

AG Ventures

Agriculture Business Profiles

Revised March 2002

Agdex 263/830-1

Herb/Spice Industry

The purpose of this factsheet is to provide an overview of culinary herb and spice production and marketing in Alberta. This overview is not intended to be a substitute for individuals making their own thorough assessment of all the key issues that would influence the success of an individual enterprise.

1. Industry Highlights

The production and marketing of culinary herbs and spices requires growers to research the markets, identify target markets, determine how to market their product in that market, research the production requirements of each plant variety grown and research the processing procedures required to meet customer needs in the target markets.

- Culinary herbs are the leaves, roots and flowers of plants grown and processed for the food and/or beverage industry.
- Spices are seeds, root, bark and flowers of plants that are grown, harvested and processed for use as food or beverage flavouring.
- Herb and spice production can offer opportunities for value-added processing such as drying, packaging and further processing. Each opportunity is determined by the needs of the buyers in the specific market.
- Four trends have been identified as contributing to the increased consumer demand for fresh and dried herbs:¹
 - The trend towards healthy lifestyles has led to a decrease in the use of salt and an increase in the use of natural flavourings.
 - Growth of ethnic cooking has generated a greater use of herbs.
 - As consumers purchase greater amounts of convenience food products, use of herbs for high quality flavouring of these products has increased.
 - Greater use of herbs by quality restaurants.
- Most culinary herb and spice enterprises will require other sources of income for an individual to achieve a desired livelihood. Culinary herbs and spices can provide a complementary enterprise to other horticultural operations such as a market garden, where overhead and labour can be shared. Spices might be an alternative crop for a grain farm.
- Culinary herb and spice growers will be required to spend more time marketing than in production activities. Producers need to have a basic understanding of food marketing and distribution. As well, there are many markets for culinary herbs and spices, each with its own unique consumer requirements, and marketing and distribution channels. Meeting these buyers needs and accessing the market can only be learned through experience.²

¹ Saskatchewan Agriculture and Food, *Herbs: An Industry Overview*; Reprinted January 1995.

² Saskatchewan Agriculture and Food, *Saskatchewan Herb and Spice Industry; Introductory Information Guide*; Farm Facts.

- Western Canadian herb growers, operating at a cottage industry level, sell fresh herbs directly to retailers and consumers through farm gate sales and farmer's markets. Other potential markets include local horticultural and food service industries.
- Herb and spice production will require more labour than cereal production, and require small plots due to the large amounts of hand labour and specialized equipment.
- Commercial growers generate higher revenues by performing many of the processing and marketing functions or by increasing the scale of their operations in order to sell greater volumes into the commercial markets.
- Culinary herb crops with agronomic potential for Alberta include cilantro, anise, ginseng, sage, lovage, summer savory, thyme, sorrel and tarragon, as well as mint.³ Producers will need to consider both agronomic factors and market acceptance when selecting the variety of a crop to produce. For example, both French Tarragon and Russian Tarragon can be grown in Alberta. However, the market preference is the French type.
- Caraway, coriander and dill for seed are spice crops presently grown in Alberta on a commercial scale using conventional farm equipment.⁴
- The production and marketing of herbs and spices in Alberta is a fairly new industry. New entrants must be prepared to deal with a shortage of published production information, the difficulties obtaining efficient seeding and harvesting equipment, a lack of established markets, high variations in yields and large price variations.
- The following "rules of thumb" have been developed to assist new entrants to herb production and marketing:⁵
 - learn about the market before getting involved with a crop
 - expect higher labour costs than you would incur for growing cereals crops
 - understand what level of processing the market requires
 - expect to spend more time marketing these crops than producing them

- take a year to study how the various crops will grow at your location
- start small

2. Regulatory Basics

- Health Canada controls the use of herbs in foods and medicines. Herbs or spices used as food or drugs must be proven safe for human consumption.
- Pre-packaged food products must meet labeling requirements administered by the Canadian Food Inspection Agency. Details of these requirements are available at the CFIA Website <http://www.cfia-acia.agr.ca/english/ppc/label/home.html>.
- Herbs are considered to be drugs when the manufacturer makes a claim suggesting a link between the herb and a health benefit. Manufacturers of products to be sold as medicinal herbs who wish to make a medical claim for that product must obtain a drug identification number (DIN) from Health Canada. Health Canada has specific guidelines for the manufacturing and registrations of "Traditional Herbal Medicines". These guidelines are available at Health Canada's website <http://www.hc-sc.gc.ca/hpb/>.
- The *Weed Control Act* gives local authorities the right to make by-laws designating plants within the municipality as restricted, noxious or nuisance weeds. Some herbs or medicinal plants may be considered noxious weeds and will be banned. Growers must check the list of noxious weeds for their particular municipality.
- Producers considering organic production will require certification through one of the four certifying bodies in Alberta. Information on organic certification and certification standards is available at <http://www.ocia.org/docs.html>.

