Comparison of Dry Pea and Lentil Production, Marketing, Transportation and Institutions for Saskatchewan and the Palouse (Washington and Idaho)

by

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Introduction

Canadian and American grain and pulse producers frequently look across the border or have discussions at meetings regarding current farming conditions. Sometimes they wonder if the grass is greener on the other side of the fence. Each often views the other as receiving greater assistance from government programs or special treatment which creates an advantage for their competitor. Palouse farmers ask why pea and lentil production has increased so rapidly in Canada.

This report:

i) outlines the important players in world production and trade in peas and lentils,

ii) examines the production levels of peas and lentils in the Canadian Prairies and the Palouse and some factors that influenced change,

iii) describes the typical agronomic practices in each area,

iv) compares the published cost and returns estimates for the two areas,

v) compares the price of selected farm input costs and transportation costs, and

vi) outlines some common problems and challenges for these industries.

Changes in World Production and Trade

Major changes have occurred in world production and trade in peas and lentils during the past few decades. Significant growth has occurred. The list of major world pea producers has added France and Canada to the USSR, China and India for the 1965-70 period. The relative importance of US and most other producers declined (Figure 1 and Figure 2) during the same period.

From 1965 to 1970, the major exporters of peas were USSR, USA, China and the Netherlands. Recently (1991-1994) the major exporters of peas are France, Canada, Australia, Denmark and Hungary (Figure 3 and Figure 4).

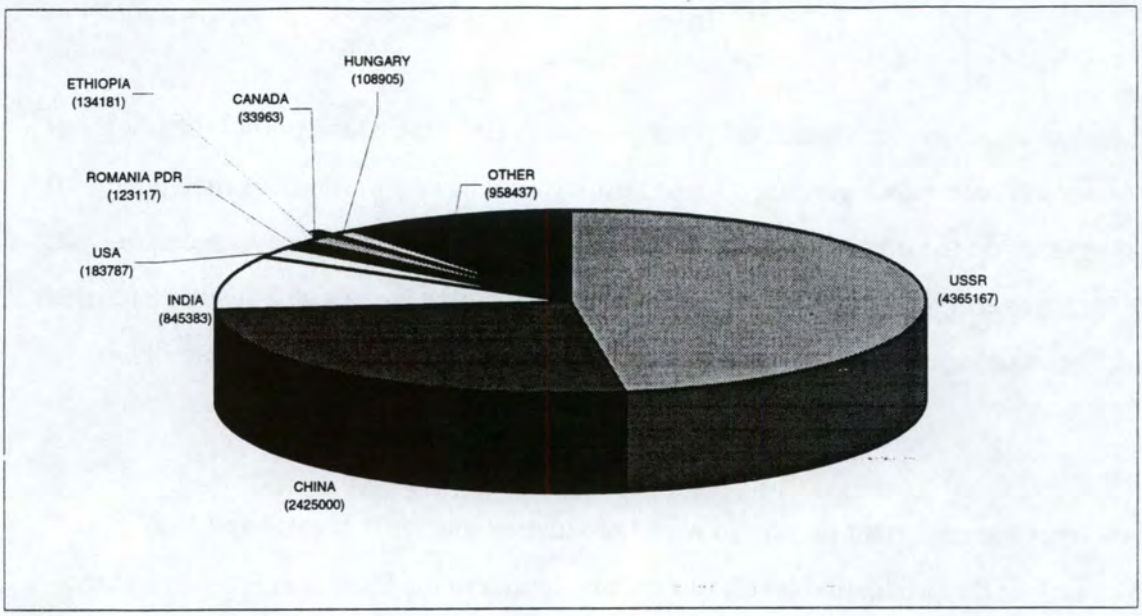

Figure 1. Average dry pea production 7 largest producers plus Canada 1965-70 (metric tonnes).
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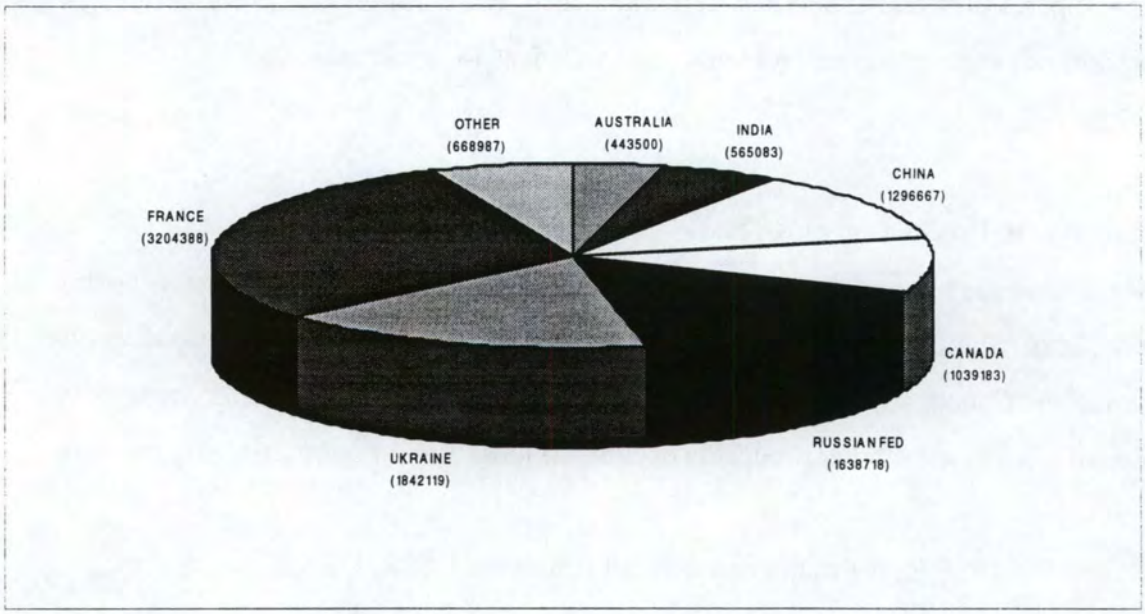

