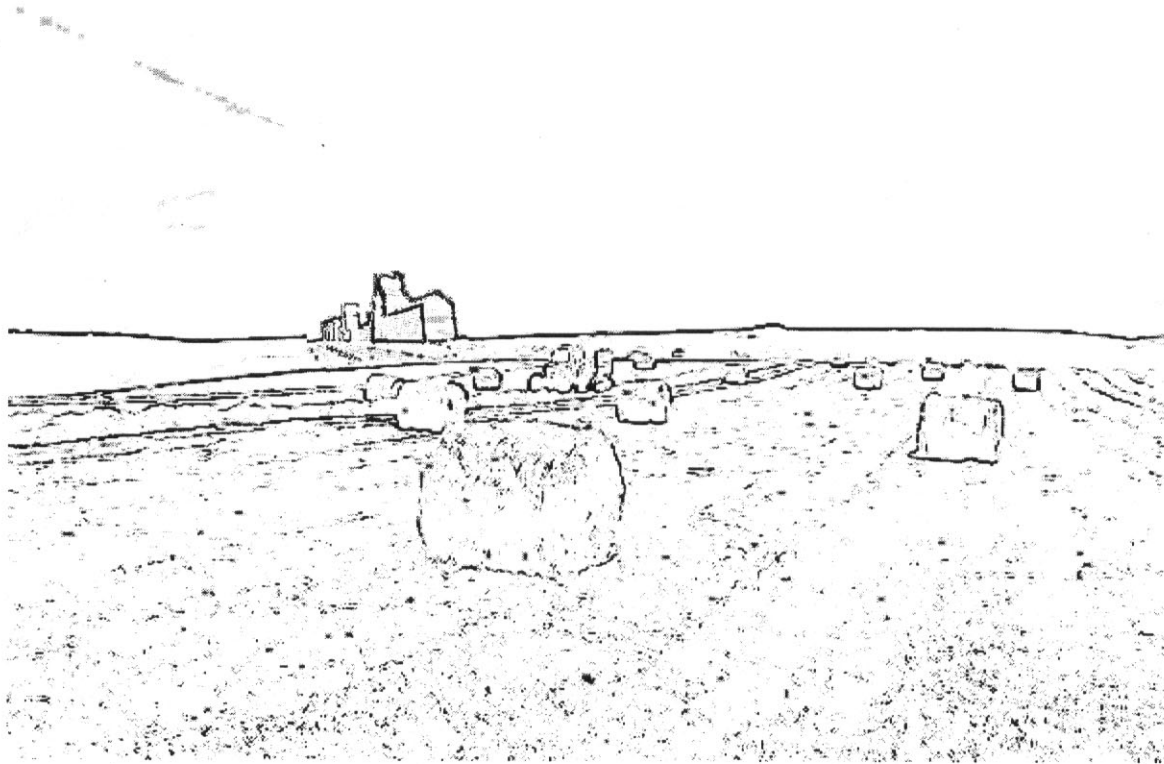


AGRI-PROCESSING INDUSTRIES AS A VEHICLE FOR RURAL DEVELOPMENT

TWO ALBERTA COMMUNITY CASE STUDIES



1998-3

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The views contained herein are those of the authors.

Abstract

This paper examines the potential of agricultural-processing industries to contribute to employment creation in rural communities. The issue is explored through a comparison of two rural communities in the Canadian prairies. Factors that contribute to agri-processing industry development include: entrepreneurial ability, dynamic local development institutions and availability of unique agricultural products. The development of agri-processing industry can have positive demographic, economic and social impacts on the local community.

Preface

Part of the mandate of the Rural Development Institute is to provide information in a public-format that may be useful to rural communities that are striving to promote economic development. Value-added processing, particularly in the agri-food industry, has been identified as one of the most promising areas of economic development for rural communities across the Canadian prairies. Because wide-spread "active" development is a recent trend, few case studies, and even fewer analytical studies are available. RDI viewed the opportunity to publish this paper as a means to further assist communities targeting value-added agri-food processing as a development option. We thank authors Enright and Ironside for submitting the manuscript for review. Joan Rollheiser, Administrative Assistant at RDI, prepared the document for publication.

Dr. Richard Rounds, Series Editor
Director, RDI

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AGRI-PROCESSING AND RURAL DEVELOPMENT

Agri-processing industries convert agricultural products into a variety of food and other products. Burns (1983) classified firms in the food industry into two types: agriculturally-oriented or consumer-oriented food processors. The former are concerned with getting reliable supplies of produce, processing them at minimum cost, and often rely on by-products for profit. The latter produce identifiable, differentiated, packaged-food products for competitive consumer markets. Agri-processing industries fit into the first part of Burns's classification. In addition to processing agricultural outputs for the food industry, outputs also are processed to become inputs into agriculture. In particular, some grain and other crops are processed into animal feed.

Agri-processing industries have strong links to rural locations. Agricultural processing generally utilises large amounts of bulky, and often perishable, low value raw materials. A large proportion of costs are incurred in acquiring and processing these raw materials. According to classical location theory, the processing industry will be "powerfully drawn" to the resource sites (Lloyd and Dicken, 1977). In the past, agri-processing activities such as milling, sugar extraction from beets, animal feed manufacture and grain processing have located in rural areas near the raw material source.

Recent trends identified in the U.S. and Canadian meat-packing industry confirm the strong influence of raw materials as a locational influence. In the past, meat-packing plants had tended to locate in metropolitan areas adjacent to stockyards and rail terminals. However, since the 1980s, meat-packing plants have decentralised to smaller urban centres in rural areas (Novek, 1989; Broadway and Ward, 1990). Strong competition has emphasised cost advantages and new, large scale, highly-efficient plants can benefit from rural locations. The decentralisation trend also can be understood as a relatively mature industry undergoing. In the Canadian meat-packing industry, decentralisation has been accompanied by a westward regional shift of plant locations from Ontario to Alberta (Chiotti, 1992).

Alberta rural locations have the advantages of proximity to feedlots, lower labour costs and low grain prices. The initial concentration of feedlots in southern Alberta was a major influence on the subsequent concentration of meat-packing plants (Ross, Susko, Kaliel, MacDonald-Date and Smith, 1990). However, the restructuring of the Canadian meat-packing industry has resulted in fewer larger plants, less overall employment and lower relative wage levels (Novek, 1989; Chiotti, 1992). Therefore, relatively few communities, either urban or rural, can benefit from this locational trend. Concentration of ownership has accompanied restructuring. Larger plants in the agri-food sector are more sensitive to the availability of labour and services and generally are expected to favour metropolitan locations (Wallace, 1992).

Vertical integration, such as contract relationships between farmer and processor, also has locational consequences, often resulting in a clustering of related activities. For example, poultry producers, poultry-feed manufacturers and poultry processors locate in close proximity. Smith (1984) noted that hog, egg and poultry industries in Quebec concentrate in areas where farmers have low incomes and few job opportunities. Farmers with few options are more likely to accept contracts and conform to specialized operating requirements. Smith (1984:363) clearly expresses the locational consequences of concentration of ownership and vertical integration in his study of Quebec:

The growth of large scale units and closer links among different components of the agriculture food system have led to greater locational concentration. Few new units have been created, but smaller and mainly peripheral ones have disappeared and others, mostly metropolitan, have expanded.

