

Opportunities For Expanding Vegetable Production In Saskatchewan

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Introduction

One of the roles of the Saskatchewan Irrigation Development Centre is to identify market opportunities for irrigated agriculture. However, it is often easier to promote a particular crop than to establish a successful business growing it.

Vegetables are one of those perplexing areas where many opportunities seem to exist, but it has been difficult to establish a thriving industry. A local producer has pointed out in a recent article to the Outlook newspaper (ref. 4) that Saskatchewan supplies only 10% of its in-season unloads of fresh vegetables. Saskatchewan could supply 15 to 20 times as much of its annual fresh vegetable unloads, simply to reach the same level of production as Alberta or Manitoba (Table 2.2). With some determined effort, there is room for expanding our local vegetable production.

Comparative Advantage

In their 1986 study on vegetable marketing (ref. 5), Harvest Foods noted that vegetable prices in Saskatchewan were established by determining the price in Alberta and Manitoba and adding the cost of transportation to the major markets here. Comparative advantage is normally a term applied to a low cost area of production from which commodities are exported to another area. The cost of freight would then be deducted to obtain our local price.

Manitoba and Alberta are major exporters of processed and seed potatoes. Potatoes are at least one vegetable crop for which the prairies appear to have a comparative advantage. As a whole the prairie region in 1992 supplied almost as much of its fresh potato unloads as were imported from the U.S. (Table 2.1).

Previous ratios of self-sufficiency have indicated that the prairies are 60 to 90% self-sufficient in potatoes. Ratios of self-sufficiency for individual provinces are really irrelevant, however, because many of these vegetables are imported into Alberta or Winnipeg for wholesaling and then redistributed across the prairies. Changes to the gathering of the unload data make it difficult to compare 1992 with previous years.

However the main point to be understood is that there are opportunities for Saskatchewan to participate in the export market for potatoes, and to displace part of the fresh vegetable unloads now being imported.

Manitoba is the leader in potato processing on the prairies, while Alberta has taken the lead in exporting seed potatoes. The prairie area has relatively low costs of potato production (Table 4.1). The Alberta costs of production may be lower than in Manitoba, and the costs of producing irrigated potatoes (per tonne) will often be less than the costs of dryland production due to the higher yields. For this reason, and to secure supplies, potato processors in Manitoba are requiring producers to invest in irrigation equipment to obtain a production contract.

Opportunities in Potatoes

Saskatchewan often has the disadvantage on the prairies of being the last place that food processors choose to locate. We do not have the advantage of a well established irrigation area or the tax breaks that exist in Alberta. We do not have the advantage of the higher rainfall that exists in southern Manitoba, nor the history in vegetable crop production, nor a concentrated urban population.

However Saskatchewan does share the advantage of northern vigor that has enabled Alberta to enter the export market for seed potatoes, and Saskatchewan does have excellent potential for expanding irrigated potato production. The rate of expansion of potato area in Saskatchewan between the censuses of 1981 and 1991 was higher than in Alberta or Manitoba, even though the size of area in the other two provinces continues to be much higher (Table 1.1). Saskatchewan has the lowest area planted to potatoes of all provinces in Canada except for Newfoundland and Nova Scotia, while Manitoba has the second highest (Table 3.0).

Certainly there is room for expansion, and this will depend largely upon the establishment of a processing industry. Currently there are two projects approved for the expansion of potato production in the Riverhurst and Lucky Lake area, while a market study for seed potatoes is also to be carried out. These projects are part of a SaskIdaho initiative begun by two potato producers from Idaho who are planning to export seed and table potatoes to the U.S. As potato production expands this will encourage further processing of potatoes as well.

Vegetables Other Than Potatoes

For many vegetables other than potatoes, the prairies are major importers and do not have a comparative advantage over more southerly climates, in particular the U.S. and Mexico. Very few vegetables imported into Canada come from outside these two countries due to the higher costs of transportation and storage. It is interesting to note that the U.S. exports 6 to 7 times as many vegetables to Canada as to any other country, and this is expanding year by year. In emphasizing free trade Canadians may not have paid as much attention as we could have to displacing some of our vegetable imports.

Some people consider vegetables grown on the prairies to be of better quality than those imported. Some consumers concerned with food quality seek organically grown vegetables. Organic quality can be better assured from local sources.

About 98% of the fresh vegetable unloads on the prairies are imported from outside the country, and about 2% are provided from within the region itself (Table 2.2). Small amounts are imported from provinces outside the prairie region, most of this from British Columbia. The prairies produced about 48,000 tonnes of vegetable unloads in 1992.

