

MARKET POTENTIAL FOR HERBS AND SPICES
IN WESTERN CANADA

Harvey Clark
Saskatchewan Irrigation Development Centre
Box 700, Outlook, SK SOL 2N0¹

Market Analysis

The gathering of information on herbs and spices is proceeding in several stages. First, general information on demand and usage has been gathered. This includes price information at the producer, wholesale, and retail levels. Yields of producers or at government sites must be verified to compile cost of production estimates. Finally, when there is recordable trade data, supply and demand information can be collected.

Since reliable supply demand data is largely unavailable for the herb and spice industry, the fundamental approach to market analysis cannot be used for these specialty crops.

Most information gathered has been of a general nature or relates to the chemical properties of herbs. Some cost and return data has been collected, but much of this is unreliable until better yield estimates are available. Some estimates of costs and returns for spearmint, garlic, ginseng, and echinacea were presented at a herb marketing workshop in Alberta in December. These are the irrigated herbs for which the most information is currently available.

Saskatchewan Agriculture and Food have a planning guide for alternative crops which includes coriander, caraway, dill, fenugreek, borage, and quinoa. Cumin has been dropped from this list because it was commercially unviable on the prairies.

Herb and Spice Classes

Herbs and spices have been grouped into the following classes:

- (1) Dryland spices
- (2) Essential oils
- (3) Culinary herbs
- (4) Medicinal herbs, and a smaller fifth group
- (5) Insecticides

Dryland Spices

Coriander and caraway are the major spice crops being grown in

¹ An address given to the "Soils and Crops 97" at the University of Saskatchewan, February 21, 1997.

Saskatchewan. In 1995 the coriander area in Saskatchewan was estimated to exceed 12,000 acres, while caraway climbed as high as 8,100 acres in 1996. In 1996 the coriander area declined. Some drop in interest in spice crops was partly due to the strong wheat prices last year. A drop in membership in the Saskatchewan Herb and Spice Association was also apparent. Some of the spice crops have been overproduced.

Canada is the major supplier of coriander to the U.S. At times producers were competing with each other to lower market prices, at least below the costs of production indicated in government budgets. In 1996 caraway had contract prices of \$.50 to \$.70/lb. Producers can expect prices of \$.35 to \$.50/lb in the coming year. This may not cover everyone's production costs. Coriander prices of \$.25 to \$.30/lb are about a break even proposition.

Borage offers an interesting market for this year. A local grower is contracting production at \$2.50/lb. The costs of production are about \$1.35/lb, allowing a significant profit margin. Most borage is grown in areas north of Saskatoon. Honey bees help to maximize yields. However borage seed is in tight supply.

Essential Oils

Spearmint has been about the only significant essential oil crop in Saskatchewan. While the area of spearmint climbed as high as 1,300 acres in Outlook about two years ago, several crops were damaged by winterkill, and the area is just now rebuilding. Canadian Aromatic Oils is still positive about the future of the industry. Prices have climbed slightly to help compensate for the reduced supply.

Cost of production estimates for spearmint were prepared this winter. The profit margin may be far less than expected. Additional essential oil crops will help to use their distillation facility more efficiently. Those who are interested in entering this industry should be prepared for some financial setbacks.

Additional essential oil crops of interest are French tarragon, Roman chamomile, caraway, dill, angelica, lemon balm, and others. Additional equipment will be needed, however, to harvest a crop such as Roman chamomile. This is because the labour required in harvesting flower heads is prohibitively expensive.

Culinary Herbs

Culinary herbs have been on display now for several years. Some have profited by growing and exporting organic herbs. However the market is small, and the costs of harvesting, processing, and marketing these crops is high. The processing of herbs such as chives, lovage, and French tarragon can be expanded, as these herbs overwinter here. Work needs to be done to improve methods of propagation for French tarragon.

The garlic crop at SIDC had a poor yield due to an infestation of onion maggot. In compiling cost of production data it appeared that organic production was the only way of achieving a price high enough to compensate for the higher production costs on the prairies. Garlic is sown in the fall to attain a higher yield, and to harvest the crop during the summer when labour is more readily available. In B.C. a summer harvest helps growers to sell more of their crop to a tourist crowd which is willing to pay from \$3.00 to \$20.00/lb for an organic product.

Medicinal Herbs

Most of the potential in herb production lies with medicinal herbs. Of these, echinacea, feverfew, Roman chamomile, garlic, and ginseng were grown at SIDC in 1996. Echinacea, garlic, and ginseng are some of the leading medicinal herbs in North America. Goldenseal is also in this group, but its sale is restricted in Canada.

Little yield data is available yet for ginseng grown on the prairies. This crop may need to be grown for five or six years to attain a marketable size of root. On the positive side, growers in the northern parts of the province are hoping to grow wild cultivated ginseng which sells for \$200 to \$500 U.S./lb. Ginseng exports reported from Saskatchewan in 1996 received prices of over \$40/lb. Average Canadian ginseng prices ranged from \$26 to \$35/lb. The ginseng sold from Saskatchewan was probably grown elsewhere. However a price of \$40/lb for five to six year old ginseng will help to establish this industry. After his first year of production, a grower in Rosetown may be able to produce ginseng for about \$30/lb. This compares to costs of production of \$15 to \$25/lb in British Columbia and Ontario.

Echinacea is the major medicinal crop of interest on the prairies. It grows naturally in the southern parts of the province. Echinacea angustifolia is suited to areas of high elevation, cold winters, and non-acidic soils. Initial production costs could be as high as \$30/lb. This may drop to under \$10/lb with agronomic improvement and establishing markets for the herb as well as the root. Prices in Europe are too low for commercial sales. For this market E. angustifolia must compete with E. purpurea and E. pallida which are both produced in other areas at costs below \$10/lb.

