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Commercial Medicinal Herb Enterprise

The purpose of this factsheet is to provide an objective overview of medicinal herb production and marketing in Alberta. This overview isn't intended to be a substitute for managers making their own thorough assessment of all the key issues that would influence the success of an individual enterprise.

1. Industry Highlights

- Herbs are the leaves, roots and flowers of plants grown and processed for culinary, cosmetic, industrial, medicinal, decorative, flavoring and fragrance purposes. Medicinal herbs are grown to produce plant material containing ingredients that are believed to provide medical and health benefits.
- Among consumers there's a growing interest in alternative health products and a resurgence in the use of medicinal herbs to improve health or alleviate the symptoms of a wide range of ailments.
- A number of factors may be contributing to the increased consumer demand for medicinal herbs. These include:
 - a growing public willingness to take responsibility for their own health
 - dissatisfaction with health care costs
 - increased focus on health and fitness
 - increased acceptance that food has therapeutic value
 - increased awareness of the importance of the preventative approach to medicine
 - greater emphasis on more natural lifestyles
- Most medicinal herbs are sold as dried or powdered products that are processed into tablet or capsule form. Other value-added forms include teas, tinctures, creams, oils and liquids. The most popular medicinal herb products are those that address the same symptoms as the top-selling over the counter drugs¹.
- Medicinal herbs are most often sold in Canada as health food supplements which include nutraceuticals (a blend of a food and a medicinal herb), and phytomedicines (herbal supplements with standardized levels of biological materials).
- Medicinal herbs grow in the wild and under field cultivation. They are being investigated as greenhouse crops.² Medicinal herbs that are harvested where they are found growing naturally (wild crafting) are becoming scarce. Guidelines for ethical wild crafting are available at <http://www.anpc.ab.ca>.

1 Manitoba Agriculture; *Herb & Spice Industry Overview*, Executive Summary to Organic Production; <http://www.gov.mb.ca/agriculture/financial/agribus/ccg02s01.html>

2 Mirza M., Younus M., Hoyano Y. and Currie R.A. (1998) *Greenhouse Production of Echinacea and Other Medicinal Plants*; presented at Special Crops Conference, Opportunities and Profits II Into the 21st Century.

- As wild crafted herbs in Alberta become scarce, cultivation may become more feasible. Under cultivation the quality and yield of medicinal plants can be improved, but the cost of growing cultivated medicinal herbs may be too high to compete with imported products, alternative herbs or synthetic drugs.
- The world production and processing of medicinal herbs is concentrated in Europe (France, Germany and Hungary), China, India and Korea. North American production of medicinal herbs is small compared to world production.
- Alberta growers of medicinal herbs are challenged by developing countries that have lower labor costs, even though quality tends to vary and hygiene standards tend to be lower. Alberta growers can stay competitive by minimizing production costs, achieving a high, consistent quality (proven by lab tests) and developing a reputation within the industry.
- In addition to production and processing activities, medicinal herb growers need to spend a significant amount of time on marketing. The production and marketing of medicinal herbs requires studying the markets for herbs, identifying target markets, determining how to market products in that market, researching the production requirements of each plant species grown and developing processing procedures required to meet customer needs in the target markets.
- Most medicinal herb enterprises require other sources of income for an individual to achieve a desired livelihood. Medicinal herbs are often grown as a complementary enterprise to culinary herbs. As well, medicinal herbs can complement other horticultural operations such market gardens where overhead and labor costs can be shared.
- Certified organic medicinal herbs are often grown in conjunction with shrubs such as Saskatoons or Sea Buckthorn. They provide protection from chemical drift and give the grower an additional enterprise. Forage crops such as alfalfa are also used to provide a perimeter or margin for protection.
- There are numerous medicinal herbs produced for many different markets. Each market has its own unique consumer requirements, as well as marketing and distribution channels. In most cases, meeting buyer needs and accessing the market can only be learned through experience.³
- Increased interest in the production and marketing of medicinal herbs is due to the growing demand for medicinal herb products. Estimates of market growth range from two per cent to 10 per cent per year.⁴ Potential growers must carefully assess:
 - whether there's demand for a particular herb crop
 - whether there's a market for the crop
 - whether they can access the market
 - whether they can grow the crop
 - whether the proposed operation is viable
- The medicinal herb industry in Canada and the business potential for medicinal herb production is uncertain due to:
 - an uncertain market size for medicinal herb products
 - a lack of acceptance of medicinal herbs by the scientific and medical communities
 - many low cost producers who dominate world production
 - market information that is difficult to access
 - a lack of quality control procedures
 - a lack of information on the medicinal qualities of different herbs
 - a lack of agronomic information on the various herbs
 - changing rules governing medicinals
- The business potential for medicinal herb production and marketing will be strongly influenced by how well the medicinal herb industry:
 - undertakes ongoing research of herbs and health benefits
 - develops marketing strategies to match the right product with the right niche market
 - develops standards for product quality and safety