Just as agri-processing industries have experienced change and restructuring, so have rural areas. Several forces of change have emerged, including the emergence of new needs and technology (Bryant, 1988), corporate concentration, changing consumer demand and the emergence of continental markets (Wallace, 1992). These forces influence the restructuring of rural systems as well as society and the economy in general (Bowler, Bryant and Nellis, 1992).

Freshwater, Ehrensaft and Apedaile (1991) identify severe problems that rural and single industry regions experience as a result. These include the mismatch of people and jobs, mismatch of skills and jobs, high cost of services resulting from outmigration, uneven impact of macroeconomic forces, urban bias of social policy, conflict about the use of the environment and disparity between rural and international industry. Resource-dependent rural communities also face the problem that resources, and decisions about the resources, are controlled from outside, which can lead to apathy in the community (Krannich and Luloff, 1991). Impacts of such forces led to decline in rural employment as the early tendency for large agri-food plants to locate in metropolitan areas continued.

Troughton (1992) views the restructuring of rural and agricultural systems as a decoupling, which has negative impacts on many rural communities. Agriculture has become part of the agri-business chain and is being separated from rural society. Rural communities are negatively impacted by the decline in the number of farms and farm families. Local employment declines as the demand for farm labour is reduced and as farm supply and processing facilities are concentrated in fewer areas. The consequences for rural communities are serious because they are being separated from a key part of their traditional economic base.

In the above context, rural communities in Alberta which are largely agriculturally dependent are experiencing economic pressures as a result of the farmers' cost-price squeeze, the increasing integration of agriculture into concentrated urban-industrial economies and the demand for environmentally-sensitive practices. Socially, rural expectations for services, facilities and living standards are similar to those of urban society. Confronted with these problems, rural communities have to develop means of strengthening their economic base and social infrastructure in order to remain viable and attractive places for people. Rural communities, therefore, must diversify (Rounds, 1992; Troughton, 1992), specialise, export and adapt to change (Freshwater et al., 1991) if they are to survive and develop.

Agricultural Diversification

Surpluses of traditional crops, changing patterns of consumption and the emergence of the entrepreneurial state are driving the trend of agricultural diversification (Napton, 1992). Diversification contributes to more stability in agriculture and to a more sustainable agriculture (Bowler, Bryant and Nellis, 1992). Diversified agriculture increases the potential for development of rural-based agri-processing industries. Therefore, rural communities can be expected to benefit through the location of the processing of the diversified output.

Diversification, however, is not an option for all rural communities owing to resource and entrepreneurial limitations. Diversification is most likely to be successful for small pockets of farmers who develop profitable new enterprises (Napton, 1992). The type of rural space also affects the potential for diversification. Rural communities located in an urban fringe have an advantage in diversifying in that products can be sold directly to the nearby consumers (Deslauriers, Bryant and Marois, 1992). Also, Tyrchniewicz (1991) argues that diversification through value-added processing of agricultural products often results in little employment increase.

Napton (1992) describes two types of agricultural diversification that have emerged in the United States. The first type, entrepreneurial diversification, is the production of alternative crops not traditional to the area, and focuses on small, clearly-defined markets. It involves import substitution, value-added processing and local job growth, and is most likely to affect land use near cities. There are risks attached to this diversification in that returns can be low, small specialist markets can quickly become saturated, and market conditions change rapidly and unexpectedly. The second type is industrial-commodity diversification. In the U.S. this is driven by agribusiness through efforts to develop new and traditional crops as substitutes for fuels and synthetics. While this is still being developed, it is more likely to be large scale and affect regional and national land-use patterns.

Agri-processing and Rural Development Policies

Agri-processing industries are recognised as a potential source of economic development for rural communities in Canada (Agriculture Canada, 1989). Owing to the close relationship between agri-processing, agriculture and the viability of rural communities, encouragement of value-added agri-processing has been a focus of government policy. The Canadian Federal Government and the Alberta Provincial Government supported development of the sector through the Nutritive Processing Agreements (N.P.A.) from 1975 to 1983, and the Agricultural Food Processing and Marketing Agreement (A.F.P.M.A.) from 1984 to the present.

Value-added agri-processing is regarded as appropriate because employment and wealth are created in rural communities. The Provincial Government of Alberta envisages value-added agricultural processing as directly related to rural community revitalisation (Alberta Municipal Affairs, 1990). Rural communities benefit through direct and indirect employment, population increase, more diverse sources of income and development of support services. The more value that can be added to agricultural produce at a local level, the more benefit that can be achieved locally.

The lack of rural jobs is the most severe contemporary problem for rural communities (Hodge and Whitby, 1981; Lapping and Szedlmayer, 1991). Agri-processing is an option to create jobs as it is less concentrated than other manufacturing industries, including the more restricted agri-food industries (Doeksen and Schriener, 1972). In addition, rural communities have the available raw materials for processing and also are lower cost locations than metropolitan areas (Chiotti, 1992). Land, labour, maintenance costs and taxes are lower than in major cities (USARS, 1978).

A recent study of rural manufacturing industries (which included agri-processing) in Saskatchewan, confirmed the advantages of a rural labour force. The availability of skilled, co-operative and low-cost labour emerged as the most important locational factor (Stabler and

Molder, 1992). Also, the frictional effect of distance relating to transport costs is not as significant if there is access to a highway and a high value-to-weight ratio for the product. However, Hodge and Whitby (1981) identify limits to the agri-processing role in rural development in that capital investment is high, processing is usually seasonal, and the expected spin-off jobs in raw material supply may not be realised.

Some evaluation has been carried out on programmes in Canada that promoted rural development using agri-food or agri-processing industries. A programme operated by the Department of Regional Economic Expansion (DREE) between 1969 and 1977 in western Canada, designed to alleviate economic disparity and promote rural development, was severely criticised by the British Columbia Select Standing Committee on Agriculture. The authors claimed that the programme fostered overcapacity in the french fries and beef industries resulting in the displacement of plants to other western provinces. DREE, it claimed, failed to address the overcapacity problem. The British Columbia industries underutilised the funds available compared with other western provinces leading to this dislocation (Select Standing Committee on Agriculture, 1978).

Harvest Foods (1992) evaluated the macro-impacts of economic development initiatives on the agricultural processing industries in western Canada, with particular emphasis on Alberta. The report covered the period from 1975 to 1990. It indicates that there was substantial investment and growth in Alberta's agri-processing industry, but the growth was attributed primarily to population increase and the supply management of the dairy and poultry sectors. In terms of location, rural and urban areas benefited equally if the bakery sector is excluded. In Alberta, the programmes provided supportive assistance but were "creating relatively few net new jobs and manufacturing investment" (Harvest Foods, 1992:50). Nevertheless, there were significant positive effects from the Alberta programmes. Human resource skills in economic development (in the public sector) were enhanced, the variety of agricultural products was increased and a positive image of agri-processing in Alberta was created.

The governments of Canada and Alberta believe the development of value-added agri-processing to be part of the solution for rural communities, and programmes have been implemented to encourage development. Evaluations of the programmes indicate limited success in creating jobs in either rural or urban locations. However, the evaluations have not examined specific impacts on individual communities. The following case studies allow a closer analysis of the factors that facilitate or hinder the development of agri-processing industries in rural communities.

COMMUNITY CASE STUDIES

Two rural communities with potential for the development of agri-processing industries are investigated; Bow Island in southern Alberta and Smoky Lake in central Alberta. Two key questions are explored: first, what are the factors that facilitated, or hindered the development of agri-processing in these two communities?; second, what is the impact of the development or lack of development of an agri-processing sector in these communities?