Provincially Saskatchewan imports about 93% of its fresh vegetable unloads from the U.S. and other countries, 6% from other provinces (mostly Manitoba and Alberta), while only producing 1% of the unloads in province. Manitoba imports about 92% of its fresh vegetable unloads, but supplies 7% locally, the highest of the prairie provinces. Alberta imports 99% of its fresh vegetable unloads, and produces only 1% locally, similar to Saskatchewan.

These numbers are not, however, an accurate comparison of self-sufficiency because the Alberta numbers include vegetables which are imported for the entire prairie region. Most vegetable wholesalers are located in Calgary. Import data is gathered at the border and include shipments to all locations within the respective provinces. Domestic unloads, however, are only gathered for the major cities, so self-sufficiency is actually higher than indicated. Non-commercial sales and farmers' markets are also not included.

Alberta imports very few vegetables from other provinces. Manitoba growers consider Saskatchewan as part of their market domain, and have established policies through their marketing board to subsidize the cost of long distance shipment at the expense of local market sales.

Prairie Vegetable Area

Table 1.0 compares the area planted to vegetables in Western Canada (excluding British Columbia) for the census years 1981, 1986 and 1991. These are arranged in the order of largest area in 1991 to smallest (see Tables 1.1 to 1.17 for the area of specific vegetables by province). The total vegetable area (other than potatoes) declined sharply from 1981 to 1986, and has risen again in 1991. The area of vegetables in Alberta is expanding, especially since 1986, but has remained small and steadily declined in Saskatchewan. Manitoba has only recovered to its previous level.

In the mean time the potato area on the prairies has steadily expanded by about 1,000 hectares a year. Sweet corn has steadily expanded, although the last two years have not been good ones for corn and warm weather vegetable crops (cucumbers, melons, peppers, tomatoes, beans, squash, pumpkins, and zucchini). Root crops and most other vegetables have yielded well despite the cooler weather.

Alberta has almost the entire prairie production of green peas. These are grown for processing, as all fresh vegetable unloads of green peas are imported. Green peas must be stored or processed rapidly after harvest, which presents a considerable challenge for most vegetable growers.

Carrots, cabbage, onions, rutabagas (including turnips), and beets are the next most commonly grown vegetable crops on the prairies. These crops have some of the higher ratios of self-sufficiency. Even so a large quantity of the fresh cabbage is being imported.

The vegetable areas on the prairies are in many cases a reflection of changing consumer preferences. Rutabagas and beets, root crops suited to our northerly climate, have had either a steady or declining demand. Broccoli and cauliflower, vegetables suited to salad bars, have expanded in area. Vegetables which require a long preparation time may have a more limited demand.

Challenges For Vegetable Growers

Many of the vegetables which are imported can and are being produced on the prairies. The major imports are vegetables which are more difficult to produce commercially. Broccoli for fresh sale must be iced. Icing equipment has been expensive for most prairie producers. Vegetables which most commercial producers grow well can also be produced in gardens by both rural and urban consumers. Many commercial vegetables are produced for farmers' markets, but this data is not available.

Perhaps the major obstacle to expanding vegetable production is the cost of labor. There may be innovative ways, however, for overcoming this problem. Vegetables would provide an employment opportunity for those people with an entrepreneurial spirit.

Reasons For Optimism

There appears to be room for expansion of vegetable production in all three prairie provinces, but particularly in Saskatchewan. So amid all the disadvantages for vegetables produced in the prairie region what are the reasons for optimism?

- (1) First the Canadian dollar has fallen since the high levels reached three years ago. This makes all agricultural prices more attractive, providing greater optimism for all agricultural producers.
- (2) With the long term fall in grain prices, many farm people would like to diversify into agricultural areas that are not so dependent on export markets. Government policy both federally and provincially is encouraging diversification.
- (3) Although we do not have complete cost information on all imported vegetables, tomatoes may provide an example of how we can compete.

As with most vegetables, tomatoes can be and are grown in Western Canada. The problem relates more to storage, access to markets, and the cost of greenhouse production.

During the in-season period (August/September), imported tomatoes from the U.S. have an average price in Canadian dollars (in Saskatoon) of 47 cents/lb. In Ontario, the costs of production for tomatoes grown for direct sale to consumers (market gardens), and using hand labour for harvest, is about 20 to 30 cents/lb (ref. 7). If Western Canada can produce comparable yields, then our costs of production should be under 30 cents/lb. This would enable us to compete with imported product during the fall season.