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

4 AG Consulting, (1998) *Technical Feasibility Study For Medicinal and Aromatic Plants Which Can be Grown in the Interior of British Columbia Canada*; p.4

- New entrants must be prepared to deal with a shortage of published production information and few established markets. Individual producers who enter into the production and marketing of medicinal herbs should consider the following:⁵
 - learn about the market before getting involved with a crop
 - understand what level of production and processing the market requires
 - determine whether certified organic growing and processing are needed to gain access to markets
 - expect to spend more time marketing these crops than producing them
 - certified organic production may be the only way to gain access to certain markets and organic growers must be prepared to provide detailed documentation on all aspects of their operation
 - take a year to study how the various crops will grow
 - start small
 - investigate the potential to partner or co-operate with fellow growers in processing and marketing activities

2. Regulatory Basics

- Medicinal herbs are a relatively new product in the North American marketplace. As the understanding of the uses and benefits of medicinal herbs grows, regulatory requirements can be expected to evolve.
- Health Canada controls the use of herbs in foods and medicines. Herbs 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 Web site <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 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 web site <http://www.hc-sc.gc.ca/hpb/>.
- The *Weed Control Act* gives local authorities the right to make bylaws designating plants within the municipality as restricted, noxious or nuisance weeds. Some medicinal plants may be considered noxious weeds and are banned. Growers must check the list of noxious weeds in their municipality.
- Producers considering organic production require certification through one of the four certifying bodies in Alberta. See resource section for contact information. Information on organic certification and certification standards is available at <http://www.ocia.org/docs.html>

3. Marketing Basics

- Markets exist for numerous medicinal herbs, but the market for a particular herb is likely to be a small or niche market. Therefore, market research is necessary to determine:
 - whether there is a demand for specific medicinal herbs
 - whether there is a market for the crop
 - whether certified organic production is needed to gain access to markets
- Key questions to consider when assessing the demand for different medicinal herbs are:
 - who is the ultimate consumer of the herb?
 - what market trends are there relating to consumer demand?
 - what are the health benefits and uses of a particular herb?
 - what is the preferred form of product for the herb in the market?
 - why is there a market for a particular herb?

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

- Key questions to consider when assessing whether a market exists for a particular medicinal herb are:⁶
 - who buys the crop?
 - where are the buyers located?
 - what is the market size?
 - when and where do the buyers buy?
 - what are the wholesale and retail prices?
 - are the market and market prices stable or unstable?
 - is the market mature or growing?
 - does the market have room for additional production?
 - what processing or analysis is required to access the market?
 - are there opportunities for adding value to the herb?
- The most popular herbal formulations tend to be laxatives, weight-loss remedies, immune system enhancers, sexual performance aids, anti-aging remedies and products to relieve anxiety and stress.⁷
- The top selling herb products in health food stores and in mass markets in the United States for 1998 are presented in Table No. 1.

Table No. 1 Top Selling Herb Products in 1998

Health Food Stores	Mass markets
Echinacea	Ginko
St. John's wort	St John's wort
Ginko biloba	Ginseng
Garlic oil	Garlic oil
Saw palmetto	Echinacea
Asian ginseng	Saw palmetto
Goldenseal	Grapeseed
Aloe	Kava
Siberian ginseng	Evening primrose
Valerian	Echinacea/goldenseal

- Producers need to consider both agronomic and market factors when selecting the particular medicinal herb to produce. Individual growers must undertake a thorough assessment to determine if there's a market for a particular herb that they can access and if they can grow it.