To address the first question, the history, physical characteristics and development of agriculture and agri-processing industry are reviewed. The roles of the community, local government and institutions also are examined. Key factors which aided or hindered the development and diversification of the agricultural base and agri-processing industry are identified.

Economic and social indicators of the two communities are reviewed and compared to address the second question. Population, income and employment data are analysed. In addition to secondary sources, interviews were completed with farmers, agri-processing industry personnel, local government officials and agricultural officials in both communities.

The communities of Bow Island and Smoky Lake were chosen as case studies because of community type and size, agricultural bases and experience in developing agri-processing industries. Both are rural communities of similar population size located in areas with a traditional agricultural base and have the potential for development of agri-processing industries. The community of Bow Island had been successful in significantly increasing the number of agri-processing industries, while Smoky Lake had recorded no overall change during the study period (Enright 1994). The selection of these communities provides examples of communities with a similar potential, but a different experience concerning the development of agri-processing industries.

Historical Background

The early development and growth of the communities of Bow Island and Smoky Lake are similar, with settlement by Europeans and railway development stimulating the opening of the areas for homesteading. Following the initial development of the communities, there was a period of steady growth as the villages developed into towns and service centres for the surrounding farming communities.

Farmers first came to the Bow Island area in the early 1900s. A settlement began to form on the railway, resulting in a Village in 1910, and a Town in 1912. While some German and Dutch immigrants settled in this area, most settlers were Anglo-Saxon. During the early years of World War I, the area experienced several years of crop failures. In the 1930s, the Depression hit hard with low grain and cattle prices. As a result many settlers left the area. During World War II, with improved commodity prices and good crops, some new settlers came to the district (Department of Industry and Development, 1963). In the 1950s irrigation of land began and the Town quickly doubled its population. The area has been associated with some leading developments in irrigation technology, including the pivot sprinkler system. A completely automated irrigation distribution system was installed in 1982, and serves much of the area surrounding Bow Island (Alberta Economic Development and Trade, 1986).

The first settlement in the Smoky Lake area was south of the site of the present Town near the North Saskatchewan River. Initially, the settlement was named Fort Victoria. Later it became a missionary post, followed by a Village called Pakan. Homesteaders of the Smoky Lake area, who came at the turn of the century, were almost exclusively from the Carpathian Mountain region of the western Ukraine. They arrived by Red River cart, ox train, and raft or scow on the North Saskatchewan River (from Edmonton). Smoky Lake established its first church in 1904 and post office in 1909. The arrival of the railway in 1919 resulted in rapid expansion of the community and many new businesses were established. The nearby settlement of Pakan declined, as Smoky

Lake became the central-place for the region. Smoky Lake was incorporated as a Village in 1922, and became a Town in 1962. There was steady growth in the Town and its population in the intervening decades (The County of Smoky Lake, 1967; Smoky Lake and District Cultural and Heritage Society, 1983).

The historical development of the communities of Bow Island and Smoky Lake is similar to that of many other rural prairie communities. The opening of the area for homesteading and the arrival of the railway were key factors in early development. Introduction of irrigation was another major stimulus for growth for Bow Island.

Location and Physical Background

Physical features are important in that they limit the type of agriculture possible, which in turn places limits on the raw materials available for agri-processing. Bow Island is located in southeastern Alberta, south of the South Saskatchewan River (Figure 1). Smoky Lake is located in central Alberta (Figure 1). Compared to Bow Island, Smoky Lake is closer to a metropolitan area, but Bow Island is more centrally located, lying midway between the cities of Medicine Hat and Lethbridge (Alberta Economic Development and Trade, 1986a & b).

Soils are fertile and ideally suited for agriculture in both communities. Moisture is the principal limiting factor on crop production in Bow Island, but it has one of the longest growing seasons (190 days), and one of the highest degree days above 5°C in the Province (Alberta Agriculture, 1990). In the Smoky Lake region, the growing season is shorter (165 days), but it has the advantage of greater and more reliable precipitation (Alberta Economic Development and Trade, 1986b; Alberta Agriculture, 1990).

The Towns of Bow Island and Smoky Lake are separate communities with their own local governments. The areas surrounding the Towns are under separate control of the County of Forty Mile in the case of Bow Island, and the County of Smoky Lake in the case of Smoky Lake. Residents of both Bow Island and Smoky Lake regard their communities as including both the Town and the surrounding hinterland. Rural settlement is concentrated at the junctions of quarter-section holdings (MTS, 1991). In the case of Bow Island, proximity to irrigation is a major influence on the density of the rural settlement (West Edmonton Reprographics, 1990). Both communities are the largest urban centres in their counties.

The Agricultural Base and the Agri-Processing Sector

Dryland farming predominated in the Bow Island area until the 1950s and 1960s. Wheat was the major crop, but yields were low and cropping practices had to allow for moisture conservation and control of soil drifting (Department of Industry and Development, 1963). There was little diversification of agriculture apart from some ranching. The early 1970s saw the beginning of many changes. The availability of water to irrigate land attracted new farmers to the area. Those interviewed claimed that there was almost a total replacement of the existing dryland farmers by younger farmers from the Netherlands and Idaho, as well as Japanese-Canadians and farmers from elsewhere in Alberta. This has been critical to the development of the area as many of the new farmers had previous knowledge of irrigation farming, and some had previous experience in bean growing.

A small acreage of beans had been grown in the Bow Island area since the 1950s. This acreage did not change until the late 1960s. In 1969, some local farmers and businessmen founded Alberta Bean Growers Ltd. In 1974, built a dry-bean processing plant and contracted 2,400 acres for bean production. Interest was high, and processing and acreage-contracting quickly expanded. In 1978, Alberta Bean Growers Ltd. sold their business to the Alberta Wheat Pool. They felt that they lacked the necessary capital and management expertise to continue with required expansion. Since then the bean acreage has continued to expand, and in 1992, 22,400 acres were contracted in the surrounding area (Alberta Wheat Pool, 1992).

More ventures involving local business people and the farming community have resulted in establishment of other agricultural-processing facilities in the community. In 1982, a sunflower processing plant was opened, and in 1985 an alfalfa-cubing plant began operation. Also, considerable acreage of sweet corn and potatoes are grown locally and the produce shipped to Lethbridge for distribution. A local corn-marketing company sells the corn grown in the area. There also is a company that processes and markets spearmint and peppermint, and another that processes local products for salad toppings and snack foods. These processing developments are locally owned and primarily use local commodities to produce goods that are almost totally exported (Bow Island, 1992).

The economic base of Smoky Lake has changed since its early days. Initially, its primary function was to serve the Ukrainian agricultural community that settled in the area. While it remains an agricultural service centre, it also has become a government service centre.

Agriculture, however, has changed, with consequences for the community. There has been an increase in cow-calf operations, a change in the type of crop cultivation, a decline in dairy farming, an increase in specialised farming, and an exit from farming by some operators. The changes can be attributed to a decline in the profit margins available in some of the traditional crops, such as wheat. Farmers have converted to other crops such as canola, peas and feed grains, where returns are better. The increase in cow-calf operations responds to the demand for cattle in the southern Alberta feedlots. The decline in dairying is a result of some older farmers cashing in their quotas and retiring. There has been an increase in specialised farming as producers diversify into bison, mushrooms, honey, and sunola.