3. Marketing Basics

- The key elements of success for a herb and spice enterprise will be the grower's ability to recognize the different markets for herbs and spices, learn the needs of the different markets and develop a strategy for accessing those markets.

³ Gaudiel, R.G. (1992) *Adaptability and Agronomic Practices of Herbs, Spices and Essential Oil Crops for Alberta*; Farming for the Future Research Report, Alberta Agriculture, Brooks Alberta.

⁴ Gaudiel, R.G. *Herbs and Spices – An Overview*, Alberta Special Crop and Horticulture Research Centre, Brooks Alberta.

⁵ Fairbairn, C. (1994) *The Grower's Guide to Herbs and Spice*, University Extension Press, Extension Division, University of Saskatchewan.

- The quality requirements of the commercial markets are very specific. As a result, buyers for the food industries tend to develop loyalties to suppliers of consistent product. Only in cases of political instability, crop failure or contamination might buyers look to new suppliers.
 - **Culinary Herb** crops with economic potential in Alberta include:⁶
 - Young **Coriander** leaves are known as cilantro and are used as a herb in Chinese, Mexican and East Indian cooking.
 - Sweet **Basil** is one of the most important herbs to grow for fresh-cut sales. Basil leaves are used in various ways for cooking.
 - **Dill** leaves and flowering tops are used in pickling. Dried leaves known as dillweed are used as flavouring in cheese, potato and pasta dishes.
 - **Caraway** seed oil is used in sausages and meats. Seed oil yields are two to three per cent of dry matter weight. World production of caraway seed oil is estimated to be 10 tonnes annually, mainly from Holland, Poland and Egypt. Commercial markets prefer Dutch caraway seed and oil products. The preference for Dutch caraway may be an obstacle to increased commercial production in Alberta.
 - **Cumin** oil is used in condiments, sausages, meat sauces and cheeses.
 - **French tarragon** leaves are used as a herb and in the production of mustards, vinegars, pickles and processed foods. Oil of tarragon is used in the production of vinegars, mustards, salad dressings and liqueurs. The economic potential may be limited due to high prices and low demand. Potential might be realized through market development to increase consumption.
 - **Anise** is another herb crop that may have economic potential when proper production practices are developed.⁷ Anise seeds can be used like caraway seed in producing cheeses and breads.
 - **Garlic** can be dehydrated and sold as a spice. It can be sliced, chopped, minced, ground or powdered. Garlic is used as a spice in sauces, salad dressings, pickles, chips and ethnic cooking. The commercial market is limited by high quality, low priced garlic from California.
- Niche market opportunities for fresh garlic may exist, but would require considerable development.
- **Ginseng** is a perennial root crop that is being grown commercially in British Columbia and Ontario. The industry is developing in Alberta. Ginseng is a very specialized crop that requires significant capital investment. Some 'functional food' products contain ginseng.
 - **Horseradish** is a root crop. It's used to produce an enzyme that is extracted and used in chemical procedures. The left over residue is used as a condiment. Grated or minced horseradish root is also used as a condiment.
- Herbs have many industrial and food uses. Specific uses for herbs are determined in four major product markets, including: the culinary market, the pharmaceutical market, the medicinal/supplement market and the market for essential oils.
 - **The culinary market** uses herbs in the production of a wide range of food products.
 - Major players in the culinary market include:
 1. Food processors such as General Foods and Campbells who use herbs in the preparation of baked goods, meat products, soups, pickles and beverages.⁸ Spice houses such as McCormick's and Spice Island that sell dried or powdered herbs directly to consumers.
 2. Hotels, restaurants and the institutional trade looking for a steady supply of fresh herbs to be used in the preparation of food products.
 - Herbs can be sold in the culinary market in the following forms:
 - a. **fresh herbs** – An important consideration in marketing fresh herbs is their seasonal production, their limited shelf life and the limited distances they can be transported to market because of spoilage problems. Fresh herbs can be sold by growers **directly to consumers** through farmers markets or farm gate sales. Live plants are sold at farmer's markets, garden centres and landscape stores. Producers may be able to develop markets for live plants

⁶ Gaudiel, R.G. (1992) *Adaptability and Agronomic Practices of Herbs, Spices and Essential Oil Crops for Alberta*; Farming for the Future Research Program Abstract, Alberta Agriculture, Brooks Alberta.

⁷ Gaudiel, R.G. (1992) *Adaptability and Agronomic Practices of Herbs, Spices and Essential Oil Crops for Alberta*; Farming for the Future Research Program Abstract, Alberta Agriculture, Brooks Alberta.