- Unprocessed herbs, like many raw commodities, may only attract a modest price in the market place. Processing, however simple, adds value to herb crops.
- New growers need to continuously study markets and network with others in the industry to gain market information. Continuous market research is necessary to identify crops where demand is expected to increase or new markets are possible.
- The following list of herbs, together with a description of their health benefits, is provided as a starting point for this ongoing market research.
 - *Angelica (Angelica archangelica)*: In addition to being used for its licorice flavor, the medical uses of angelica include decreasing the thickness and increasing the fluidity of mucus from lungs and bronchial tubes.
 - (*Pimpinella anisum*): The oil from anise seeds is used to destroy lice and other insect pests. This herb has been used to prevent epileptic seizures, improving digestion and preventing flatulence.
 - *Borage (Borago officinalis)*: Borage is a source of gamma linolenic acid (GLA) which may help lower blood pressure and inhibit cholesterol. At present the GLA market is dominated by evening primrose oil. Borage oil is more stable and easier to process than the oil of evening primrose.⁸ Borage is well adapted to prairie conditions and is the most extensively grown medicinal herb in Saskatchewan and Alberta.
 - *Burdock (Arctium lappa)*: Burdock is a remedy for the treatment of dry scaly skin conditions. It's considered effective for psoriasis if used over a long period of time. Burdock is a noxious weed in Alberta and care must be take to prevent it from spreading.
 - *Calendula (Calendula officinalis)*: Calendula has marked anti-fungal activity and may be used both internally and externally to combat such infections. Calendula is also used for treating skin problems including inflammation, external bleeding, slow-healing wounds, bruising or skin ulcers. It's also used as a first aid treatment of minor burns and scalds. Internal uses include the treatment of ulcers.

6 Saskatchewan Agriculture and Food, Marketing Non-traditional, exotic (niche) crops, Farm Facts.

7 Appropriate Technology Transfer for Rural Areas (ATTRA), Herb Overview – Horticulture Systems Guide; <http://www.attra.org>

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

- Echinacea (*Echinacea angustifolia*): Echinacea is a general immune system enhancer that is primarily used to prevent and treat colds and the flu.⁹
 - Elecampane (*Inula helenium*): This herb tends to be used as an ingredient in compound medicines to treat bronchial ailments, lung ailments and digestive ailments. Elecampane has been used in the treatment of tuberculosis.
 - Evening Primrose (*Oenothera biennis*): The seed of this plant contains nine to 11 per cent GLA. That may help lower blood pressure and inhibit cholesterol. Other health claims include use in treating colds, mental depression and problems of the digestive tract.
 - Fenugreek (*Foeniculum graecum*): In addition to being used to add flavor to cattle feed, fenugreek is used in preventing fevers and comforting the stomach.
 - Feverfew (*Tanacetum parthenium*): Traditional uses of feverfew are the treatment of headaches and arthritis. Feverfew is also used to prevent migraine headaches when taken regularly.
 - Garlic (*Allium sativum*): Medicinal garlic has multiple curative and preventative uses. Garlic has anti-fungal and anti-bacterial properties. Garlic has a reputation for lowering blood pressure and blood cholesterol levels. It's also known for improving the health of the cardiovascular system
 - Ginseng (*Panax quinquefolium*): Ginseng is a most popular herb due to its ancient reputation as an all healing drug or panacea.¹⁰
 - Goldenseal (*Hydrastic canadensis*): Goldenseal may have antibacterial and anti-inflammatory characteristics. It has been used to treat digestive problems and urinary tract infections.
 - Horehound (*Marrubium vulgare*): Horehound has been used as a laxative and to produce gastric action.
 - Hyssop (*Hyssopus officinalis*): The main markets for Hyssop are the culinary market and herbal tea production. Sore throats, fevers, bronchitis, common colds and lack of appetite can be treated with Hyssop tea.
 - Lemon Balm (*Melissa officinalis*): The oil of lemon balm has been used to inhibit bacteria and viruses. The herb may have a sedative effect on the central nervous system.
 - Licorice (*Glycyrrhiza glabra*): Licorice is a traditional herbal remedy with worldwide use as a treatment for peptic ulceration, gastritis and liver disorders.
 - Lovage (*Levisticum officinale*): Lovage root is used as a diuretic.
 - Milk thistle (*Silybum marianum*): Milk Thistle has been used to treat varicose veins, menstrual problems and liver, spleen and kidney ailments.
 - Pennyroyal (*Hedeoma pulegiodes*): The leaves of pennyroyal have been used as insect repellent. Pennyroyal teas have been used to sooth upset stomachs and aid digestion. Pennyroyal can cause abortion in pregnant women.
 - Rosemary (*Rosmarinus officinalis*): Rosemary has been used for centuries to promote healthy hair and skin. Other uses have been in the treatment of depression, headaches and muscle spasms.
 - St John's Wort (*Hypericum perforatum*): St. John's Wort is primarily used as a antidepressant. It's also used to treat diarrhea, pain and high fever. St John's Wort can also be applied externally to treat hemorrhoids and promote healing. St. John's Wort is classified in many municipalities as a noxious weed.
 - Senega Root (*Polygala senega*): Senega root has many uses including the treatment of asthma, bronchitis, pneumonia, throat ailments and rheumatism.
 - Stevia (*Stevia rebaudiana*): Stevia is a natural sweetener that contains no calories. In order for this plant to be used as a natural sugar substitute it would require being designated as safe for human consumption by Health Canada.
 - Valerian (*Valeriana officinalis*): Common uses of Valerian are as a sleep aid and to treat depression.
 - Yarrow (*Achillea millefolium*): Yarrow is believed to open pores and purify the blood. An extract of the whole plant, obtained through boiling, has been used to treat kidney disorders. It is also used to prevent baldness by washing the head with it. Yarrow Tea is a good remedy for severe colds. It's most useful in the commencement of fevers and in cases of obstructed perspiration.
- Pharmaceutical companies and medicinal/supplement companies are the main players in the market for medicinal herbs.