Figure 2. Average dry pea production 7 largest producer plus Canada 1991-96 (metric tonnes).
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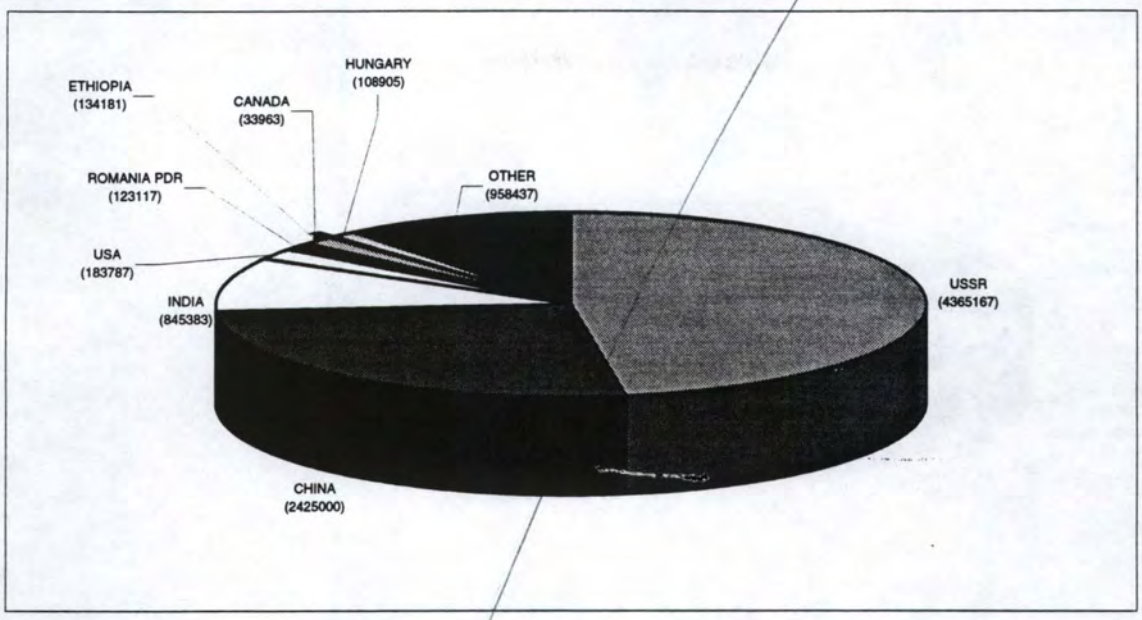

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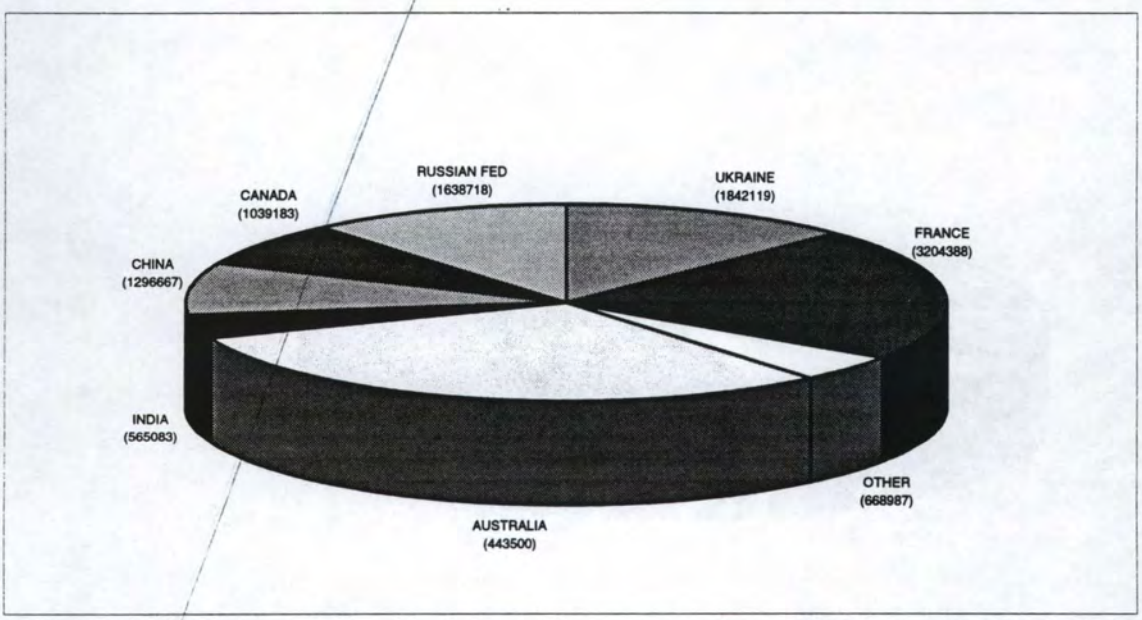

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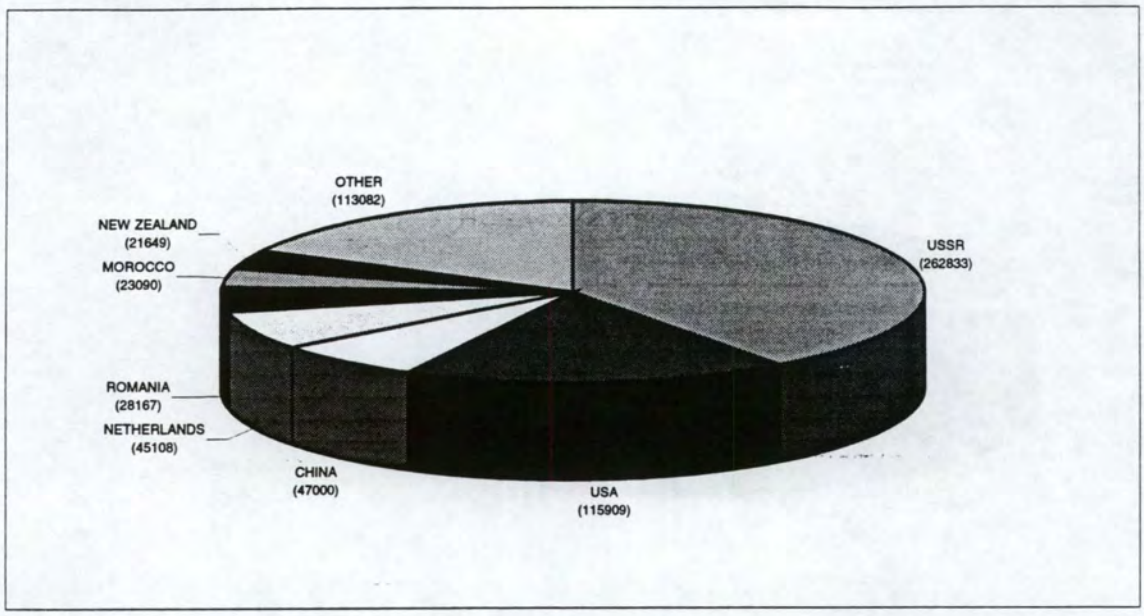

Figure 3. Exports of dry peas by country 1965-70 (metric tonnes).