⁸ Saskatchewan Agriculture and Food, *Saskatchewan Herb and Spice Industry; Introductory Information Guide*; Farm Facts.

with hotels and restaurants. A key requirement of direct to consumer sales is the inclusion of recipes and instructions to assist consumers to use herbs in meal preparations. Consumers may be willing to pay a premium price for fresh herbs that can be certified as organically grown.

Fresh herbs can also be sold to **restaurants and grocery stores**. The key to success in this market is being able to provide a consistent supply of a high quality product. An obstacle for Alberta producers is not being able to supply product on a year round basis. Selling to this market may require a location close to major markets in order to ensure minimal spoilage. The markets for fresh herbs may require some level of packaging such as bunching, cartons, cases or zipper lock bags. It is also important to be able to monitor the condition of the product.

Fresh herbs can also be marketed **directly to brokers, wholesalers and distributors**, but be aware that over supply can have a drastic effect on prices.

The consumption of fresh herbs has increased considerably over time primarily due to the North American consumer's increased demand for "fresh" food products together with an increased supply (due to increased acreage) of herbs being made available to consumers. The Canadian market for fresh herbs is supplied by domestic growers and California producers. The high expenses associated with accessing fresh herbs from California during the winter months might be an opportunity for prairie greenhouse growers. However the seasonal limits of herb production may restrict the growth of various markets since markets relying on Canadian supplies may not be able to stock fresh herbs year round.

Small scale production of fresh herbs targeted at farmer's markets and specialty retail outlets may have the most potential for new entrants. However, these markets will be limited by the seasonal nature of herb production.

b. **dried or powdered herbs** – Dried herbs are sold as whole leaves or in a chopped, cut, rubbed or ground form.

An advantage of marketing dried herbs is that after drying, herbs lose their quality slowly and can therefore be transported over greater distances. Also, the markets for dried herbs aren't restricted by the seasonality of the crop.

Generally, producer sales of dried herbs are made to brokers who in turn sell large volumes to food processors.⁹ There are grading standards for herbs provided by the American Spice Trade Association. However, buyers tend to purchase dried herbs on the basis of price, quality and consistency of supply.¹⁰ Quality is judged according to appearance, aroma and texture. Producers who are able to establish a consistent record of producing large quantities of high quality product may be able to negotiate a forward contract for their crop.

For many dried herbs, Canadian producers will be required to compete with foreign producers who produce large quantities with a lower cost of production. This is primarily due to lower labour costs. Canadian producers should investigate producing herbs where foreign competition is limited or where higher quality can be produced.

Growers might also be able to establish markets for dried herbs with local grocery stores and local specialty stores, and to markets they already sell fresh herbs to during the summer months.

c. **tea herbs** – The herbal tea market focuses on the export of herbs such as catnip, rose hip, lemon balm and chamomile to Asia. There are also direct marketing options such as through farmers markets.

d. **new technologies for herbs** – There are a number of new packaging technologies that can provide longer shelf life and open distant markets for herbs.

⁹ Dampier, P. and Pope, S. (1995) *Feasibility Study of the Markets for Herbs Grown in the Peace River Area*, Kiwanis Enterprise Centre, Dawson Creek, British Columbia.

¹⁰ Saskatchewan Agriculture and Food, *Saskatchewan Herb and Spice Industry; Introductory Information Guide*; Farm Facts.

Controlled atmosphere storage involves injecting a gaseous mixture into the packaged herb. This mixture causes the plant material to continue respiring as if it were still growing. Shelf life can be increased to several weeks which can increase the distance that herbs can be shipped with out spoilage.

Freezing has been used to package certain herbs in various pre-packaged amounts. This technique can only be applied to herbs which don't lose their flavour with freezing. This process provides both a means of delivering exact quantities to restaurants and food processors and gaining greater shipping distances.

- e. **value added activities** – Herbs and spices can be used as ingredients in the production of sauces, pickles, breads and floral arrangements. Value-added activities require extensive market research to determine the market potential for the value-added products.

■ **Spice** crops currently being produced in Alberta include:¹¹

- **Caraway** seeds are a popular flavouring in breads, cakes, biscuits, cheese cookies and sauerkraut. Caraway is well adapted to Alberta however, Dutch caraway seed dominates the industry.
- **Coriander** seeds are ground to a powder and used as an ingredient in curry powders. The seeds are also used both whole and ground in pickles, candies, meats, cheese, soups, sauces and liquors.
- **Dill** seeds (whole) are used to flavour cheeses as well as potato and pasta dishes. Dill seeds can also be used to produce dillseed oil and oleoresin.
- **Mustard** is a well established crop in Alberta. Mustard seed is used in pickles, relishes and condiments. Ground mustard seeds are used in the sausage industry and other food products. The majority of mustard seed is exported out of Alberta. Deheated mustard is an Alberta value-added product in which the enzyme that makes mustard hot is removed.