9 A separate Ag-Venture profile on Echinacea is available through Alberta Agriculture, Food and Rural Development offices; Agdex 188/830-3.

10 A separate Ag-Venture profile on Ginseng is available through Alberta Agriculture, Food and Rural Development offices; Agdex 188/830-2.

- Pharmaceutical companies sell herb products for their medicinal value. This market tends to be dominated by large drug companies that acquire herbs in the exact form from suppliers. Often these companies require organic or chemical residue-free products.
- The drug companies are reluctant to develop products using natural plant material, particularly when a substitute synthetic product can be developed. This is primarily because these firms aren't able to patent plant materials and therefore not be able to recover the cost to bring a new drug to market¹¹.
- Biological discoveries can result in increased demand for herbs. For example, gamma linolenic acid (GLA) which lowers blood pressure and cholesterol levels, may increase the demand for herbs that contain GLA. However, producers must also be aware of biogenetic developments such as using gene splicing to produce GLA in canola.
- The supplement industry is made up of:
 - firms that specialize in the manufacturing, marketing and distribution of supplements
 - drug companies that market supplements in the mass market channels, along with their pharmaceutical products
 - bulk nutrient suppliers that purchase herbs and either dry or powder them for sale to firms, that produce tablets or capsules
- Supplement manufacturers provide the majority of the herbal supplement products to retail markets. These manufactures tend to produce tablets or capsules from dried powdered herbs that they generally buy from bulk nutrient suppliers. About 80 per cent of medicinal herbs are sold in tablet form.¹²
- Bulk nutrient suppliers purchase dried bulk or pre-processed herbs for processing into the final market form. Buyers specialize in different products. Buyers generally make their selections based on color, aroma, flavor, texture, levels of medicinal properties (based on lab tests) and processing requirements. Growers are required to submit samples to buyers and may also be required to submit laboratory tests.
- Buyers tend to buy from as few sources as possible in order to maintain a consistent quality and have a reliable supply. New growers attempting to access this market will need to establish a reputation of consistent quality and reliable supply. Growers should also investigate co-operative marketing arrangements as means of accessing markets.
- Growers must be prepared to investigate available prices and how the quoted prices vary according to the form (dried material, pre-processed), quality and quantity of the raw material.
- Different buyers have different scales of operation. Some buyers may only deal in container loads of product while others deal in quantities of 50 to 1,000 kilograms. The quantity requirements will affect access to a particular market, as well as the price per unit offered.
- For many dried herbs, Canadian producers may be required to compete with foreign producers who produce large quantities at a lower cost of production primarily due to lower labor costs. Alberta producers should investigate producing herbs that have limited foreign competition.
- Potential growers of medicinal herbs need to establish connections to markets for their crop through activities such as:¹³
 - initiating contact with industry representatives
 - writing an introductory letter indicating crops that can be grown and seeking a follow-up meeting
 - notifying contacts when samples of products are available
 - arranging pre-planting contracts once relationships have been established
- Growers should also plan on educating consumers on the benefits of medicinal herbs and the unique qualities of their products.
- The *critical marketing activities* for the manager of a medicinal herb enterprise are researching the demand for medicinal herbs, determining whether there's a market for a particular herb, determining the product quality and quantity for the target market, determining the strategy to use to get access to that market and determining what processing is required for that market.

11 Marketing Development Branch, Saskatchewan Agriculture and Food, (1995) *Herbs an Industry Overview*.

12 Manitoba Agriculture and Food; <http://www.gov.mb.ca/agriculture/financial/agribus/ccg02s02.html>. Herb and Spice Industry Overview, Four Market Applications/Barriers and Challenges.