Source: "Economics and Agronomics of New Crops" Agricultural Information For Saskatchewan Farmers. FAO Data. CD-ROM. 1997.

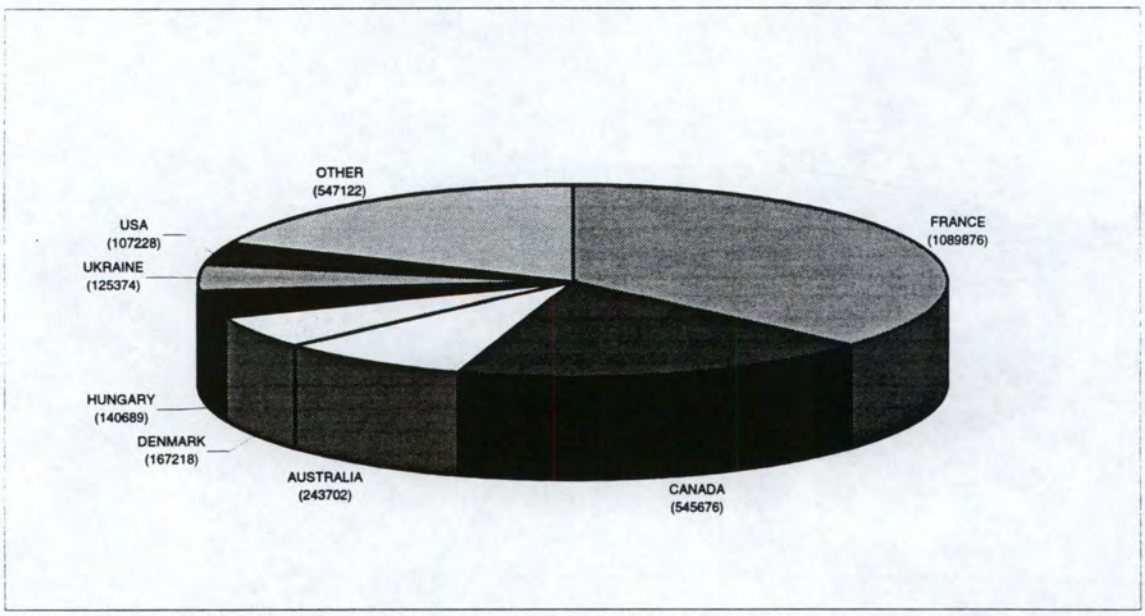

Figure 4. Exports of dry peas by country 1991-94 (metric tonnes).

Source: "Economics and Agronomics of New Crops" Agricultural Information For Saskatchewan Farmers. FAO Data. CD-ROM. 1997.

The world production and trade in lentils has also changed. Lentils were traditionally produced in India, Turkey, Pakistan, Bangladesh and other areas such as the Middle East, North Africa, and Southern Europe. Figures 5 and 6 indicate the major lentil producers then and now. Canada is the major new entrant to world lentil production. The trade was historically small with the US as an important exporter during the 1965 to 1970 period (Figure 7). Production expansion in India and Turkey and the major expansion in Canada (and soon, perhaps Australia) has changed the major world lentil exporters. In recent years Canada and Turkey have been dominant exporters. (Figure 8).

Historical Acreage and Production by Region

The acreage seeded to peas and lentils in the Canadian Prairies has grown rapidly, especially in Saskatchewan. Figure 9 indicates the production of peas in Canada from 1970 to 1996. Figures 10 and 11 indicate the rapid expansion of pea and lentil acreage in Saskatchewan and Western Canada. In contrast, acres in the US have changed only modestly in the past few decades. These pulse crops were part of the crop rotations used in the Idaho and Washington area much earlier than was the case for Saskatchewan. Pea production declined in the US since the 1965-70 period from 183.7 metric tonnes to 145.1 metric tonnes in 1991-97. Lentil production increased over the same period from 30.1 metric tonnes to 83.3 metric tonnes.[2] Pea and lentil acreage in Idaho and Washington dominates US production (Figure 12 and 13). Saskatchewan has dominated pea and lentil production in Canada in recent years, and therefore is the major focus area of this study.

The acreage currently in peas and lentils in Canada, though important, is still considered small due to the large acreage of other annual crops planted. Saskatchewan averaged 30.37 million acres of annual crop over the past ten years (1987-96)[3] production 1970 -96 (>000 metric tonnes).

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[2]Source: FAO and NASS. USDA.

[3] 1997 Saskatchewan Crop Report. Statistics Branch. Online. 3 Dec. 1997.