■ **Spice** crops with economic potential in Alberta include:

- **Cumin** seeds are used as a flavouring in cheeses and liqueurs and as an ingredient in chili and curry powders.
 - **Fenugreek** seeds have an oil content that is used to flavour curries and to produce dyes and medicines. As well, fenugreek is used to produce an artificial maple syrup flavour. The late maturity of fenugreek may be a limitation to it's economic potential.
 - **Sage** is sold as cut leaves or a fine powder for use as a spice in making pork sausages, poultry stuffing, soups, beef dishes and vegetables dishes. Dalmation sage, imported from the former Yugoslavia, is the dominant product in the market. Alberta potential is limited by the inability to produce a consistent supply of product acceptable to the industry. In Alberta, sage will likely be grown as an annual.
 - **Summer Savory** is used as a herb in various meat dishes, soups and vegetable dishes. Commercial production is limited by market demand however, niche market opportunities may be available for developing.¹²
 - **Thyme** is used, either whole or ground, to spice various poultry, fish cheese and vegetable dishes. Market opportunity is good however, low growth profile doesn't allow for mechanical harvesting. The economic potential for thyme will be achieved only when this agronomic problem is overcome. In Alberta, thyme will likely be grown as an annual.
- Spices can be marketed in the following forms:
- **Whole Spice Seeds** like mustard seed or caraway are used to provide both flavour and visual appeal. Whole seeds have limited flavouring capability and greater storage capability relative to ground spices.
 - **Ground Spices** provide the capability to be more uniformly mixed in food preparations, but they have reduced shelf life.

¹¹ Gaudiel, R.G. *Herbs and Spices – An Overview*, Alberta Special Crop and Horticulture Research Centre, Brooks Alberta.

¹² Alberta Grain Commission. (1989) *Spice and Essential Oils Marketing Study, Opportunities for Alberta*.

- **Essential oils** are the volatile components of spices that provide the flavour and aroma of the spice. Essential oils are produced through a number of processes. Steam distillation is the most common. Essential oils provide uniform quality and a lack of colour. This makes them popular in the preparation of food. Essential oils do not have the non-volatile component of the spice. As a result the flavour profile is incomplete.
- **Oleoresins** consist of essential oils, resins and components that provide heat in a spice. Oleoresins are used where a full range of flavour is required such as in producing processed meats.
- The spice industry in Canada is quite structured and organized. Growers generally sell to agents who then sell to brokers or spice millers. Brokers sell to the spice millers and blenders. The primary role of brokers is to collect spice crops from growers and ensure the millers and blenders get the right quality of product when it's required.
- The four largest spice millers and blenders in Canada are:
 - McCormick Canada Inc. in London, Ontario
 - Griffith Laboratories Ltd. in Scarborough, Ontario
 - Foodpro National Inc. in Lachine, Quebec
 - UFL Foods Inc. in Mississauga, Ontario

These spice houses buy raw or ground spice from brokers and further process and blend the spices. The products produced by the millers and blenders are sold to meat processors, bakers, condiment producers, canners, snack food producers and other food processors.
- Before producing culinary herbs and spices, new entrants must research their potential markets to determine which crop(s) to grow, the target market for their crop and how to market their crop.
- The following questions are suggested as key elements of market research for non-traditional crops such as herbs:¹³
 - Who buys the crop?
 - Where are the buyers located?
 - What is the market size?
 - When and where do the buyers buy?
- What type of product do buyers prefer (e.g. fresh, frozen, dried)?
- What product and quality specifications are required by buyers?
- What are the wholesale and retail prices?
- How much do prices fluctuate?
- Is the market mature or growing?
- Does the market have room for additional production?
- In addition to market research, potential herb and spice producers must also determine the target market for their produce and the marketing strategies that will allow them to gain access to that particular market.
- If the target market is an established market, the marketing strategy might include having lower prices than the other suppliers, producing superior products or identifying a market with a shortage of product and filling the void.
- If the target market is a new market, the producer must be prepared to pursue the long-term development of that market.
- *The critical marketing activities* for the manager of a herb or spice enterprise is researching the markets for their crop, determining a target market, determining the product quality and quantity for the target market, determining the strategy that will give them access to that market and determining what processing techniques are required for that market.

4. Production Basics

- Growers of herb and spices will need to achieve a balance between producing the herbs that meet the demands of their target market and achieving efficient production, harvesting, storage and processing performance.
- Since a wide range of herb and spice crops might be grown, producers must be prepared to research the many different production, harvesting and drying practices that are required by each crop. Producers must also be aware of the production limitations each individual crop may have. These include over-wintering, heat requirements and growing season.