With appropriate storage, the marketable period for tomatoes can extend 6 to 8 weeks.

- (4) The majority of vegetables, however, are imported during the winter months. During this time tomatoes can easily retail for as high as \$1.50 to \$2.00/lb. Alberta has displaced a very large portion of its tomato imports with a greenhouse operation near Medicine Hat that uses cheap natural gas. If a low cost energy supply can be found in Saskatchewan, then an efficient greenhouse operation might be able to compete here as well. Greenhouse growers are apparently already studying this possibility.

- (5) Access to markets can be a difficulty for new vegetable growers. However, it is not reported to be a problem for more established growers. Many wholesalers want a local vegetable source, even though it is difficult to supply vegetables during the winter and spring seasons.
- (6) For those interested in organic agriculture, community shared agriculture projects are providing opportunities for consumers to access local vegetables. Whether meeting strict organic requirements or not these vegetables will most often be of superior quality to imported produce.

Processing

Lastly, although it is unreasonable to expect a processor to establish in an area until a clear degree of comparative advantage exists, a co-operative venture between producers is probably the logical step for expanding both storage and processing facilities. If a co-operative proves difficult to manage, private shareholdings would be another method of raising the investment capital.

Summary

Diversification is leading to an investigation of higher value crops. Expansion is already occurring in potato production which should lead to additional exports and processing.

Saskatchewan's vegetable area has contracted while vegetable production has expanded in Alberta and been stable in Manitoba. Positive factors which will help vegetable production expand on the prairies are: the lower Canadian dollar, unreliable export markets and prices for grain, the quality of locally grown vegetables, and improved management as growers investigate new production and marketing approaches.

References

- (1) Agriculture and Agri-Food Canada, Market and Industry Services Branch, Horticulture and Special Crops Division, "Annual Unload Report: Part I, Domestic Fresh Fruit and Vegetables On 10 Canadian Markets, 1992", plus "Annual Unload Report, Part II, Imported Fruits and Vegetables Into 10 Canadian Provinces, 1992".
- (2) Alberta Agriculture, Production Economics Branch, "1990 Costs and Returns for Potato Production in Alberta".
- (3) Green, Oliver, "Marketing Vegetables", Proceedings of the Special "Croportunities" Conference, August 8-9, 1991, p. 131.
- (4) Green, Oliver, Letter to the Editor, The Outlook (newspaper), December 6, 1993.
- (5) Harvest Foods Ltd., "A Guide to Successful Marketing of Fresh Vegetables", prepared for Irrigation Branch, Saskatchewan Agriculture, March 1986.
- (6) Manitoba Agriculture, "French-Fry Processing Potato Cost of Production", November, 1991.
- (7) Ontario Ministry of Agriculture and Food, Policy Analysis Branch, Economics Information, "Vegetable Crops: Estimated Production Costs, Ontario, 1992".
- (8) Statistics Canada, Census of Agriculture, 1981, 1986, and 1991.
- (9) Waterer, Doug, "Opportunities in Table and Seed Potato Production in Saskatchewan", Proceedings of the Special "Croportunities" Conference, August 8-9, 1991, p. 104.

Table 1.0 Order of Vegetables Grown in Western Canada by Size of Area (1991) (hectares).

Vegetable	1981	1986	1991
1. Potatoes	24,297	29,464	33,305
2. Sweet Corn	1,481	1,614	1,984
3. Green Peas	2,162	1,056	1,466
4. Carrots	405	506	645
5. Cabbage	405	537	446
6. Onions	276	233	317
7. Beans	374	149	298
8. Cauliflower	180	192	277
9. Squash, Pumpkin, Zucchini	--	119	200
10. Cucumber	172	192	178
11. Broccoli	57	112*	138
12. Lettuce	46	31	135
13. Rutabaga	186	119*	125
14. Radish	--	73	66
15. Beets	128	49	62
16. Green Onion	--	29	59
17. Tomato	44	38	46
18. Asparagus	56	30	38
19. Green Pepper	--	17	36
20. Spinach	--	14	32
21. Celery	--	40	10
22. Other Vegetables	453	160	166
Vegetables other than Potatoes	6,425	5,310	6,724
Alberta	4,033	3,595	4,658
Saskatchewan	595	491	420
Manitoba	1,795	1,224	1,646

*Estimated

Source: Statistics Canada, Census of Agriculture

Table 1.1 Potato Area (hectares).

	1981	1986	1991	Change 1981 to 1991
Alberta	6,729	9,085	11,500	+71%
Saskatchewan	1,010	1,595	1,805	+79%
Manitoba	16,558	18,784	20,000	+21%
TOTAL	24,297	29,464	33,305	+37%

Table 1.2 Sweet Corn Area (hectares).