13 AG Consulting (1998) *Technical Feasibility Study For Medicinal and Aromatic Plants Which Can be Grown in the Interior of British Columbia Canada*; p.104.

4. Production Basics

- Growers of medicinal herbs 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.
- When investigating the agronomic potential of different herb crops, growers must be prepared to research the different production, harvesting and drying practices that are required by each herb crop. In particular, producers must identify production limitations such as over-wintering, heat and moisture requirements, as well as the length of growing season for each crop being considered.
- Since many medicinal herb crops haven't been grown under cultivation in Alberta, agronomic needs and production practices may be in various stages of being researched. For many herb crops, production information is quite limited.
- Production information for herb and spice crops with economic potential in Alberta is being researched on an ongoing basis¹⁴. Growers need to research the most up-to-date and detailed information available for each crop. Growers also need to do their own on-farm investigation to determine the growing techniques that give the optimum 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.¹⁵
- *The Grower's Guide to Herbs and Spices*, published by the Extension Division at the University of Saskatchewan, provides information sheets for some medicinal 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.¹⁶
- The Saskatchewan Herb and Spice Association, Herb and Spice Tour at <http://www.saskherbspice.org/> provides a good source of production information on a number of herb crops.
- The critical production issues for herb and spice crops are crop selection, site selection, adaptability, seedbed preparation, seeding, fertilization, weed control, harvesting, storage and processing.
- 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 need to withstand harsh winter conditions and may require management practices such as fall mulching.
- Organic production of medicinal herbs will increase the acceptance of herbs by buyers and may bring higher prices. For many medicinal herbs, certified organic production may be the only way to gain access to a market. Organic herbs are generally valued at significantly higher prices than those for non-organic herbs.¹⁷
- 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's 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) has specific requirements with respect to weed control and chemical use.
- Certified organic production requires a three-year entry period in which a cover crop such as barley is grown and plowed down as green manure.
- Growers need to determine how different herb crops respond to sunlight. This is because sunlight may influence the production of ingredient(s) that provide the health benefit.

14 Farming for the Future, Research Program, Abstract, (1992) *Adaptability and Agronomic Practices of Herbs, Spices and Essential Oil Crops for Alberta*.

15 Alberta Agriculture, Food and Rural Development, (1999) *The Herb and Spice Production and Planning Guide*, (CD-ROM).

16 AG Consulting (1998) *Technical Feasibility Study For Medicinal and Aromatic Plants Which Can be Grown in the Interior of British Columbia, Canada*; published by Industrial Research Assistance Program of the National Research Council of Canada.

17 Willard, T. (1997) *Medicinal Plants: A Growth Industry*; Wild Rose College of Natural Healing; Prairie Medicinal and Aromatic Plants Conference Proceedings, p.124

- Growers also need to determine how tolerant the various herb crops they select are to soil moisture. Many herbs require well-drained soils since their roots can weaken and die in excessively moist (and cool) soils.
- A sheltered growing area provides protection from cold winds that can stop the growing process in some herbs and contribute to a good snow cover in the winter to assist with over wintering of perennials.
- Most herbs have small seeds and require a firm seedbed to ensure soil contact and to increase germination. Seeding depth ranges from 1/8" to 3/4" (0.3-1.9 cm), depending on soil moisture and seed size.
- Since few herbicides are available for herbs and herbs are often grown for organic markets, weed control may rely on manual and mechanical cultivation. Growers need to carefully consider the time/labor commitment in growing medicinal herbs.
- Irrigation may benefit herb crops, depending on the crop and the growing conditions. In particular, irrigation may allow growers to push their crops for earlier harvest and in some cases achieve two crops per year.
- Alberta research¹⁸ suggests:
 - early seeding is beneficial to most crops, except those sensitive to frost
 - the smaller the seed, the more shallow the seeding depth should be
 - the optimum harvest stage is specific for each crop
 - weed control studies indicate there are herbicides available for use on many herb crops, but producers must recognize that certified organic production doesn't allow any herbicide use
- Basic harvesting techniques and initial processing techniques for a number of herb crops are presented in *Saskatchewan Herb and Spice Industry, Introductory Information Guide*, from Farm Facts, Saskatchewan Agriculture and Food.
- Harvesting requirements are determined by the market requirements for the form of the herb crops. For markets requiring dried bulk material, the herb crop requires 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.¹⁹ Protection from rodents and insects is an important consideration when storing dried herb material.
- Growers can also add value to their medicinal herb crops by providing assurance of the potency of their herbs by obtaining laboratory analysis of specific marker ingredients.
- Further processing may be required to meet the needs of buyers. 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.