The contrast in farm activities is reflected in the data on farm types and crop acreage for the two communities (Figure 2). In the County of Smoky Lake, the major farming activities are geared toward supplying cattle and feed for feedlots in southern Alberta. Farming activities such as dairying, hogs and poultry, which provide direct inputs for agri-processing, account for only 6 percent of the farms.

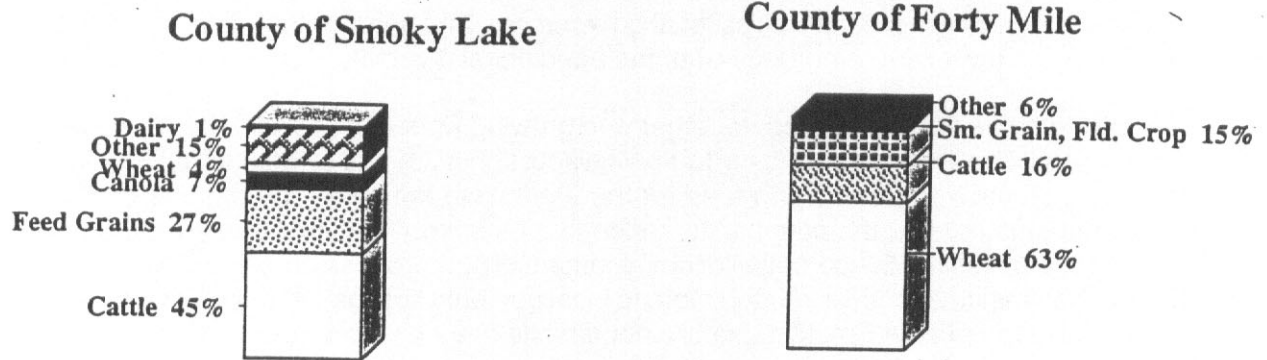
Figure 1

Location of Smoky Lake and Bow Island



Figure 2

Number of Farms Classified by Type - 1987



Source: Alberta Agriculture, Smoky Lake and Bow Island Community Brochure 1992.

In the County of Forty Mile, wheat and small grains dominate, accounting for almost 76 percent of the total number of farms. However, there is a greater variety of crops raised in the Bow Island area. While wheat dominates in Bow Island, beans, corn, sunflowers, and miscellaneous Foremost area to the south, whereas irrigated crops dominate in the Bow Island area. Agriculture exhibits more variety and diversification in Bow Island than in Smoky Lake.

Some farmers in Smoky Lake have responded to economic pressures by "exiting," while others rely on off-farm income to supplement their income. It is estimated that 75 percent of farmers in the County of Smoky Lake now rely on off-farm income to supplement their income. The oil and gas industry and a local tree nursery provide seasonal employment and are the prime sources of this income.

Smoky Lake had an agri-processing industry in its early years. In 1916, local farmers built a flour mill that served the local community until 1944, when it burned down and was never rebuilt (The County of Smoky Lake, 1967). An alfalfa plant has existed in the town since 1970, drawing supplies from a wide region, and having an important local employment impact. The plant recently changed its operations to peat moss processing.

Holgerson Dairies is the agri-processing plant with the most recent impact on the community. The plant opened in 1988, purchases supplies within a local radius of 50 km, and markets its produce in northern and central Alberta. This enterprise has survived and prospered in spite of intense competition and heavy regulation in the dairy industry. It was established by a local dairy farmer in Smoky Lake, and for practical reasons, the plant is located near his dairy farm. Accordingly, the location of the dairy in Smoky Lake was not due to proximity to the main raw material (milk), but was for personal convenience. Only 10 percent of the milk supply is locally produced; the remainder comes from outside the County.

The communities have experienced different paths of agricultural and economic development. Bow Island's agricultural base has diversified considerably from extensive wheat growing and ranching, to intensive crop cultivation. The influx of new farmers to the area, combined with the development of irrigation and the climatic conditions, have provided the necessary conditions for diversification to take place. The community also has been successful in developing the initial processing of some of the diversification products locally. The input of local farmers and business people, as well as local government, has been critical. The agri-processing developments in Bow Island emerged out of the agricultural diversification that has taken place.

Raising cattle and cattle feed, together with growing wheat and canola, dominate farming in Smoky Lake. The trend from mixed to specialised agriculture has resulted in Smoky Lake concentrating on providing cattle and feed for the feedlots in the south. Wheat and canola also are tied to markets outside the community. Since these commodities are transferred out of the community for processing, the potential for development of agri-processing is greatly reduced. The processing that has developed is related more to local personal ties than to availability of local raw materials. Developments in Smoky Lake are not directly related to local agricultural trends.

Local Government

Local government institutions are an important influence on the economic development of an area. The role of local government and other prominent institutions in agri-processing related developments are examined for the two communities. The analysis is based primarily on interviews carried out.

In Bow Island, the Economic Development Officer (EDO) plays an important co-ordination and networking role in economic diversification. The EDO tries to link people from within and outside the community who have the potential to enter economic relationships that are beneficial to community interests. Through the EDO, the community's members have access to information and contacts that they may not be able to get on their own. The EDO is the driving force and initiator behind much of the economic development taking place in Bow Island.

The local MLA (representative elected to the Provincial Assembly) is regarded as an important community figure. Some of the employment that has come to Bow Island is credited to the MLA, particularly that under the control of the provincial government. The MLA is also regarded as being responsible for ensuring that local industry and business received grants when starting up or expanding.

Farmers and entrepreneurs comprise another component of leadership in the community of Bow Island. A group of farmers and business people are at the forefront of the economic diversification initiatives that have been undertaken. This group is connected to the new farmers that moved into the area, and has allowed the marketing needs of local farmers to be met by local business people, resulting in benefits to both. A significant share of economic leadership in the community does not rest with the formal (elected) leaders in the community, like the mayor and councillors, but rather with key entrepreneurs who are supported by local professionals.

Local government responsibilities are divided between the Town and the County in the Bow Island region. This may generate some competition in regard to responsibilities and tax bases. The disadvantages of this situation are recognised by the Town, as it produces brochures

that encompass the activities of both the Town and its hinterland.

The Town of Bow Island administration actively promotes the development of the community, and in the past has provided inexpensive land to enhance industrial location. It currently is initiating an incentive scheme for industry to locate in the Town. The Town will provide free industrially-serviced land to new industry, based on one-half acre for every two jobs created for a minimum of four years. The Town plays an important role in promoting Bow Island as a community interested in economic development, and through the EDO, and others, facilitates such development.

Local government in the County of Smoky Lake is more co-operative in approach, and regional in organisation. Economic development is organised regionally by a Regional Economic Development Committee. The Regional Economic Development Officer promotes development for all of the municipalities within the Smoky Lake region. This region was one of the first to set up joint-municipalities meetings for mayors, reeves and councillors to discuss issues of common interest and concern.

The approach to economic development in Smoky Lake is more locally focused than that in Bow Island. The emphasis is on marketing and promoting local products, rather than attracting outside business or investment. Initiatives undertaken include trade fairs to promote local products, and planning the establishment of a "Community Kitchen," that would facilitate the production of commercial quantities of locally-produced food products. There are no direct incentives to promote the location of businesses in the area. The community, however, was active in supporting the location and funding of the new dairy plant. A "good site" was provided by the Town, and the Town Council and Chamber of Commerce joined the fight to allow the use of plastic bottles, and to secure federal and provincial funding for the project.