	1981	1986	1991
Alberta	1,077	1,216	1,463
Saskatchewan	144	141	186
Manitoba	260	257	335
TOTAL	1,481	1,614	1,984

Table 1.3 Green Pea Area (hectares).			
	1981	1986	1991
Alberta	1,703	1,056	1,438
Saskatchewan	102	0	15
Manitoba	357	0	13
TOTAL	2,162	1,056	1,466

Table 1.4 Carrot Area (hectares).			
	1981	1986	1991
Alberta	225	307	424
Saskatchewan	19	67	24
Manitoba	161	132	197
TOTAL	405	506	645

Table 1.5 Cabbage Area (hectares).			
	1981	1986	1991
Alberta	182	315	245
Saskatchewan	86	62	52
Manitoba	137	160	149
TOTAL	405	537	446

Table 1.6 Onion Area (hectares).			
	1981	1986	1991
Alberta	85	76	90
Saskatchewan	15	21	10
Manitoba	176	136	217
TOTAL	276	233	317

Table 1.7 Bean Area (hectares).			
	1981	1986	1991
Alberta	268	79	241
Saskatchewan	7	8	10
Manitoba	98	62*	47
TOTAL	374	149	298

*Estimated

Table 1.8 Cauliflower Area (hectares).			
	1981	1986	1991
Alberta	29	51	109
Saskatchewan	19	9	6
Manitoba	132	132	162
TOTAL	180	192	277

Table 1.9 Squash, Pumpkin, Zucchini Area (hectares).			
	1981	1986	1991
Alberta	**	69	131
Saskatchewan	**	16	23
Manitoba	**	34	46
TOTAL	**	119	200

**Not segregated

Table 1.10 Cucumber Area (hectares).			
	1981	1986	1991
Alberta	81	111	99
Saskatchewan	28	22	23
Manitoba	63	59	56
TOTAL	172	192	178

Table 1.11 Broccoli Area (hectares).			
	1981	1986	1991
Alberta	14	51	61
Saskatchewan	4	3*	3
Manitoba	39	58*	74
TOTAL	57	112	138

*Estimated

Table 1.12 Lettuce Area (hectares).			
	1981	1986	1991
Alberta	8	17	35
Saskatchewan	6	4	4
Manitoba	32	10	96
TOTAL	46	31	135

Table 1.13 Rutabaga Area (hectares).			
	1981	1986	1991
Alberta	74	54	78
Saskatchewan	33	30*	26
Manitoba	79	35*	21
TOTAL	186	119*	125

*Estimated

Table 1.14 Radish Area (hectares).			
	1981	1986	1991
Alberta	**	30	42
Saskatchewan	**	30	5
Manitoba	**	13*	19
TOTAL	**	73	66

*Estimated ** Not Segregated

Table 1.15 Beet Area (hectares).			
	1981	1986	1991
Alberta	104	32	37
Saskatchewan	8	4	5
Manitoba	16	13	20
TOTAL	128	49	62

Table 1.16 Green Onion Area (hectares).			
	1981	1986	1991
Alberta	**	15	31
Saskatchewan	**	2	4
Manitoba	**	15	24
TOTAL	**	29	59

Table 1.17 Tomato Area (hectares).			
	1981	1986	1991
Alberta	15	12	14
Saskatchewan	8	8	8
Manitoba	21	18	24
TOTAL	44	38	46

Table 2.0 Unloads of Fresh Vegetables in Western Canada - 1992					
Vegetable	Imports	Prairie Provinces	Other Provinces	Total Unloads	Self Sufficiency (%)
1. Rutabagas	870	2,007	402	3,279	61.0
2. Potatoes	70,217	67,950	1,206	139,373	49.0
3. Beets	1,110	557	86	1,753	32.0
4. Onions	22,217	5,756	121	28,094	20.0
5. Corn	8,523	2,230	466	11,219	20.0
6. Carrots	96,360	11,885	365	108,610	11.0
7. Cabbage	175,818	7,684	870	184,372	4.0
8. Beans	6,416	191	140	6,747	3.0
9. Squash	35,214	821	1,723	37,758	2.0
10. Radishes	37,716	521	88	38,325	1.4
11. Celery	79,480	882	214	80,576	1.1
12. Cauliflower	177,185	2,019	71	179,275	1.1
13. Asparagus	6,533	61	0	6,594	0.9
14. Spinach	11,173	91	113	11,377	0.8
15. Cucumber	692,371	4,736	1,148	698,255	0.7
16. Green Onions	187,565	1,078	147	188,790	0.6
17. Tomatoes	200,948	847	2,073	203,868	0.4
18. Broccoli	393,947	1,050	449	395,446	0.3
19. Lettuce	696,691	662	1,717	699,070	0.1
20. Peppers	128,662	53	1,182	129,897	0.04
21. Green Peas	8,780	0	20	8,800	0.0

Source: Agriculture Canada, Agri-Food Development Branch Annual Unload Report, Domestic and Imported Vegetables.

