pale	2.469	-0.603	0.395
<u>Origin:</u>			
Midwest US	-2.281 ^a	-0.256	-0.568 ^a
Western Canada	2.281 ^a	0.256	0.568 ^a
Pseudo R²	0.337		

* Indicates significance at 95% confidence level.

^a Indicates significance at 90% confidence level.

¹ Indicates estimated coefficients significantly different across city (5% probability)

^s The sample size is made of 3 respondents (24 data points), 6 respondents (48 data points) and 5 respondents (40 data points) respectively from Vancouver, Seattle and Portland.

Table C4: Estimated Coefficients by Type of Shop using Continuous Price Variable ^s

Variables	Estimated Coefficients		
	Brokers	Specialty Store	Supermarket
Price	3.327*	90.855	131.140
<u>Days of Slaughter:</u>			
8 days	-0.746*	14.683	2.265
6 days	0.316	-4.334	-22.055
4 days	0.218	-14.620	28.906
2 days	0.212	4.271	-9.117
<u>Fat Color:</u>			
Yellow	-0.486*	-1.424	-13.340
White	0.486*	1.424	13.340
<u>Type of Cut:</u>			
Sides	-0.397*	-1.458	-6.272
Primal cut	0.397*	1.458	6.272
<u>Meat Color:</u>			
Dark	0.141	2.055	-8.711
Normal	1.170*	6.648	2.810
Extremely dark	-1.120*	5.398	15.768
Pale	-0.190	-14.102	-9.867
<u>Origin:</u>			
Midwest US	-0.331*	-16.872	-0.279
Western Canada	0.331*	16.872	0.279
Pseudo R²	0.310		

* Indicates statistical significance at 95% confidence level.

^s The sample size is made of 12 respondents (96 data points), 1 respondent (8 data points) and 1 respondent (8 data points) respectively from brokers, specialty meat shop and supermarket.

11.8. STATED PREFERENCE: SAMPLE QUESTIONNAIRE

Assume that on your next order of pork some different pork products are available to choose from. These pork products are from different sources, of different quality and of different prices. These pork products are presented below in a series of questions. Each question has three possible choices. Alternatives A and B outline different descriptions of the product. Alternative C applies if you would not purchase either A or B. You would be required to choose only one alternative from each question.

Example:

Product Attribute	Alternative A	Alternative B	Alternative C
Price	10% more than last price paid	20% less than last price paid	Neither A or B is chosen
Days Since Slaughter	6	4	
Fat Color	white	yellow	
Type of Cut	whole sides	primal cuts	
Meat Color	pale	normal	
Product Origin	Western Canada	Midwest US	
I would choose	↓ <input type="checkbox"/>	↓ <input checked="" type="checkbox"/>	↓ <input type="checkbox"/>

Choose one and only one alternative

QUESTIONS

Assume that on your next order of pork the following pork products are available to choose from. Considering the various qualities of pork such as price, fat color, meat color, type of cut and origin, which one of the alternatives, A to C, presented in the following scenarios are you most likely to choose?

SCENARIO 1

Product Attribute	Alternative A	Alternative B	Alternative C
Price	10% less than price paid	10% more than last price paid	Neither A or B is chosen
Days Since Slaughter	4	4	
Fat Color	yellow	White	
Type of Cut	whole sides	primal cuts	
Meat Color	dark	Normal	
Product Origin	Midwest US	Midwest US	
I would choose	↓ <input type="checkbox"/>	↓ <input type="checkbox"/>	↓ <input type="checkbox"/>

SCENARIO 2

Product Attribute	Alternative A	Alternative B	Alternative C
Price	20% less than last price paid	10% more than last price paid	Neither A or B is chosen
Days Since Slaughter	4	6	
Fat Color	White	yellow	
Type of Cut	whole sides	whole sides	
Meat Color	Normal	dark	
Product Origin	Midwest US	Midwest US	
I would choose	↓ <input type="checkbox"/>	↓ <input type="checkbox"/>	↓ <input type="checkbox"/>

SCENARIO 3

Product Attribute	Alternative A	Alternative B	Alternative C
Price	20% less than last price paid	10% less than last price paid	Neither A or B is chosen
Days Since Slaughter	4	2	
Fat Color	yellow	White	
Type of Cut	whole sides	primal cuts	
Meat Color	extremely dark	extremely dark	
Product Origin	Western Canada	Midwest US	
I would choose	↓ <input type="checkbox"/>	↓ <input type="checkbox"/>	↓ <input type="checkbox"/>

SCENARIO 4

Product Attribute	Alternative A	Alternative B	Alternative C
Price	10% less than last price paid	20% less than last price paid	Neither A or B is chosen
Days Since Slaughter	2	4	
Fat Color	white	yellow	
Type of Cut	whole sides	primal cuts	
Meat Color	normal	dark	
Product Origin	Midwest US	Western Canada	
I would choose	↓ <input type="checkbox"/>	↓ <input type="checkbox"/>	↓ <input type="checkbox"/>

SCENARIO 5

Product Attribute	Alternative A	Alternative B	Alternative C
Price	10% more than last price paid	10% less than last price paid	Neither A or B is chosen
Days Since Slaughter	2	6	
Fat Color	yellow	white	
Type of Cut	primal cuts	whole sides	
Meat Color	pale	extremely dark	
Product Origin	Midwest US	Midwest US	
I would choose	↓ <input type="checkbox"/>	↓ <input type="checkbox"/>	↓ <input type="checkbox"/>

SCENARIO 6

Product Attribute	Alternative A	Alternative B	Alternative C
Price	same as last price paid	10% more than last price paid	Neither A or B is chosen
Days Since Slaughter	8	6	
Fat Color	white	white	
Type of Cut	whole sides	primal cuts	
Meat Color	pale	normal	
Product Origin	Western Canada	Western Canada	
I would choose	↓ <input type="checkbox"/>	↓ <input type="checkbox"/>	↓ <input type="checkbox"/>

SCENARIO 7

Product Attribute	Alternative A	Alternative B	Alternative C
Price	20% less than last price paid	20% less than last price paid	Neither A or B is chosen
Days Since Slaughter	8	8	
Fat Color	yellow	white	
Type of Cut	primal cuts	whole sides	
Meat Color	extremely dark	normal	
Product Origin	Midwest US	Midwest US	
I would choose	↓ <input type="checkbox"/>	↓ <input type="checkbox"/>	↓ <input type="checkbox"/>

SCENARIO 8

Product Attribute	Alternative A	Alternative B	Alternative C
Price	20% less than last price paid	20% less than last price paid	Neither A or B is chosen
Days Since Slaughter	8	8	
Fat Color	yellow	white	
Type of Cut	primal cuts	whole sides	
Meat Color	extremely dark	normal	
Product Origin	Midwest US	Midwest US	
I would choose	↓ <input type="checkbox"/>	↓ <input type="checkbox"/>	↓ <input type="checkbox"/>