The development of Holgerson Dairies illustrates the political and other barriers that can be used to block entry of a new operator in an industry. Although the local community favoured the new dairy processing plant, a few dominant competitors in the Alberta dairy industry were able to put up political and regulatory obstacles to try to limit competition. The competitors sat on a government regulatory board and blocked the establishment of Holgerson Dairies. After considerable legal and public relations efforts, the dairy finally was allowed to operate. This example shows how the structure of an industry can operate to inhibit local development.

In summary, the community of Bow Island aggressively promotes economic development. The EDO plays a key role in developing policies, linking mutual interests and attracting industries. The role of the EDO is complemented by local business and farming interests, which have the necessary raw materials and capital to invest in agri-processing. Smoky Lake, with a more regional and co-operative approach, promotes local products, and supports local potential economic development. In contrast to Bow Island, it does not aggressively attract or promote the location of new enterprises. However, because of its agricultural base, it does not have the same potential to develop or attract new agri-processing industry as does Bow Island.

IMPACTS OF DEVELOPMENT OR THE LACK OF DEVELOPMENT

This section addresses the second key question of what has been the impact of development or lack of development on the communities of Bow Island and Smoky Lake? The

impact is assessed by examining and comparing population, income, and employment indicators for the two communities. Statistics Canada provides demographic data for municipalities and counties separately. Therefore, data for both of these jurisdictions will be presented to analyse the changing demography of the communities.

Population

The population in the Town of Bow Island has experienced long-term population growth since 1941 (Figure 3). Population increased rapidly in the 1940s and 1950s owing to availability of irrigation, and the prosperous times that promoted growth. Population also grew in the 1980's with increases of 26 percent between 1974 and 1981, and of 10.6 percent between 1981 and 1986. The population, however, declined by 10 percent between 1986 and 1991. The renewed growth in the 1970s and 1980s was due to economic developments at the time, as well as the expansion of public facilities. The decline in population since 1986 was attributed to the impacts of the recession, as some farmers and enterprises were forced out of business. The surrounding County of Forty Mile has, in contrast, experienced long-term population decline. In the 35-year period examined, population declined by 47 percent. The only period of stability was during the 1960s.

The population of the Town of Smoky Lake increased steadily until 1974, and has been relatively stable since (Figure 3). Again, in contrast to the Town of Smoky Lake, the County of Smoky Lake has experienced long-term population decline. Since 1951 the population has declined by 43 percent, and this trend continued to 1991.

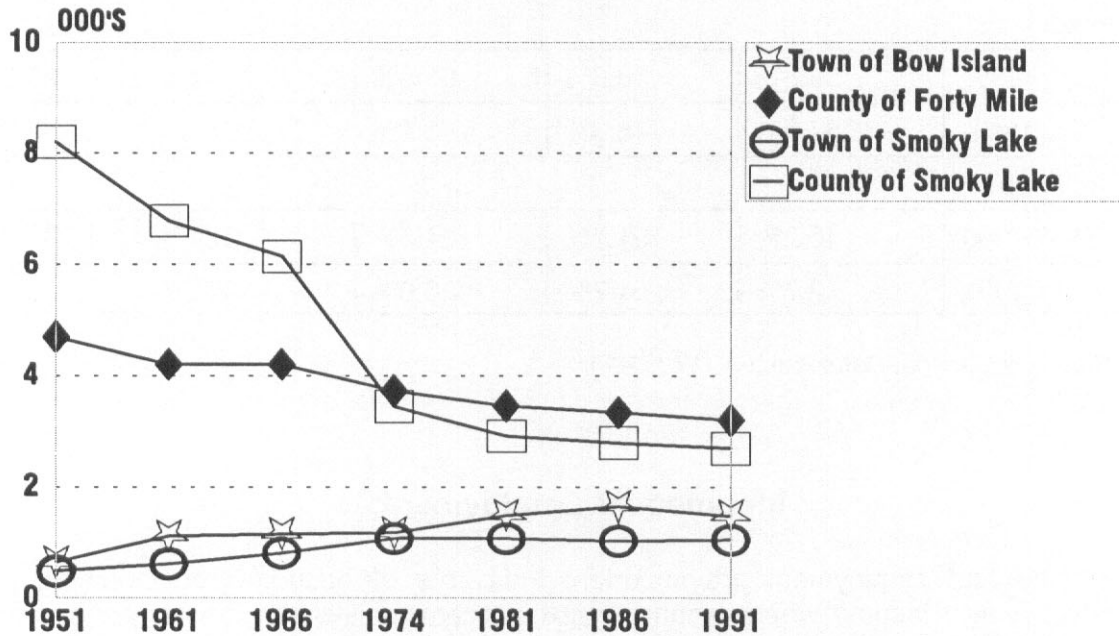
Comparison of 1981 and 1991 figures puts the trends in perspective. In this 10-year period the population in the Town of Bow Island declined by 0.4%, while the population in the County decreased by 7.5 percent. The population of the Town of Smoky Lake decreased by 2.1 percent, and that in the County declined by 7.6 percent. This compares with a province-wide growth rate of 5.7 percent, and a national increase of 4.0 percent (Statistics Canada Catalogue 94-117, 1986). A picture emerges of stabilisation of population in the Towns of Bow Island and Smoky Lake, and steady decline in the surrounding counties.

Age Profiles

Relative to the counties and the Province of Alberta, the Towns of Bow Island and Smoky Lake have high-dependent populations (0-15 and >65 years of age), and low-active populations (15-64 years of age) in the working age groups (Table 1). This can be explained by the tendency for older people to retire to the Towns, which was confirmed in interviews in both communities. However, despite this general trend, 1991 statistics show that Smoky Lake has a less active working-age population (48.3 percent) than Bow Island (57.3 percent). Conversely, the Towns have significant shares of dependent populations, with Smoky Lake having 51.7 percent in 1991 compared to 42.7 percent for Bow Island.

Figure 3

Population Change 1951 - 1991



Sources: Community Profiles & Statistics Canada catalogue 94-117 1986 and 95-372 1991.

These trends are in line with the population composition identified for Canadian rural populations in general (Dasgupta, 1988). However, the steady growth of the population in Bow Island through the 1970s and 1980s, coupled with a higher share in the active population, implies a positive impact of the diversification of agriculture and development of the agri-processing sector. Further evidence for this will be presented when the extent and timing of employment impacts of the diversification are discussed. The population of the Town of Smoky Lake has remained stable, but this is because of an increasingly older population (including in-migration retirees), rather than economic development. Those aged 65 years and over constituted 34 percent of Smoky Lake's population in 1991, compared to 19.5 percent for Bow Island (Statistics Canada 1991, 95-372).

Table 1. Active and Dependent Populations, 1986 and 1991

Category	Bow Island	Smoky Lake	County Forty Mile	County Smoky Lake	Province of Alberta
Active pop.					
(age 15-65) 1986	59.8%	48.3%	65.5%	68.8%	68.3%
1991	57.3%	48.3%	63.4%	65.3%	67.3%
Dependent pop.					
(0-14 & 65+) 1986	40.2%	51.7%	34.5%	31.2%	31.7%
1991	42.7%	51.7%	36.6%	34.7%	32.7%

Source: Statistics Canada, Catalogue 94-117 (1986)

Income and Employment

Income and employment are important indicators of economic development in a community. Levels of income, when compared with other communities and provincial and national levels, illustrate the economic activity of the community. The level of employment, unemployment, participation rates in employment, and the ratio of basic to non-basic employment, indicate the degree to which labour is being utilised.