Table 2.1 Self-Sufficiency of Prairie Provinces in Fresh Potato Unloads (1992)			
	From U.S.	Own Province	Other Provinces
Alberta	68%	29%	3%
Saskatchewan	23%	70%	7%
Manitoba	18%	80%	3%
Region			
Three Provinces Combined	51%	49%	0%

Table 2.2 Self-Sufficiency of Fresh Vegetable Unloads (other than Potatoes) in Prairie Provinces (000 tonnes)			
	Imports	Own Province	Other Provinces
Alberta	2,632	20	11
Saskatchewan	116	1	7
Manitoba	250	18	2
Prairies	2,999	48	13
(% Sufficiency)			
	Imports	Own Province	Other Province
Alberta	99%	1%	0%
Saskatchewan	93%	1%	6%
Manitoba	92%	7%	1%
Region			
Prairies	98%	2%	0%

Table 3.0 Area Planted to Potatoes in Canada 1993 - (hectares).	
1. Prince Edward Island	35,200
2. Manitoba	21,000
3. New Brunswick	20,600
4. Quebec	17,900
5. Ontario	13,900
6. Alberta	11,700
7. British Columbia	3,600
8. Saskatchewan	1,900
9. Nova Scotia	1,800
10. Newfoundland	300
Canada	127,900

Source: Statistics Canada, Agriculture Division

Table 4.1a Cost of Production Comparison - Potatoes - Processing (\$/acre).			
	Manitoba French Fry Dryland	Manitoba French Fry Irrigated	Alberta Processing Irrigated
Fixed Costs:			
Interest	117.00	216.90	69.20
Land	70.00	70.00	204.85
Buildings/Machinery	88.50	138.45	132.61
Water/Taxes			19.82
Management			90.63
Variable Costs*			
Seed/Land Prep	95.40	133.60	88.33
Fertilizer	38.30	54.30	100.42
Weed Control (Diseases/Insects)	47.33	58.53	39.43
Fuel/Lub	32.93	43.00	57.75
Repairs	85.53	102.97	93.16
Utilities	12.48	29.70	14.63
Labor	150.07	213.70	98.08
Custom Work	31.80	52.30	66.10
Miscellaneous	21.76	21.76	
Operating Interest	37.72	48.83	51.96
Total Costs	828.82	1184.04	1126.97
Yield (tonnes/acre)**	5.81	9.66	12.26
Cost (\$/tonne)	142.65	122.57	91.92
Cost (cents/lb)	6.47	5.56	4.17

Source: Manitoba Agriculture, Alberta Agriculture

Table 4.1b Cost of Production Comparison - Potatoes - Processing (1990).			
	Alberta Seed Dryland	Alberta Table Dryland	Alberta Table Irrigated
Fixed Costs:			
Interest	20.13	12.42	30.66
Land	39.55	36.08	144.97
Buildings/Machinery	227.38	141.24	88.84
Water/Taxes	17.21	10.96	11.11
Management	31.05	146.40	57.40
Variable Costs*			
Seed/Land Prep	299.05	158.34	113.83
Fertilizer	79.47	96.07	103.13
Weed Control (Diseases/Insects)	116.51	25.30	53.18
Fuel/Lub	19.83	23.02	55.63
Repairs	115.75	172.73	105.36
Utilities	43.82	18.95	19.58
Labor	86.31	89.39	198.49
Custom Work	147.84	48.28	48.66
Miscellaneous	0.00	0.00	0.00
Operating Interest	0.00	0.00	19.68
Total Costs	1243.90	979.18	1050.52
Yield (tonnes/acre)**	17.47	12.25	13.71
Cost (\$/tonne)	71.20	79.93	76.62
Cost (cents/lb)	3.23	3.63	3.48

Source: Alberta Agriculture

* Crop Insurance and stabilization premiums excluded.

** Manitoba yields are for marketed potatoes. Alberta yields are for field potatoes and do not include losses in storage.