¹³ Saskatchewan Agriculture and Food. *Marketing Non-Traditional, Exotic (niche) Crops*, Farm Facts.

- Production information for herb and spice crops with economic potential in Alberta is being researched on an ongoing basis.¹⁴ Growers will need to research the most up-to-date and detailed information available for each crop. Growers will also need to do their own on-farm research to determine the growing techniques that give the best results.
- Since a wide range of crops might be grown, producers must be prepared to research the many different production, harvesting and processing practices required by each herb crop and the production, harvesting and storage specifications demanded by buyers.
- Agronomic information for crops with economic potential is being researched on an ongoing basis. Growers will need to research the most up-to-date and detailed information available for each crop. They will also need to do their own on-farm research to determine the growing techniques that give the best results.
- The *Herb and Spice Production and Planning Guide*, a CD-ROM produced by Alberta Agriculture Food and Rural Development, provides a detailed resource covering marketing, production and planning issues. The *Grower's Guide to Herbs and Spices* published by the University Extension Press, Extension Division, University of Saskatchewan provides information sheets for some herb crops that are suitable for Alberta conditions.
- The *Technical Feasibility Study For Medicinal and Aromatic Plants which can be grown in the Interior of British Columbia* provides a detailed look at the production, marketing and processing requirements of 26 herbs.
- The Saskatchewan Herb and Spice Association, Herb and Spice Tour at http://paridss.usask.ca/specialcrop/commodity/herb_spice/tour.html provides a good source of production information on a number of herb crops.
- **The critical production issues** for herb and spice crops are site selection, adaptability, seedbed preparation, seeding, fertilization, weed control, harvesting, storage and processing.
- Most herbs and spices require large amounts of sunlight. This is because the essential oils that are responsible for the distinctive flavours and aromas develop best when the plants receive at least six hours of sunshine per day.¹⁵
- Growers need to determine how tolerant the various herb crops are to soil moisture. Many herbs require well drained soils as their roots can sicken and die in overly moist and cool soils, especially in the spring after thawing.
- A sheltered growing area will provide protection from cooling winds that can stop the growing process in some herbs. This will also contribute to a good snow cover in the winter to assist with over-wintering of perennials.
- Producers should be familiar with the hardiness of the different herb and spice varieties.
- Herbs can be classified as annuals, perennials or biennials. Producers should be familiar with the winter hardiness and adaptability of the different herb varieties. Perennials and biennials will need to withstand harsh winter conditions and may require management practices such as fall mulching. Some species can only be grown as annuals in Alberta.
- Organic production of herbs and spices may increase the acceptance of some herbs and spices by buyers and may bring higher prices. Specific requirements for certified organic production must be researched through one of the certifying organizations in Alberta. These organizations are listed in the reference section.
- When selecting a growing site, it is important to avoid areas where chemical residues may be present, where hard to control weeds are established and where spray drift may occur. Organic production (certified) will have specific requirements with respect to weed control and chemical use.
- Certified organic production requires a three-year entry (transition) period in which a cover crop such as barley is grown and plowed down as green manure.
- Most herbs will have small seeds and thus, will require a firm seedbed to ensure soil contact and increase germination. Seeding depth will range from 1/8" to 3/4" (0.3 - 1.19 cm), depending on soil moisture and seed size. Some herbs need to be transplanted using plugs.
- Since few herbicides are available for herbs and herbs are often grown for organic markets, weed control may rely on manual and mechanical cultivation.

¹⁴ Gaudiel, R.G. (1992) *Adaptability and Agronomic Practices of Herbs, Spices and Essential Oil Crops for Alberta*; Farming for the Future Research Report, Alberta Agriculture, Brooks Alberta.

¹⁵ Kublick, Lyn. (1990) *The Prairie Herb Garden*, pg. 7, Western Producer Prairie Books, Saskatoon, Saskatchewan.