5. Economic/Finance Basics

- Medicinal 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.
- Cost information for prairie herb production is difficult to obtain. Alberta growers must be prepared to research and carefully estimate prices, costs and operating requirements for their proposed operation.
- The production costs for individual herb enterprises vary due to factors such as location, crops (annual or perennial), size, machinery, labor use and marketing activities.
- Detailed budgets are required to assess the profitability and cash flow implications of a proposed medicinal herb 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.

18 Farming for the Future, Research Program, Abstract, (1992), *Adaptability and Agronomic Practices of Herbs, Spices and Essential Oil Crops for Alberta*.

19 Sell, R. and Aakre, D. (1993) *Herbs*, North Dakota State University Extension Service.

- The key determinants of the viability of a medicinal herb enterprise are capital investment, production parameters, operating costs and prices received for product.
- Table No. 2 provides estimates of the capital investment required for establishing a one-acre certified organic medicinal herb enterprise (Feverfew). The land investment at two acres provides additional area for expansion and facilities. Building and equipment requirements are kept low by relying on higher labor inputs. Field machinery needs are met through custom arrangements.²⁰

Table No. 2 Medicinal Herb Enterprise; Capital Investment Requirements

Land	Acres	\$/Acre	Total Cost	Useful Life (years)	Depreciation \$/Year	Opportunity Cost \$/Year
Cropland	2	\$1,000	\$2,000			\$160
Total Costs			\$2,000			\$160
Improvements and Facilities		Share				
Storage buildings	\$5,000	10%	\$500	10	\$50	\$20
Total Costs			\$500		\$50	\$20
Equipment						
ATV with cart	\$25,000	2%	\$500	5	\$100	\$20
Storage containers	\$100	100%	\$100	5	\$20	\$4
Drying frames	\$200	100%	\$200	5	\$40	\$8
Total Costs			\$800		\$160	\$32
Total Fixed Costs			\$3,300		\$210	\$212

Interest costs are the opportunity cost of using capital estimated at 8%

- Table No. 3 presents the production parameters for a Feverfew operation. These parameters are based on estimates for both inputs and yield that are felt to be achievable in an Alberta enterprise, including a three-year entry period to gain certification on the land. Each individual has to estimate these parameters when planning for their specific operation.

²⁰ Custom arrangements are used in these estimates in order to keep capital investment requirements low. Fees for custom work could be made to other enterprises on the farm.

Table No. 3 Production Parameters, Medicinal Herb (Feverfew) Enterprise.

Crop	Feverfew	Type	Perennial						
Target Market/Production Herb					Year 1	Year 2	Year 3	Year 4	Year 5
Pound/acre								1,500	1,500
Price/pound								\$10	\$10
Total Revenues								\$15,000	\$15,000
Input Costs		Units	Quantity	Price per Unit					
Feverfew seed		5	lbs	\$12.00			\$60		
Barley seed		2	bu.	\$4.00	\$8	\$8			
Fish fertilizer								\$0	\$80
Total Input Costs					\$8	\$8	\$60	\$0	\$80
Custom Machinery Costs									
Cultivation		acre	1	\$5.00	\$5	\$5	\$5		
Fertilizer application		acre	1	\$4.00					\$4
Seeding barley		acre	1	\$5.00	\$5	\$5			
Seeding herb crop		acre	1	\$7.00			\$7		
Harrowing		acre	1	\$2.00	\$2	\$2	\$2		
Cutting		acre	1	\$10.00				\$10	\$10
Hauling (up to 100 miles)		lbs	1,500	\$0.01				\$15	\$15
Total Machinery Costs					\$12	\$12	\$14	\$25	\$29
Labour Requirements & Costs		Units	Quantity	Price per Unit					
Preparation		hours	20	\$10.00			\$200		
Planting out		hours	10	\$10.00			\$100		
Maintenance		hours	50	\$10.00				\$500	\$500
Harvesting herb		hours	50	\$10.00				\$500	\$500
Hand chopping		hours	50	\$10.00				\$500	\$500
Hand sorting of herb		hours	50	\$10.00				\$500	\$500
Total Labor Costs					\$0	\$0	\$300	\$2,000	\$2,000
Organic Certification Costs									
Membership					\$300	\$300	\$300	\$300	\$300
Certification costs					\$100	\$100	\$100	\$100	\$100
Soil and water analysis					\$300	\$300	\$300	\$300	\$300
Total Organic Certification Costs					\$700	\$700	\$700	\$700	\$700
Estimated Production Costs					\$720	\$720	\$1,074	\$2,725	\$2,809

■ Table No. 4 presents the projected revenues and expenses for the proposed medicinal herb enterprise. Cumulative net income indicates that the proposed enterprise (based on production parameters presented) will at the end of the five-year period be able to cover all of the costs associated with gaining certification for the land then producing and marketing the medicinal herb crop.