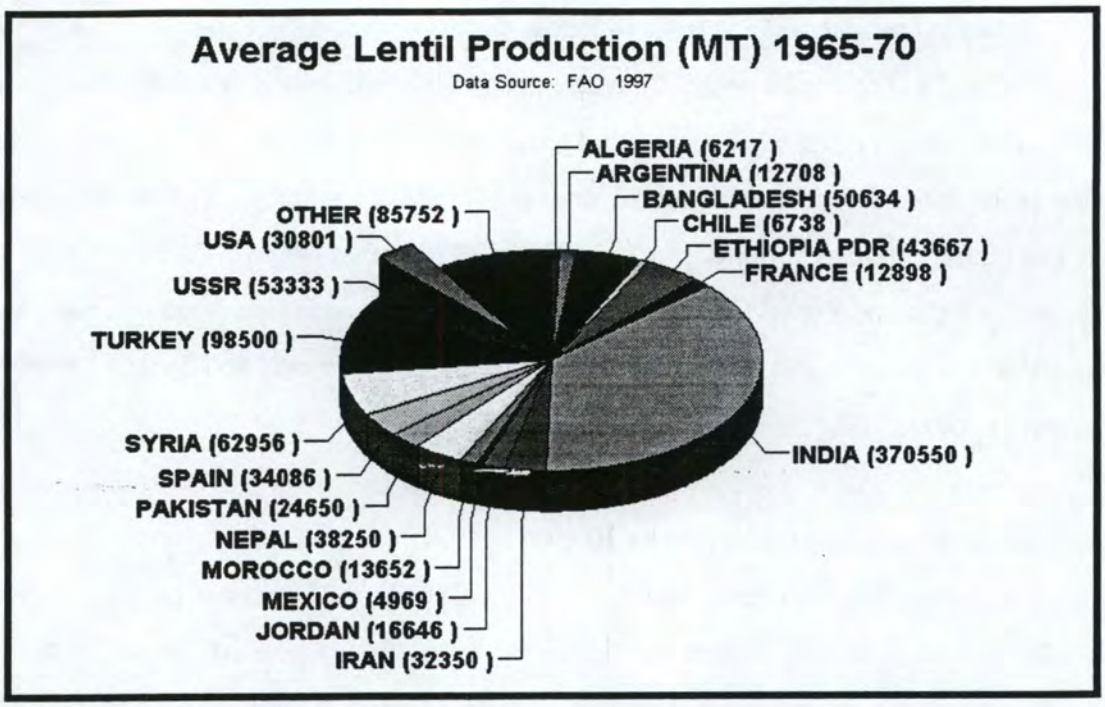

Figure 5. Average Lentil Production (MT) 1965-70.

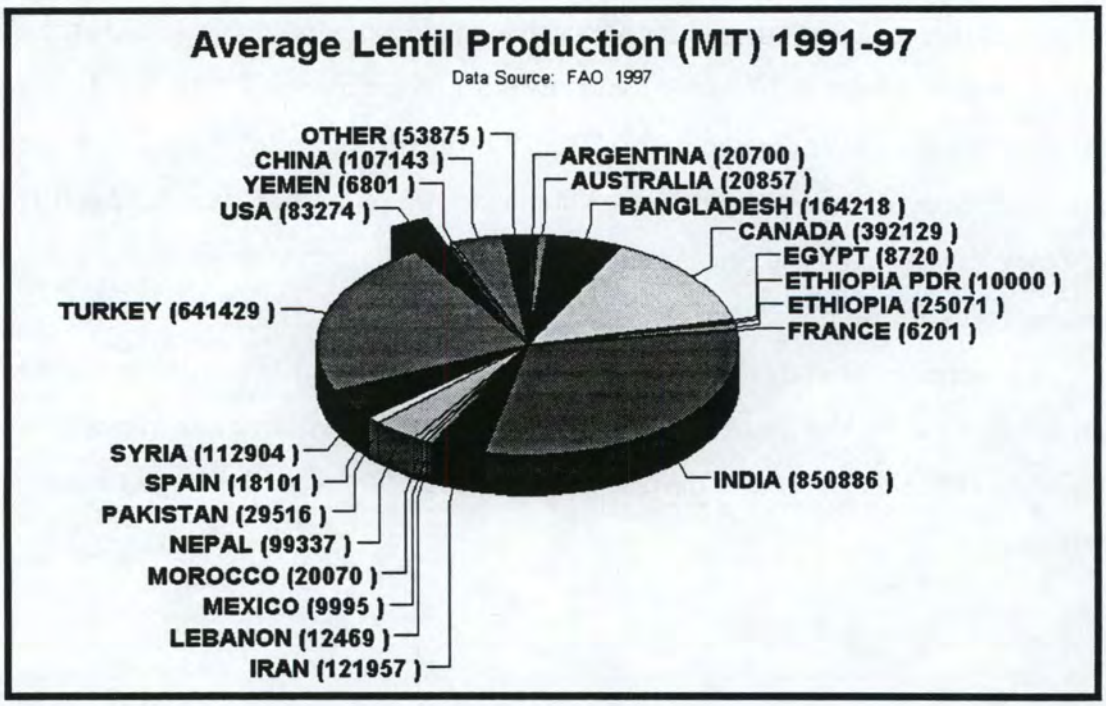

Figure 6. Average Lentil Production (MT) 1991-97.