- Irrigation may benefit herb crops depending on the particular crop and the growing conditions. In particular irrigation may allow growers to push their crops for earlier harvest and in the right circumstances even achieve two crops per year.
- Alberta research¹⁶ suggests the following:
 - Early seeding is beneficial to most crops except those that are sensitive to frost.
 - The smaller the seed, the more shallow should be the seeding depth. Crops with small seeds, such as oregano, thyme, parsley and marjoram are best started indoors and transplanted out at 6-pak stage. Other annuals such as dill, basil and savory seem to prefer direct seeding when conditions are right.
 - Parsley and dill appear to do best in wide row spacing.
 - The optimum harvest stage is specific for each crop.
 - Weed control studies have indicated that there are herbicides available for use on many herb and spice crops. However, producers must recognize any market limitations that might result from herbicide use, and that certified organic production would not have any herbicide use at all.
- Basic harvesting techniques and initial processing techniques for a number of herb crops are presented in *Saskatchewan Herb and Spice Industry, Introductory Information Guide*, Farm Facts, Saskatchewan Agriculture and Food. However, it is also very important to ensure these techniques match the specifications and requirements of buyers.
- The essential oils in herb and spice crops are strongest as the plant begins to bloom.
- The time of day (at which harvesting takes place) may be an important factor affecting the level of essential oils in a plant. Generally, the level of essential oils may be highest in the morning. Producers may want to avoid harvesting crops during the heat of the day. More research is needed to better qualify this issue.
- Harvesting requirements will be determined by the market requirements for the form of the herb crops. For markets requiring dried bulk material, the herb crop will require drying and some form of bagging or baling. Drying must take place indoors out of the sunlight. Material dried to 15 per cent moisture can be stored for six to 12 months.¹⁷ Protection from rodents and insects is an important consideration when storing dried herb material.
- Drying and freezing are the two techniques for storing herbs. The main objective of these techniques is to remove moisture that can cause the material to spoil and to preserve the flavour. The critical issue in drying is to complete the drying process as quickly as possible to maintain the flavour and aroma.
- Further processing may be required to meet the needs of the target market. Growers must know the parts of the plants to be harvested, the requirements of their customers and the basic processing steps to be performed for each crop or market.
- **The focus of production management** is to achieve the precise product required by the market at an acceptable cost of production. The manager must achieve good performance in the areas of production, harvesting and processing. Producers must be prepared to research the suitability of various crops to their particular growing situations. They must also determine the appropriate growing, harvesting and processing techniques they can use to achieve the desired product for their target market(s).

5. Economic/Finance Basics

- Herb production and marketing in Alberta is a highly uncertain undertaking. New entrants must be prepared to carefully assess the profitability and cash flow implications of their proposed operation.
- Whether producers see themselves as cottage industry growers or as commercial growers, costs and returns must be assessed in order to:
 - develop a pricing strategy for their product
 - determine the profitability of their herb and spice enterprise

¹⁶ Gaudiel, R.G. (1992) *Adaptability and Agronomic Practices of Herbs, Spices and Essential Oil Crops for Alberta*; Farming for the Future Research Program Abstract, Alberta Agriculture, Brooks Alberta.

¹⁷ Gaudiel, R.G. (1992) *Adaptability and Agronomic Practices of Herbs, Spices and Essential Oil Crops for Alberta*; Farming for the Future Research Program Abstract, Alberta Agriculture, Brooks Alberta.

- Published or collected budget information for herb and spice production and marketing is very limited. Growers must be prepared to research and carefully estimate the prices, costs and operating requirements of various types of herb and spice production. Alberta growers must also be prepared to estimate the costs and returns for their specific operation.
- The production costs for individual herb and spice enterprises will vary due to factors such as location, climate, crops (annual or perennial), size, machinery, labour use and marketing activities.
- Detailed budgets will be required to assess the profitability and cash flow implications of a proposed herb or spice enterprise. The following budgets are estimates and are included to provide growers with a framework that identifies the type of information required and the type of analysis they should undertake. Growers must do their own budgeting before planting a crop. *Original data for these budgets were obtained from Saskatchewan Agriculture and Food, and Alberta Agriculture, Food and Rural Development.*
- The key determinants of the viability of a herb or spice enterprise will be capital investment, production parameters, operating costs and prices received for product.
- For current market information on horticultural commodities, including some culinary herbs, and garlic, go to Agriculture and Agri-Food Canada's **InfoHort** web page: www.agr.ca/misb/infohort/infohort_e.html
- *The critical economic issue* for herb and spice producers is to be able to achieve *all* of the factors necessary for their enterprise to be profitable. These factors are:
 - establishing a specific market for the crop
 - producing the product that meets the buyer's specifications
 - achieving a profitable price for the product
 - achieving effective production, harvest, drying and marketing performance at an appropriate cost