■ The cumulative net income is a return to the management contributed to the enterprise as all other inputs have been paid. In this scenario, the payment of labor expenses could also accrue to the owner/operator if they provide all or some portion of the labor.

Table No. 4 Projected Revenues and Expenses; Medicinal Herb Enterprise

Projected Revenues and Expenses	Year 1	Year 2	Year 3	Year 4	Year 5
Projected Revenues					
Dried herb				\$15,000	\$15,000
Total Sales Revenues				\$15,000	\$15,000
Operating Costs					
Input Costs					
Feverfew seed	\$0	\$0	\$60	\$0	\$0
Barley seed	\$8	\$8	\$0	\$0	\$0
Fish fertilizer	\$0	\$0	\$0	\$0	\$80
Machinery operating costs	\$12	\$12	\$14	\$25	\$29
Labour requirements & costs	\$0	\$0	\$300	\$2,000	\$2,000
Organic certification costs	\$700	\$700	\$700	\$700	\$700
Interest on operating	\$58	\$58	\$86	\$218	\$225
Utilities	\$50	\$50	\$50	\$50	\$50
Total Operating Expenses	\$828	\$828	\$1,210	\$2,993	\$3,084
Overhead Costs					
Annual depreciation costs	\$210	\$210	\$210	\$210	\$210
Opportunity cost on capital investment	\$212	\$212	\$212	\$212	\$212
Land taxes	\$5	\$5	\$5	\$6	\$7
Total Enterprise Costs	\$1,255	\$1,255	\$1,637	\$3,421	\$3,513
Net operating income	-\$1,255	-\$1,255	-\$1,637	\$11,579	\$11,487
Cumulative net income	-\$1,255	-\$2,570	-\$4,147	\$7,432	\$18,919

- The profitability of most medicinal herb enterprises is very sensitive to the yields achieved and prices received for product. An important part of the economic assessment of this type of enterprise is to assess the profitability of the enterprise under a number of price and yield scenarios.
- Table No. 5 presents a sensitivity analysis, which shows the changes to cumulative net income over a range of prices and a range of yields.

Table No. 5 Sensitivity Analysis – Cumulative Net Income in Response to Various Prices and Yields

Prices (\$ per lb.)	Herb Yields (lbs. per acre)				
	1000	1200	1500	1750	2000
\$4.00	(\$3,081)	(\$1,481)	\$919	\$2,919	\$4,919
\$5.00	(\$1,081)	\$919	\$3,919	\$6,419	\$8,919
\$6.00	\$919	\$3,319	\$6,919	\$9,919	\$12,919
\$8.00	\$4,919	\$8,119	\$12,919	\$16,919	\$20,919
\$10.00	\$8,919	\$12,919	\$18,919	\$23,919	\$28,919
\$12.00	\$12,919	\$17,719	\$24,919	\$30,919	\$36,919

- Many certified organic medicinal herb crops (perennials and biennials) require initial expenditures to gain certification on the cropland and establish the crop. At the same time, returns are received over time. As a result, the cash flow requirements of this enterprise must be assessed separately from income.
- The key issue in assessing cash flow performance is whether this operation generates sufficient cash flows to meet the cash outflows required for living expenses, debt repayment, operating expenses and capital expenditures.
- Table No. 6 presents the projected cash flow performance for the proposed medicinal herb enterprise.