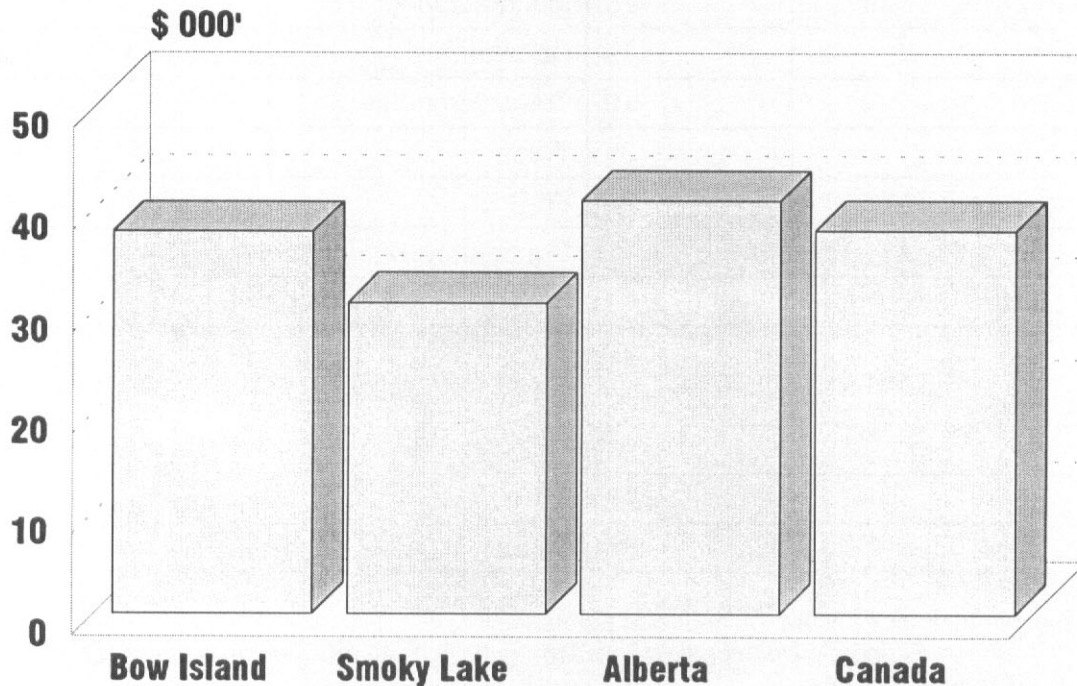
Agricultural sales data at a local level are available for the Counties of Forty Mile and Smoky Lake. This local data indicates trends for the Bow Island and Smoky Lake regional communities, because it includes data for the whole county. Incomes for the farming community are estimated from sales of agricultural products. In the County of Forty Mile, 40 percent of farms reported sales of more than \$100,000, while in the County of Smoky Lake, only 10 percent reported sales of more than \$100,000. These values compare to 20 percent for all of Alberta.

Farm operators are younger than the provincial average in the County of Forty Mile. In Alberta, 31 percent of farm operators were less than 40 years of age in 1986, compared to 38 percent for the County of Forty Mile. In the County of Smoky Lake, 24 percent of farmers were under the age of 40 in 1986. Farm sales, therefore, are higher in the Bow Island hinterland than in the County of Smoky Lake and Alberta in general, and farm operators tend to be younger (Alberta Agriculture, 1986).

Incomes for the residents of the Towns of Bow Island and Smoky Lake are derived from paid employment, business profits and government assistance. Average family income for the Town of Bow Island is slightly below the national average, while the Town of Smoky Lake is considerably lower than the County, and is considerably below both the national and provincial averages (Figure 4). Labour force participation rates for Smoky Lake are lower, with male participation rates lagging almost 20 percent behind those for Bow Island and Provincial levels. Female participation rates also lag, but not to the same extent (Statistics Canada 1986).

Figure 4

Average Family Income - 1986



Source: Statistics Canada catalogue 94-117, 1986.

Considering the rural and agricultural nature of Bow Island and its hinterland, the farm income levels and labour force participation rate data indicate strong economic activity. Conversely, the levels and rates for Smoky Lake are low, although the high share of senior citizens in the Town partly accounts for the lower levels. In Bow Island, a greater proportion of the community is in the economically-active age groups that participate in the labour force. Farmers are younger, and incomes for farmers and Town dwellers are relatively high. This indicates a younger community where the labour force is more fully utilised.

The labour force in the Town of Bow Island increased from 485 in 1974, to 860 in 1986, an increase of 77 percent (Table 2). In the Town of Smoky Lake, the labour force increased from 330 to 430, an increase of 30.3 percent (Table 3). For both communities, the major categories of employment increase were retail trade and services (including community, business and personal services). Smaller increases occurred in other sectors such as manufacturing, construction, and transportation, communication and utilities.

Table 2. Bow Island employment, 1974 and 1986

Category	1974	Category	1986
Agriculture	179	Primary Ind.	150
Agriculture Ser.	78	Manufacturing	15
Construction	19	Construction	65
Manufacturing	19	Trans/comm/util	65
Trans/com/uti	39	Trade	180
Retail	34	F I R E*	180
Wholesale	15	Community, bus/per service	280
F I R E*	5	Public admn & defence	70
Services	29		
Government	10		
Education	24		
Others	35		
Total	485	Total	860

*F I R E represents Financial, Insurance and Real Estate sectors.

Sources: Alberta Economic Development and Trade (1986a), Alberta Business Development and Tourism (1974a).

Table 3. Smoky Lake Employment, 1974 and 1986

Category	1974	Category	1986
Agriculture	66	Primary Ind.	50
Agriculture Ser.	3	Manufacturing	20
Construction	33	Construction	20
Manufacturing	49	Trans/comm/util	50
Education	83	Trade	110
Retail	33	F I R E*	15
Government	13	Community, bus/per service	130
F I R E*	50	Public admn & defence	35
Total	330	Total	430

*F I R E represents Financial, Insurance and Real Estate sectors.

Source: Alberta Economic Development and Trade (1986b), Alberta Business Development and Tourism (1974b).

This is borne out in an analysis of the basic to non-basic ratio¹ between 1974 and 1986. The ratio increased from 1 : 0.94 to 1 : 2.65 indicating that each basic job became more important in its multiplier effects in the non-basic sector. In Smoky Lake the basic to non-basic ratio increased from 1 : 0.56 to 1 : 3.09. It appears that the extra employment and income created by the diversification of the economic base had its greatest impact on the level of trade and services that could be supported (Alberta Business Development and Tourism, 1974a and b; Alberta Economic Development and Trade, 1986a and b).

Unemployment

Unemployment rates for both communities remained low until 1981, accounting for only 4 percent of the active-labour force (Table 4). From 1981 to 1986, the rates for Smoky Lake increased to 11 percent for males, and 12 percent for females. The unemployment rate for Bow Island remained low through 1986 at 5 percent for males, and 8 percent for females, despite the employment rate almost tripling.