Table No. 1 Herb & Spice Production Parameters

	Caraway	Dill	Coriander	Garlic
Seeding rate (pounds per acre)	10	10	19	800
Seed price (price per pound)	\$0.60	\$0.96	\$0.35	\$3.75
Seed cost	\$6.00	\$9.60	\$6.59	\$3,000
Fertilizer				
Actual nitrogen (pounds per acre)	50	60	41	70
Nitrogen cost	\$20.54	\$24.65	\$16.84	\$28.76
Actual phosphorous (pounds per acre)	0	30	36	80
Phosphorous cost	\$ –	\$8.29	\$9.95	\$22.10
Actual potassium (pounds per acre)	0	30	0	0
Potassium cost	\$ –	\$3.99	\$ –	\$ –
Chemicals				
Type of herbicide	Poast	Treflan	Poast	Poast
Herbicide treatment (liters per acre)	0.13	1.047	0.13	0.13
Cost of herbicide (price per acre)	\$89.61	\$13.70	\$89.61	\$89.61
Number of passes	2	1	3	1
Total Herbicide Cost	\$23.30	\$14.34	\$34.95	\$11.65
Irrigation				
Water rates (price per acre)				\$21.00
Hired Labour				
Labour hours				438
Wage rate (price per hour)				\$10.00
Fertilizer Prices (price per tonne)				
<i>Type</i>	<i>Price per tonne</i>			
46-0-0	\$415.72			
11-51-0	\$409.39			
0-0-62	\$220.00			
21-0-0-24	\$260.00			
<i>Type</i>	<i>Price per pound (actual)</i>			
N	\$0.41			
P205	\$0.28			
S	\$0.16			
K	\$0.13			

Table No. 2 Herb and Spice Operating Costs

	Caraway*	Dill	Coriander	Garlic
Cash Crop Costs (dollars per acre)				
Seed	\$6.00	\$9.60	\$6.59	\$3,000.00
Fertilizer** – nitrogen	\$41.08	\$24.65	\$16.84	\$28.76
– phosphorus	\$ –	\$8.29	\$9.95	\$22.10
– sulphur and other	\$ –	\$3.99	\$ –	\$ –
Chemical*** – herbicides	\$46.60	\$14.34	\$34.95	\$11.65
– insecticide	\$ –	\$ –	\$ –	\$ –
– others	\$0.24	\$ –	\$ –	\$1.35
Machinery operating costs – fuel	\$20.00	\$8.50	\$10.00	\$8.50
– repair	\$15.5	\$8.00	\$8.25	\$6.50
Custom work and hired labour	\$6.00	\$3.00	\$3.00	\$3.00
Crop insurance premiums	\$15.75	\$7.00	\$7.56	\$ –
Utilities, insurance etc.	\$11.04	\$5.90	\$5.52	\$3.69
Building repairs	\$2.40	\$1.60	\$1.20	\$1.90
Irrigation	\$21.00			
Hired labour				\$4,380.00
Interest on operating	\$6.58	\$3.79	\$4.15	\$123.50
Total Variable Expenses	\$171.19	\$98.66	\$108.01	\$7,611.94
Fixed Expenses				
Property taxes	\$10.00	\$5.00	\$5.00	\$5.00
Depreciation – machinery	\$30.00	\$16.00	\$16.50	\$13.00
– buildings	\$3.75	\$1.60	\$1.20	\$0.90
Interest on investment – machinery	\$24.00	\$12.00	\$12.38	\$9.75
– building	\$6.00	\$2.40	\$1.80	\$1.35
– land	\$32.00	\$32.00	\$32.00	\$32.00
Labour and management	\$55.00	\$20.00	\$20.00	\$20.00
Total Fixed Costs	\$160.75	\$89.00	\$88.88	\$82.00
Total Costs	\$331.94	\$187.66	\$196.89	\$7,693.94
Summerfallow cost	\$ –	\$58.00	\$ –	\$45.00
Total Cost of Production	\$331.94	\$245.66	\$196.89	\$7,738.94

* Expenses shown are for two years (year 1 & 2) and revenue is from year 2 and 3 of Caraway seed production.

** Fertilizer prices as of December, 2000. Rising natural gas prices over the winter will result in higher fertilizer prices by spring, especially nitrogen fertilizer. Producers should take this into account when using these costs.

*** Only registered chemicals are included.

Table No. 3 Revenues, Returns and Break-evens for Herbs and Spices

	Caraway	Dill	Coriander	Garlic
Revenues				
Estimated annual yield (pound)	1000	650	800	3,500
Estimated price (price per pound)	\$0.51	\$0.50	\$0.17	\$1.30
Revenues (price per acre)	\$510.00	\$325.00	\$136.00	\$4,550
Returns				
Returns over variable costs	\$338.81	\$226.34	\$27.99	\$(3,062)
Returns over total production costs	\$178.06	\$79.34	\$(60.89)	\$(3,189)
Break-even Yield (pounds per acre)				
To cover variable costs	168	197	635	5,855
To cover total production costs	325	491	1,158	5,953
Break-even Price (price per pound)				
To cover variable costs	\$0.09	\$0.15	\$0.14	\$2.17
To cover total production costs	\$0.17	\$0.38	\$0.25	\$2.21

6. Resources

Industry Associations

The Alberta New Crops Network
 C/O Crop Diversification Centre North
 17507 Fort Road
 Edmonton, Alberta T5B 4K3
 Phone: (780) 415-2681
 Fax: (780) 422-6096
 Website: <http://www.newcropsnetwork.org>