Table No 6. Projected Cash Flows for Medicinal Herb Enterprise

Cash Flow Projections	Year 1	Year 2	Year 3	Year 4	Year 5
Cash Outflows					
Cropland	\$2,000				
Improvements and facilities	\$500				
Equipment	\$800				
Total Capital Investment	\$3,300				
Operating Costs					
Cropping input costs	\$8	\$8	\$60	\$0	\$80
Machinery operating costs	\$12	\$12	\$14	\$25	\$29
Labor requirements & costs	\$0	\$0	\$300	\$2,000	\$2,000
Organic certification costs	\$700	\$700	\$700	\$700	\$700
Interest on operating	\$58	\$58	\$86	\$218	\$225
Utilities	\$50	\$50	\$50	\$50	\$50
Total Cash Operating Expenses	\$828	\$828	\$1,210	\$2,993	\$3,084
Personal withdrawals	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500
Annual debt payment	\$269	\$269	\$269	\$269	\$269
Total Cash Outflows	\$5,898	\$2,598	\$2,980	\$4,763	\$4,854
Cash Inflows					
Borrowed capital	\$2,300				
Equity contribution	\$1,000				
Cash Sales					
Dried herb	\$0	\$0	\$0	\$15,000	\$15,000
Total Sales Revenues	\$0	\$0	\$0	\$15,000	\$15,000
Total Cash Inflows	\$3,300	\$0	\$0	\$15,000	\$15,000
Net Cash Revenues	-\$2,598	-\$2,898	-\$2,980	\$10,237	\$10,146
Cumulative Cash Flows	-\$2,598	-\$5,196	-\$8,176	\$2,061	\$12,207

- The cash flow budget indicates that operating funds in the amount of \$8,090 are required to cover the cash requirements of the enterprise until the crop is harvested and sold. In this budget, \$1,500 per year is all that can be allowed for personal withdrawals.
- *The critical economic issue* for medicinal herb 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

6. Resources

Industry Associations

Alberta Natural Health Agriculture Network (ANHAN)
4301 - 50 Street
Leduc, Alberta T9E 7H3
Phone: (780) 986-0262
Fax: (780) 986-0862
Website: <http://www.anhan.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.saskherbspice.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 22401
USA
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

Herb Research Foundation
1007 Pearl Street Suite 200
Boulder, CO 80302
USA
Phone: (303) 449-2265
Fax: (303) 449-7849
E-mail: info@herbs.org
Website: <http://www.herbs.org>

Organic Crop Improvement Association – International
E-mail: info@ocia.org
Website: <http://www.ocia.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 (403) 549-2208
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

Canadian Medicinal Crops
Ernest Small and Paul M. Catling
Eastern Cereal and Oilseed Research Centre
Research Branch
Agriculture and Agri-Food Canada
Ottawa, Ontario K1A 0C6

The Bootstrap Guide to Medicinal Herbs in the Garden, Field and Marketplace
Lee Sturdivant and Tim Blakely
To Order (Toll Free) 1-800-770-9070
E-mail: naturals@bootstraps.com

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, CO 80302 USA
E-mail: info@herbs.org
Website: www.herbs.org

Additional Websites

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

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

Saskatchewan Nutraceutical Network:
<http://www.nutranet.org/>

Herb and Spice tour: http://paridss.usask.ca/specialcrop/commodity/herb_spice/tour.html

Government Resources

Production

Special Crops Specialists; contact your local Alberta Agriculture, Food and Rural Development Office

Dr. Stanford Blade
New Crop Development Unit
Crop Diversification Centre North
Phone: (780) 415-2681
E-mail: stanford.blade@gov.ab.ca

Dr. Manjula Bandara
Research Agronomist (Special Crops)
Crop Diversification Centre South
Phone: (403) 362-1356
E-mail: manjula.bandara@gov.ab.ca

Economics

Farm Management Specialists; contact your local Alberta Agriculture, Food and Rural Development office.

Business Planning

Rural Development Specialists – Business; contact your local Alberta Agriculture, Food and Rural Development office.

7. Key Management Issues

- Since there's little industry experience, new entrants must carefully assess the viability of their proposed enterprise before investing capital.
- Medicinal herb operations require intensive production management, high labor input, access to markets and an overall attention to detail. If you continue to investigate this agricultural business opportunity, it's essential that you are able to answer the following questions concerning the management and marketing of medicinal herbs.

- Are you aware of the amount of time you have to devote to continuously marketing your product and improving your production performance?
- Are you aware of the resources required to establish a medicinal herb enterprise and the returns that can be expected?
- Are you aware of the time needed to document all the activities of the enterprise in order to gain certified organic status?
- Are you prepared to develop a complete business plan for a medicinal herb enterprise and test it on a small scale that you can afford?
- Are you prepared to take the risk associated with herb production and marketing?

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This profile was developed with co-operation from the Alberta Agriculture Special Crops Product Team

For more information on diversification and other business profiles please visit Alberta Agriculture, Food and Rural Development's internet site at <http://www.agric.gov.ab.ca/diversify>