Table 4. Unemployment rates, 1976, 1981 and 1986

Category	1976		1981		1986	
	Male	Female	Male	Female	Male	Female
Bow Island						
No. unemployed	n/a	n/a	10	10	25	30
Unemployment rate	n/a	n/a	3	4	5	8
Smoky Lake						
No. unemployed	0	5	10	0	25	25
Unemployment rate	0	4	4	0	11	12

Sources: Alberta Economic Development and Trade (1986a and b), Alberta Business Development and Tourism (1974a and b).

The jobs that came on stream in Bow Island in the 1980s helped to keep unemployment rates low. The sunflower processing plant that opened in 1982 and expanded in 1988, employed 12 to 25 employees seasonally. The plant is located south of the Town, and is not included in Bow Island employment figures. The alfalfa-cubing plant that opened in 1985 employs 15 to 20 people. The bean plant had expansions in 1982, 1986 and 1987, which increased capacity and employment. By 1991, the bean plant employed 11 full-time, and as many as 20 part-time staff.

¹ The basic/non-basic ratio compares basic employment (i.e., employment that produces for export) with non-basic employment (i.e., employment that serves the local market). The ratio takes the form 1:x where x is non-basic employment divided by basic employment.

Public sector employment also is a significant part of increased employment in Bow Island. In interviews, respondents noted that improved public services have been the most significant change in the area in the last 15 years. The Provincial Building and the local hospital are the two biggest employers in the Town. The hospital, relatively small in 1974, has since had two major expansions and now serves the entire County. A senior citizens' lodge opened in 1978 and expanded in 1983. Employment in the public service in Bow Island has increased from 63 in 1974, to 350 in 1986.

A contrasting picture of the two communities emerges from analysis and discussion of income and employment. Bow Island farmers are younger and produce greater sales value for their products. Family incomes and labour force participation rates in the Town of Bow Island are higher. Employment has increased and the basic to non-basic jobs ratio has increased in both communities. Unemployment levels have increased in both communities, but the unemployment rate has increased substantially more in Smoky Lake than in Bow Island.

In contrast, Smoky Lake farmers are older, have lower levels of farm sales, family incomes are well below the provincial average, labour force participation rates are lower, and unemployment is higher. The community has not benefited in terms of employment from the production of local agricultural products because the products (except milk), leave the community for processing. Many of the agricultural products from the Smoky Lake community are inputs for agriculture elsewhere in the province.

CONCLUSION

The experiences of Bow Island and Smoky Lake in the development of agricultural-processing industry have been very different. While both communities have similar early histories, are accessible and have terrain and soil ideally suited to agriculture, they have developed along divergent paths. The climate in Bow Island, along with the availability of water for irrigation and the influx of new farmers, has allowed agriculture to diversify. The availability of local capital, entrepreneurial ability, and a dynamic economic development institution have resulted in the community capitalising, and benefiting from the development of processing of locally-produced commodities. In Smoky Lake, agriculture has become specialised, but the products produced are processed elsewhere, requiring export. The potential for development of agri-processing is restricted.

The factors that facilitated or hindered development of agri-processing industry are evident in the two case studies. Physical factors both limit and provide opportunities for the type of agriculture that is possible, which in turn affects the agri-processing potential. For Bow Island, the climate provided advantages that were exploitable owing to the availability of irrigation. On the other hand, the more limiting climate restricts the agricultural possibilities for Smoky Lake.

The influx of new farmers to the Bow Island area also contributed to development. The new farmers were adaptable to the new agricultural opportunities and were willing to take risks. Capital, entrepreneurial ability, and experience with different agriculture came with the new farmers. These three factors have been critical in allowing agri-processing to develop. Having a dynamic local institution or individual also is important. In Bow Island, the EDO provided the link to bring together the necessary actions for projects to be implemented.

The availability of agricultural products that are unique to the region is an important factor in allowing agri-processing to develop. Unique agricultural products create an opportunity for local processing to develop. Conversely, generic products are more likely to be processed outside the community, as processing tends to be large scale, and located in larger communities. The presence of a local entrepreneur with personal, historical, or economic ties to a community may provide some opportunity for development. This is evident from the dairy in Smoky Lake.

Bow Island has been successful in the development of its agri-processing industry, resulting in positive impacts for the community. It has successfully diversified its agriculture and capitalised on this by carrying out most of the processing in its own community. While Bow Island has recently lost population, the agri-processing developments in conjunction with other new employment created in the community, resulted in significant population growth during the 1970s and 1980s. It also has contributed to a lower dependency population, a younger population, higher average family incomes, greater participation by the population in the labour force, and lower unemployment.

Smoky Lake has not been as successful in the development of its agri-processing industry. Its agriculture has become more specialised in traditional commodities and tied into supplying other regions' markets in a raw or preprocessed state. The potential for developing agri-processing, and the resulting benefits have been limited. Its population has remained stable since the mid-1970s, and the aging population may make it difficult for the Town to sustain its population. In contrast to Bow Island, Smoky Lake has higher unemployment, lower than average family incomes, a higher-dependent population, and an older population.

It is clear from the case studies that a community can develop an agri-processing industry by assisting the diversification of agriculture. The agricultural products produced by a community are closely related to the potential for development of, and the benefits accrued from an agri-processing industry. Increased diversification of agriculture, therefore, brings opportunity. The potential opportunity is greater if the specialisation is unique to the region, if the product is in a readily processable form, and if the product has an accessible market. Local development institutions can play a key role in facilitating such changes. Diversification of this kind must happen at the local level using local resources and leadership to meet locally-defined needs (Bryant, 1992).

The case studies of Bow Island and Smoky Lake illustrate that rural communities can diversify their agriculture and benefit from the development of an agri-processing industry. An agri-processing industry closely tied to local agriculture has positive demographic, economic, and social impacts for the community. However, not all rural communities can easily diversify their agricultural base. As well as having the necessary physical resources, leadership, and entrepreneurial ability, a demand must exist in the market for the processed products. Diversification presents opportunities, but it is likely to increase prosperity for a few communities rather than rural areas in general.

BIBLIOGRAPHY

- Alberta Agriculture. (1990). *Agroclimatic Atlas Of Alberta*. Alberta Agriculture, Edmonton.
- Alberta Agriculture. (1986). *1986 Census of Agriculture for Alberta*. Statistics Branch, Alberta Agriculture, Edmonton.
- Alberta Business Development and Tourism. (1974a). *Bow Island Community Survey*. Regional Services Branch, Alberta Business Development and Tourism, Edmonton.
- Alberta Business Development and Tourism. (1974b). *Smoky Lake Community Survey*. Regional Services Branch, Alberta Business Development and Tourism, Edmonton.
- Agriculture Canada. (1989). *Growing Together: A Vision for Canada's Agri-food Industry*. Agriculture Canada, Ottawa.
- Alberta Economic Development and Trade. (1986a). *Alberta Community Profile: Bow Island* (updated to 1988). Department of Economic Development and Trade, Edmonton.
- Alberta Economic Development and Trade. (1986b). *Alberta Community Profile: Smoky Lake* (updated to 1988). Department of Economic Development and Trade, Edmonton.
- Alberta Municipal Affairs. (1990). *Partners in Stewardship: The Second Report to the Minister of Municipal Affairs*. Alberta Municipal Affairs, Edmonton.
- Alberta Wheat Pool, Bean Plant. (1992). *Bean Industry and Production in Alberta*. Alberta Wheat Pool, Bow Island.
- Bow Island (1992). *Bow Island Community Brochure*. Town of Bow Island, Bow Island.
- Bowler, I.R., Bryant, C.R. and Nellis, M.D. (1992). *Contemporary Rural Systems in Transition, Vol. 1*. C.A.B. Intr., Wallingford.
- Broadway, M.J., and Ward, T. (1990). Recent changes in the structure and location of the US meatpacking industry. *Geography* 75:76-9.
- Bryant, C. (1988). Economic activities in the urban field in *Essays on the Canadian Urban Process and Form III: The Urban Field*, ed. L.H. Russwurm, P.M. Coppack, and C.R. Bryant. Publications Series 30, Department of Geography, University of Waterloo, Waterloo, Ontario:pp. 57-79.
- Bryant, C. (1992). "Community development and changing rural employment in Canada". In, *Contemporary Rural Systems in Transition Vol. 2*, ed. I.R. Bowler, C.R. Bryant, and M.D. Nellis. C.A.B. Intr., Wallingford:pp. 265-78.
- Burns, J. (1983). "A synoptic view of the food industry". In, *The Food Industry: Economics and Policies*, ed. J. Burns, J. McInerney, and A. Swinbank. Heinemann, London:pp.1-17.