Saskatchewan Herb and Spice Association
 Box 124
 Sintaluta, Saskatchewan S0G 0G0
 Fax: (306) 727-2226
 E-mail: g.musings@sk.sympatico.ca
 Website: <http://www.saskherspice.org>

Canadian Herb Society
 5251 Oak Street
 Vancouver, British Columbia V6M 4H1
 Fax: (604) 222-9613
 E-mail: info@herbsociety.ca
 Website: <http://herbsociety.ca/>

International Herb Association
 910 Charles Street
 Fredricksburg, VA USA
 22401
 Phone: (540) 368-0590
 Fax: (540) 370-0015
 E-mail: members@iherb.org
 Website: <http://www.iherb.org>

British Columbia Herb Growers
 Association (BCHGA)
 4607 - 23 Street
 Vernon, British Columbia V1T 4K7
 E-mail: roland@forthrt.com
 Website: <http://www.bcherbgrowers.com>

Medicinal and Aromatic Plant Association of
 Manitoba
 46028 Westdale RPO
 Winnipeg, Manitoba R3R 3S5
 Phone: (204) 832-6840
 Fax: (204) 888-5222
 E-mail: marles@brandonu.ca

U.S. Herb Research Foundation
1007 Pearl Street Suite 200
Boulder, Colorado 80302
USA

Phone: (303) 449-2265
Fax: (303) 449-7849
E-mail: info@herbs.org
Website: <http://www.herbs.org>

Organic Crop Improvement Association
Alberta OCIA #1
Box 1209
Athabasca, Alberta T9S 2B1
Phone: (780) 675-5478
Fax: (780) 675-7197

Sustainable Agriculture Association
Alberta OCIA #2
Box 1181, Station M
Calgary, Alberta T2P 2K9
Phone: 1 (888) 561-2555

Biological Food Processors Association
Alberta OCIA #3
Box 989
Vulcan, Alberta T0L 2B0
Phone: (403) 528-2010
Fax: (403) 528-2015

Peace River Organic Producers Association
Box 61
Silver Valley, Alberta T0H 3E0
Phone: (780) 351-2115
Fax: (780) 351-2115

Publications

Agdex 263/830-2. *Commercial Medicinal Herb Enterprise*.
Alberta Agriculture Food and Rural Development.

Agdex 188/830-2. *Essential Oils Industry*. Alberta
Agriculture Food and Rural Development.

Herb and Spice Production and Planning
Guide
CD-ROM
Alberta Agriculture Food and Rural Development
Phone: 1-800-292-5697

HerbalGram (quarterly magazine)
Herb Research Foundation
1007 Pearl Street, Suite 200
Boulder, Colorado 80302
USA
E-mail: info@herbs.org
Website: www.herbs.org

Herb and Spice Production Manual
Saskatchewan Herb and Spice Association
E-mail: jx5yak@sk.sympatico.ca
Website: www.saskherbspice.org

*Herb Farming Series: Professional Growing Tips from the
Experts*
Richters Herb Specialists Canada
Website: www.richters.com

Growing and Selling Fresh-Cut Herbs
Sandie Shores
Storey Books, ISBN 1-58017-128-1

Additional Websites

Alberta Agriculture, Food and Rural Development:
<http://www.agric.gov.ab.ca/crops/special>

Agriculture and Agri-Food Canada - InforHort: http://www.agr.ca/misb/infhort/infhort_e.html

1999 Alberta Organic Producers and Processors
Directory: <http://www.agric.gov.ab.ca/food/organic/directory/index.html>

Purdue University, Centre for New Crops and Plant
Products
<http://www.hort.purdue.edu/newcrop/>

Government Resources

Alberta Ag-Info Centre
Phone: 1-866-882-7677

Alberta Agriculture, Food and Rural Development:
<http://www.agric.gov.ab.ca>

7. Key Management Issues

- Since there is very little industry experience, new entrants must carefully assess the viability of their proposed enterprise before investing capital.
- Culinary herb and spice operations require intensive production management, high labour input, access to markets and an overall attention to detail. If you continue to investigate this agricultural business opportunity, it is essential that you are able to answer the following questions concerning the production and marketing of herbs and spices as well as the management of such an enterprise.
 - Are you aware of the amount of time you will have to devote to continuously marketing your product and improving your production performance?
 - Are you aware of the resources required to establish a herb and spice enterprise and the returns that can be expected?

- Are you aware of the time that will need to be spent documenting all activities of the enterprise in order to gain certified organic status?
- Are you prepared to develop a complete business plan for an herb and spice enterprise and to test this plan on a small scale that you can afford?
- Are you prepared to take the risk associated with herb and spice production and marketing?

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