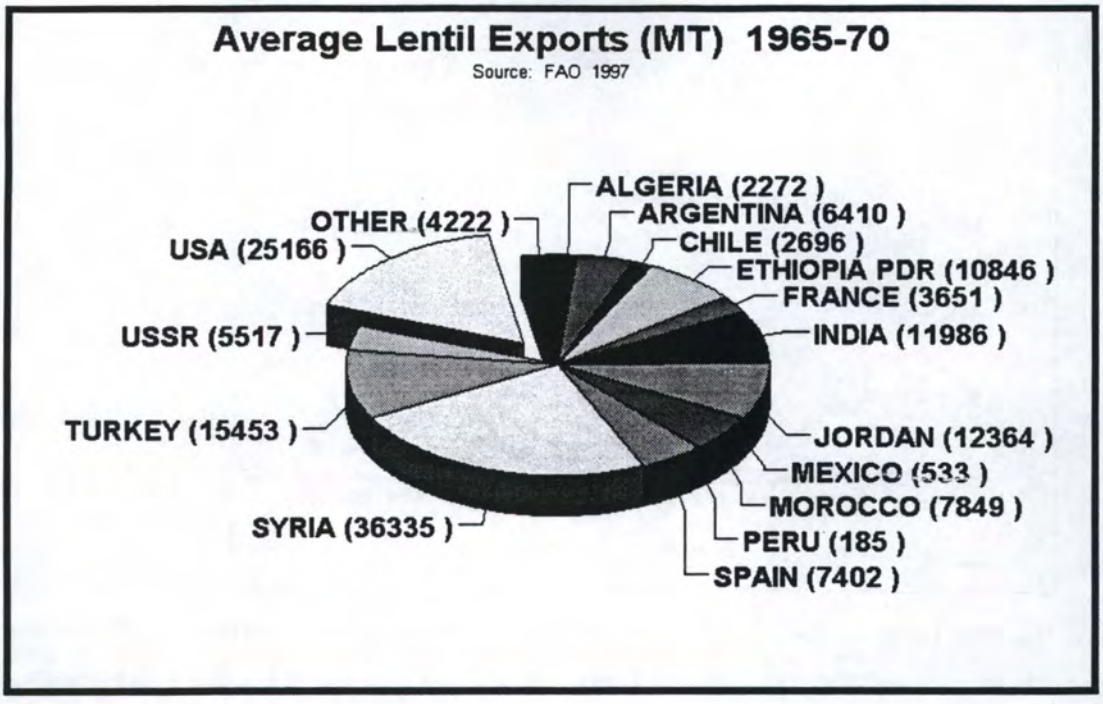

Figure 7. Average Lentil Exports (MT) 1965-70.

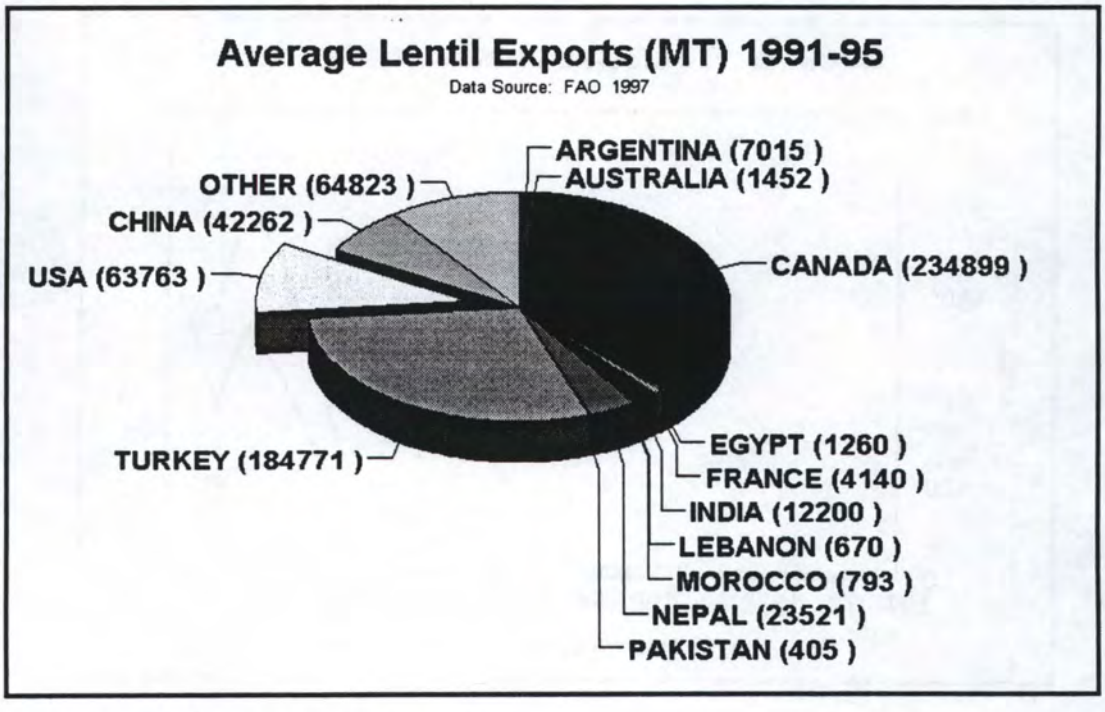

Figure 8. Average Lentil Exports (MT) 1991-95.

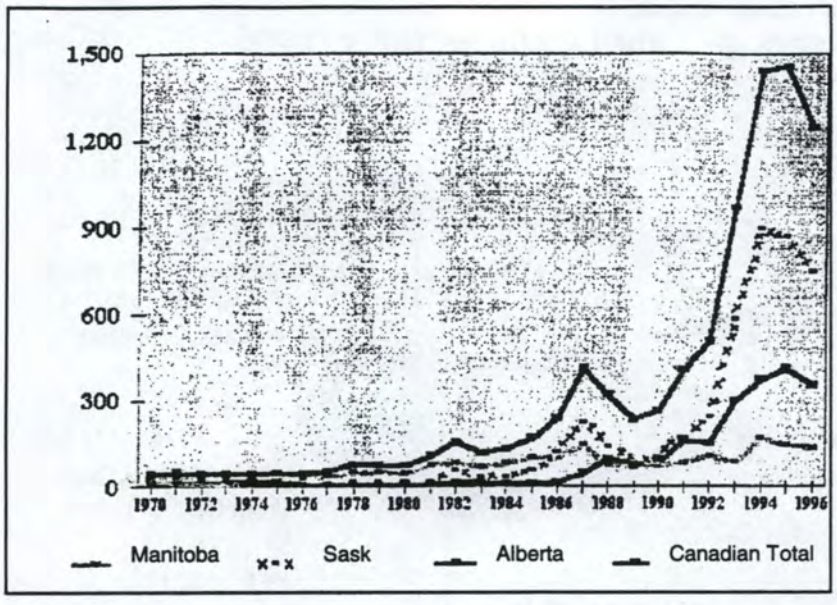

Figure 9. Dry pea production in Saskatchewan, Manitoba and Alberta as a proportion of total Canadian

Source: "Economics and Agronomics of New Crops." Agricultural Information For Saskatchewan Farmers. FAO Data. CD-ROM. 1997.