Many echinacea products are less effective, however, if E. angustifolia is not included. Buyers are currently paying close to \$30/lb for this root. This has raised interest in the crop considerably.

Other Medicinal Herbs

There are a wide range of medicinal herbs which may also be commercially viable. At SIDC more agronomic work will be done on feverfew, milk thistle, valerian, and senega root. Other herbs of

interest are goldenseal, angelica, yarrow, Siberian ginseng, Korean ginseng, lovage, fenugreek, calendula, burdock, sheep sorrel, St. John's wort, lemon balm, lady's slipper, licorice, astragalus, stinging nettle, skullcap, and elecampane.

Herbal Restrictions in Canada

One of the challenges the medicinal herb industry faces, however, is that regulations in Canada have been increasing while the United States, for instance, has been relaxing some of its controls. It may be no surprise that a company such as Bio-Original sells 75% of its products into the international market.

There are two sides to this story. A large company may not be impeded by the Canadian requirement that medicinal herbs have a drug identification number. Many small herbalists feel these requirements will be cost prohibitive. The Health Protection Branch maintains they are only introducing measures which will help the industry to standardize their products. They do not perceive these measures as restricting consumer access to herbal products. They wish to ensure the safety and effectiveness of these products. The differences of these two groups will likely be resolved in court.

For now, Health Canada has two herb categories, food and drugs. Some herbs are not allowed in foods. Some are not allowed in nonprescription drug products either. This includes goldenseal, angelica (which may have changed), comfrey, ginkgo, gota kola foxglove, ephedra, dong quai, chapparal, and arnica. Some of these products are allowed in homeopathic prescriptions where they are diluted to levels of safe use.

Many products with restricted herbs continue to be sold in Canada. No methods of policing this industry have been established. Companies complying with regulations will be licensed, but no fines have been issued for the non-participants.

Retailers of a herb product wishing to claim medicinal properties for their product, or to sell it in a capsule, will need a drug identification number. Consumers wishing to purchase herbs such as garlic or ginseng which are regarded as safe for consumption, can buy them as food products without any claim of effectiveness. Herb growers wishing to sell herbs for use in a medicinal product should have a certificate of purity to ensure the herb they are growing is the right variety for this purpose.

The term nutraceutical has been coined to refer to food products with medicinal value which do not need to be regulated as drugs. Whether such a category can be accommodated by Canadian regulatory bodies is yet to be decided.

Insecticides

Tansy and pyrethrum are herbs used as insecticides. These are included for completeness, but have not been investigated yet.

Approaches to Medicine

Herbs used to be commonly used for prescriptions in Western medicine, but their use was discontinued for several reasons. Pharmacists explain that the active ingredients in herbs are not easily standardized.

Many people like to have an explanation of why a herbal remedy works, not just traditional claims of effectiveness. When modern drug products were introduced, some having serious side effects, the rules for selling medicinal preparations became much tighter in North America. Only large pharmaceutical companies could afford the testing for many of their products. Herbs, could not be patented, and therefore were not worth the cost of investigation. Herbs could not meet the new requirements designed for drug preparations.

Many herbs are now found to have beneficial effects as their traditional use suggested. These are being included in phyto-pharmaceutical products, which are replacing many of the drugs.

The Chinese never used drugs extensively in their medical system. They were often too costly, unavailable, and often less effective than their traditional herbal preparations. Chinese medicine teaches exercise first, then foods for preventative medicine. The preferred method of treatment for illnesses is with herbs, then acupuncture if necessary, and finally surgery as a last resort.

Herbs are used for longer term effects where drugs are used for short term illnesses. Herbs may be used when drugs are ineffective in treating certain severe illnesses.

Herbs come from all areas of the world. They are included in almost all approaches to medicine, although less in modern Western medicine. There are herbs from China, Europe, India, Australia (such as tea tree), South America, Africa, and from the native north Americans such as echinacea. The American ginseng industry, by contrast, did not appear to develop due to a native use of this herb, but by its similarity to the Asian ginseng. This market was developed by the Chinese.

The Chinese believe in an energy flow about the body. This has been substantiated by modern instrumentation. Herbs are believed to affect this energy flow, whereas, drugs, as non-living substances do not have the same healing effect through this energy flow.

Methods developed using modern science in France have helped aromatherapy gain respectability in some of the highest circles of

medicine. Aromatherapy uses an external application of essential oils for medicinal purposes. Essential oils capture the healing properties of herbs. They are used by many types of medicine. The cost of producing these essential oils, however, is not cheap.

Industry Development

The herb and spice industry is in a developmental stage of industry growth in western Canada. Many growers of herbs will at first find that their costs of production exceed their returns, which is why this industry is developing slowly. More agronomic testing is needed to determine the most efficient ways of growing herbs. Many producers are developing their own methods of producing herbs efficiently. Some growers have turned away from producing several herbs because there was simply not enough profit to cover their costs. Western Canada may well not have a comparative advantage in several, perhaps more than half, of the herbs now being grown commercially in this area.

Current Options for Growers

While the industry is growing slowly, each year presents a different set of production opportunities.

For this year borage appears to have the best profit margin of 75%. Some profit potential is starting to appear for ginseng, but growers are cautioned that this is still a very risky and costly crop to grow in Western Canada. The spearmint industry, which has had its setbacks of late, could do much better in the future as further essential oil crops are developed. Many smaller herb growers will do well servicing local and export markets for specialized products. Medicinal herb marketers can do well using some local products as well as herbs which are imported for value added processing from areas all around the world.

Growth is anticipated in this industry, even as it offers challenges for those just starting out.