- Chiotti, Q. (1992). "Sectoral adjustments in agriculture: Dairy and beef livestock industries in Canada". In, *Contemporary Rural Systems in Transition, Vol. 1*, ed. I.R. Bowler, C.R. Bryant, and M.D. Nellis. C.A.B. Intr., Wallingford:pp.43-57.
- Dasgupta, S. (1988). *Rural Canada: Structure and Change*. Canadian Studies, Vol.3. The Edwin Mellen Press, Lewiston/Queenstown.
- Delauriers, P., Bryant, C., and Marois, C. (1992). "Farm business restructuring in the urban fringe: The Toronto and Montreal regions". In, *Contemporary Rural Systems in Transitions, Vol. 1*, ed. I.R. Bowler, C.R. Bryant and M.D. Nellis. C.A.B. Intr., Wallingford:pp.74-86.
- Department of Industry and Development. (1963). Survey of Bow Island. Industrial Development Branch, Department of Industry and Development, Edmonton.
- Doeksen, G.A. and Schreiner, D.F. (1972). "Investments in Agricultural Processing for rural development in Oklahoma." *American Journal of Agricultural Economics*, 54:513-519.
- Enright, P.G. (1994). *Agri-processing and Rural Development: Locational Trends, Public Policy and Local Influences in the Province of Alberta 1975-1991*. Unpublished MA Thesis, University of Alberta.
- Freshwater, D., Ehrensaft, P., and Apedaile, L.P. (1991). *The Implications of Global Restructuring of Primary Industries on the Development of Rural and Single Industry Regions*. Employment and Immigration Canada, Ottawa.
- Harvest Foods. (1992). *An Evaluation of the Impact of Economic Development Initiatives on the Agricultural Processing Industry in Western Canada*. Harvest Foods, Saskatoon.
- Hodge, I. and Whitby, M. (1981). *Rural Employment: Trends, Options, Choices*. Methuen, London.
- Krannich, R.S., and Luloff, A.E. (1991). "Problems of resource dependency in US rural communities". In, *Progress in Rural Policy and Planning, Vol. 1*, ed. A.W. Gilg, D. Briggs, O. Furuseth, and G. McDonald. Belhaven Press, London and New York:pp.5-18.
- Lapping, M.B., and Szedlmayer, I. (1991). "On the threshold of the 90s: Issues in US rural planning and development". In, *Progress in Rural Policy and Planning, Vol. 1*, ed. A.W. Gilg, D. Briggs, O. Furuseth, and G. McDonald. Belhaven Press, London and New York:pp.19-35.
- Lloyd, P.E., and Dicken P. (1977). *Location in Space: A Theoretical Approach to Economic Geography*. A. Wheaton & Co, Exeter.
- MTS. (1991). *County of Smoky Lake No. 103 (map)*. MTS, Edmonton.
- Napton, D. (1992). "Farm diversification in the United States". In, *Contemporary Rural Systems in Transition, Vol. 1*, ed. I.R. Bowler, C.R. Bryant and M.D. Nellis. (Wallingford: C.A.B. Intr.:pp. 87-99.

- Novek, J. (1989). "Peripheralizing core labour markets? The case of the Canadian Meat Packing industry" *Work, Employment & Society* 3:157-77.
- Ross, C., Susko, K., Kaliel, D., MacDonald-Date, K., and Smith, E. (1990). *The Location of Cattle Production in Alberta*. Alberta Agriculture, Edmonton.
- Rounds, R. (1992). "Addressing rural issues in Canada's rural heartland". In, *Progress in Rural Policy and Planning, Vol. 2*, ed. A.W. Gilg, D. Briggs, O. Furuseth, and G. McDonald. Belhaven Press, London:pp. 226-29.
- Select Standing Committee on Agriculture. (1978). *The Impact of DREE on the Food industry in Western Canada*. Province of British Columbia Legislative Assembly, Victoria.
- Smith, W. (1984). "The 'vortex model' and the changing agricultural landscape of Quebec." *Canadian Geographer* 28:358-72.
- Smoky Lake and District Cultural and Heritage Society (1983). *Our Legacy - A History of Smoky Lake and Area*. Inter-Collegiate Press, Winnipeg.
- Stabler, J.C., and Molder, P.J. (1992). *Rural Manufacturing Industry: Products, Markets, and Location Requirements*. Department of Agricultural Economics, University of Saskatchewan.
- Statistics Canada. (1991). *Census of Population* (Catalogue 95-372). Statistics Canada, Ottawa.
- Statistics Canada. (1987). *1986 Census Geography: A Historical Comparison* (Catalogue 99-106E). Statistics Canada, Ottawa.
- Statistics Canada. (1986). *Census of Population* (Catalogue 94-117). Statistics Canada, Ottawa.
- Statistics Canada. (1974-1987). *Manufacturing industries of Canada: National and provincial areas* (Catalogue 31-203). Statistics Canada, Ottawa.
- Statistics Canada. (1971). *Census of Population* (Catalogue 94-117). Statistics Canada, Ottawa.
- The County of Smoky Lake. (1967). *A Study of Smoky Lake and Warspite 1810-1967*. Modern Press, Edmonton.
- Troughton, M. (1992). "The restructuring of agriculture: The Canadian example." In, *Contemporary Rural Systems in Transition, Vol. 1*, ed. I.R. Bowler, C.R. Bryant and M.D. Nellis. C.A.B. Intr., Wallingford:pp. 29-42.
- Tyrchniewicz, E.W. (1991). Role of transport in alternative futures for prairie agricultural communities. In, *Alternative Futures for Prairie Agricultural Rural Communities*, ed. J. Martin, University of Alberta, Edmonton:pp. 85-96.
- USARS (United States Agricultural Research Service). (1978). *Guidelines for Establishing Beefpacking Plants in Rural Areas* United States Department of Agriculture, Maryland.

Wallace, I. (1992). "International restructuring of the Agri-food chain". In, *Contemporary Rural Systems in Transition, Vol. 1*, ed. I.R. Bowler, C.R. Bryant and M.D. Nellis. C.A.B. Intl., Wallingford:pp. 15-28.

West Edmonton Reprographics. (1990). *Map of County Of Forty Mile*. West Edmonton Reprographics, Edmonton.