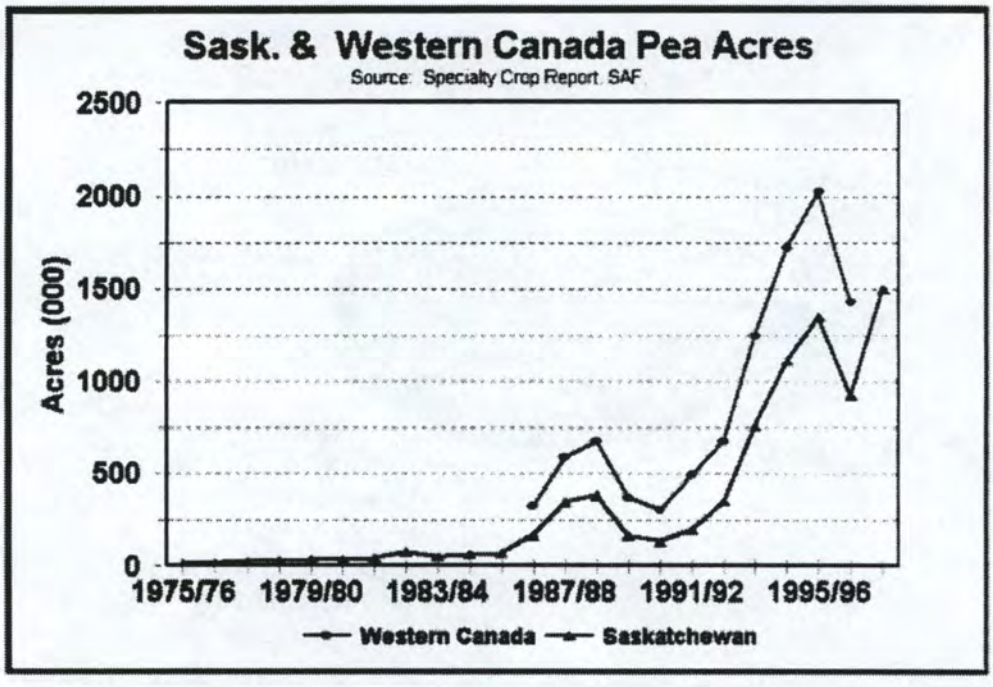

Figure 10. Saskatchewan and Western Canada Pea Acres.

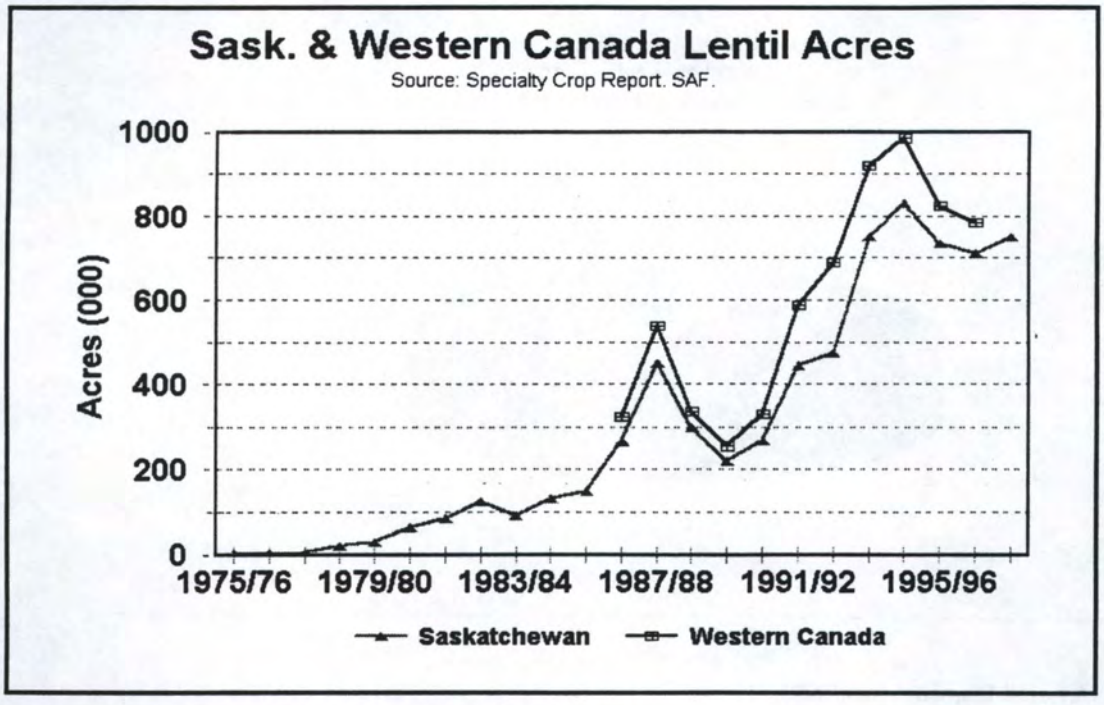

Figure 11. Saskatchewan and Western Canada Lentil Acres.

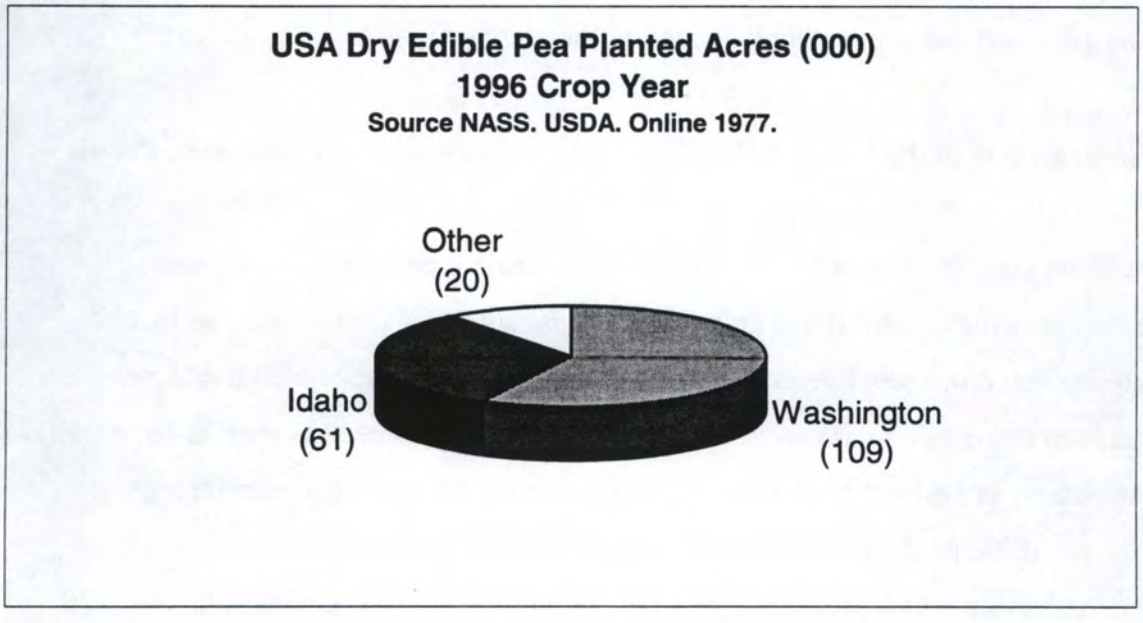

Figure 12. USA Dry Edible Pea Planted Acres (000).

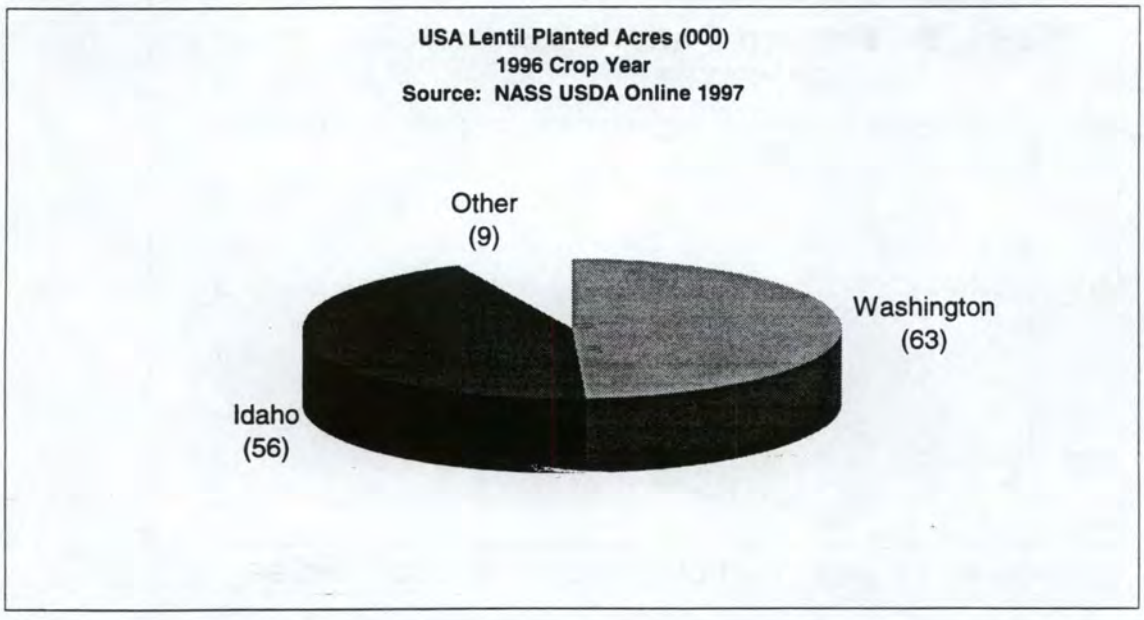

Figure 13. USA Lentil Planted Acres (000).

Peas and lentils are grown over much of Saskatchewan, with peas mainly in the northeastern two thirds of the grain belt and lentils mainly in the southwestern two thirds.

Factors Contributing to the Pea and Lentil Production Increase in the Canadian Prairie Region

Pea and lentil production increased in Prairie Canada because it became relatively more profitable than growing the traditional crops of wheat, barley, canola, and oats. The lack of profitability in other crops sent farmers scurrying to find any enterprises which might provide profits or at least returns over cash costs during the mid 1980s. Researchers such as Dr. Al Slinkard and others in Saskatchewan have focused on peas and lentils as crops with high potential for profitable production in Saskatchewan (Prairie Region).

The main event which sent farmers looking for alternatives was the revision in the US Farm Bill in 1985. Prior to 1985, the US government held stocks and supported the world wheat price at the US loan rate. The change in the US farm program from dependence on the non-recourse loan to the deficiency payment resulted in about a $1.00 decrease in the Canadian wheat price per bushel. In addition, the Export Enhancement Program (EEP) subsidized the sale of US wheat to numerous selected countries, resulting in further declines in the export price of wheat to

many markets. Canadian wheat producers rely on export markets for over 80 percent of total wheat sales and many of these sales were to customer countries where the EEP was applied. A graph indicating the realized price of wheat achieved by The Canadian Wheat Board (CWB), at Canadian port positions, indicates the impact of the US policy change in 1985 (Figure 14).

Production costs did not decline nearly as fast as commodity prices. The result was a sharp decline in Prairie farm income. The Federal and Provincial governments provided ad hoc aid programs to cushion the economic hurt for Canadian producers. The realized net farm income for Saskatchewan indicates the income levels including the government transfers (Figure 15). In some years, without the transfers from governments, the realized net farm income for the entire province would have been negative, a situation that had occurred in the 1930s. The realized net farm income in 1990 was about one half of the level of the 1964 to 1968 period, and this does not account for the declining purchasing power of a dollar during the period.

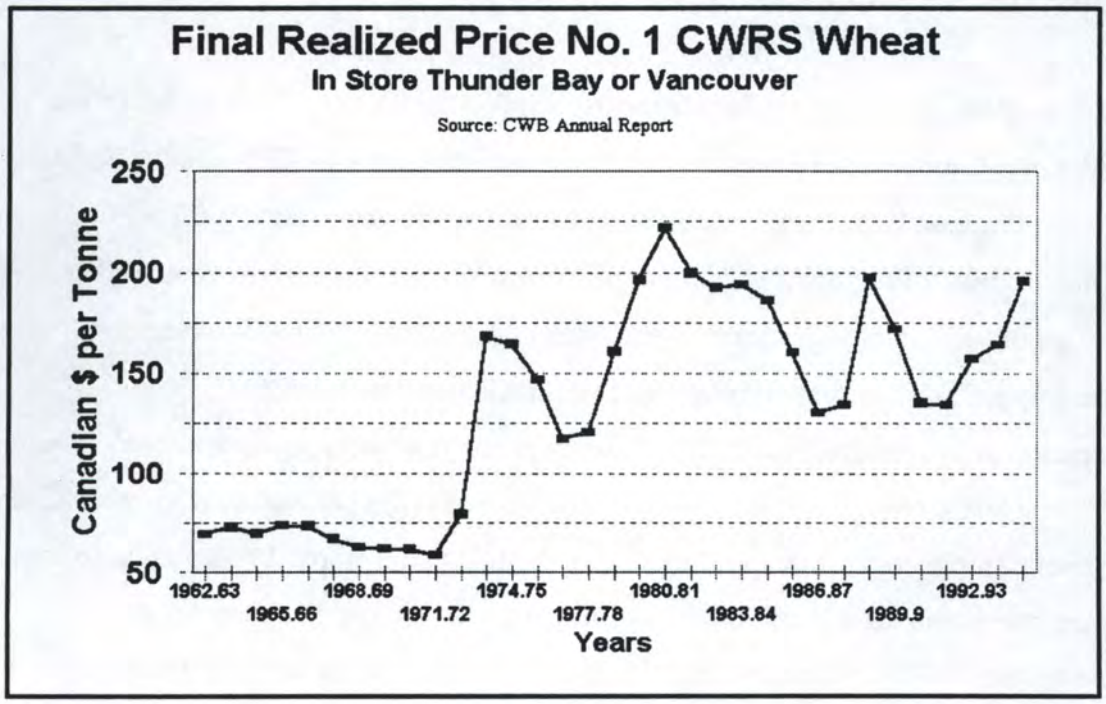

Figure 14. Final Realized Price No. 1 CWRS Wheat.

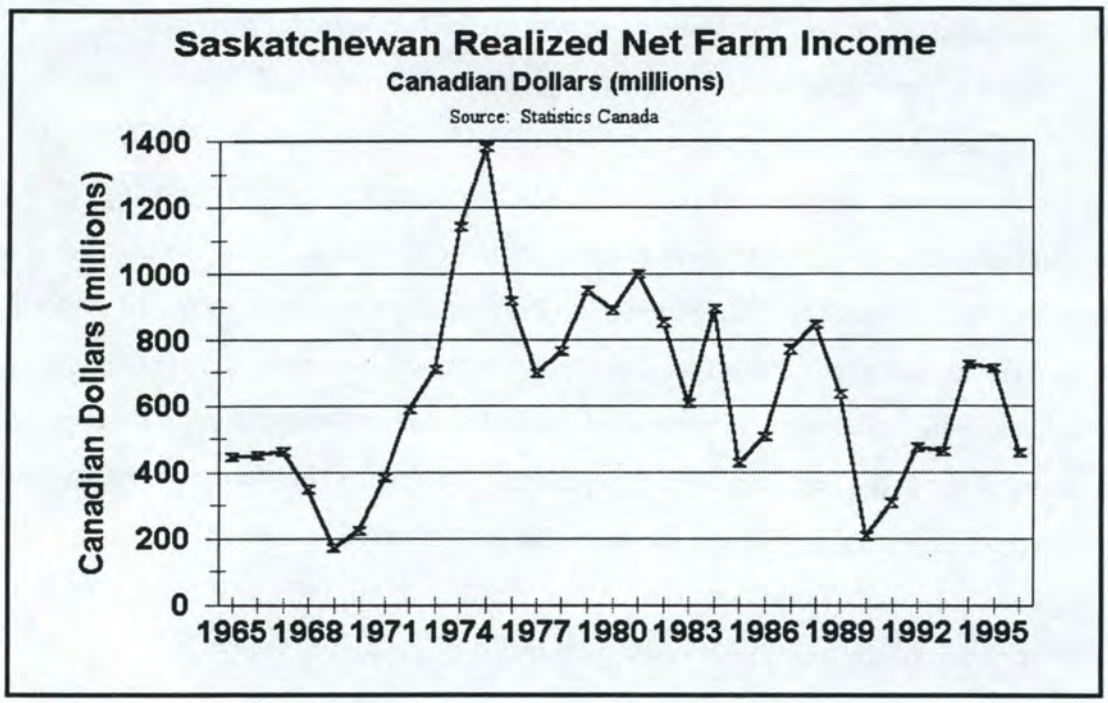

Figure 15. Saskatchewan Realized Net Farm Income in Canadian Dollars (Millions).

Canadian programs to support farm incomes included the Western Grain Stabilization Act (WGSA), Crop Insurance, the Special Canadian Grains Program I (SCGPI) and the Special Canadian Grains Program II (SCGPII), the Western Grain Transportation Act (WGTA), the Gross Revenue Insurance Program (GRIP), and the Net Income Stabilization Account (NISA). A brief description of each of these programs is provided in Appendix A. Crop Insurance and NISA are the only agricultural support programs that remain in place in 1998.

The period of low income for wheat and barley production encouraged new lobby groups to appear. Young and innovative producers who grew the new crops became more vocal in their support for a set of programs that included more than the traditional crops. Pressure was to have WGSA include more than eight grains (wheat, durum, oats, barley, rye, flax, canola, and mustard) and for the WGTA, which replaced the Crow Rates, to have lower freight rates applied on export movement of a larger list of grains. For example, the rail freight rate for lentils from Nipawin (North Eastern Saskatchewan) to Vancouver was $2.55 per hundred weight in the early 1980s, but the rail freight rate for export wheat from Nipawin to Vancouver (at Crow rates) was

$0.33 per hundred weight[4] (Figure 16). When the WGTA replaced the Crow Rate, crops such as peas, lentils, mustard, and others were added to the list of eligible crops. This was because the former rules were deemed to discriminate against the introduction of new crops. In 1996-97, the wheat freight cost per hundred weight is actually larger than for lentils. A freight adjustment factor is added to wheat because not all wheat can move via Vancouver, the most efficient route, some must move east via Thunder Bay. The major reduction in pea and lentil freight rates, relative to wheat, compared to pre-1982 rates facilitated the growth of the pulse industry on the Prairies.

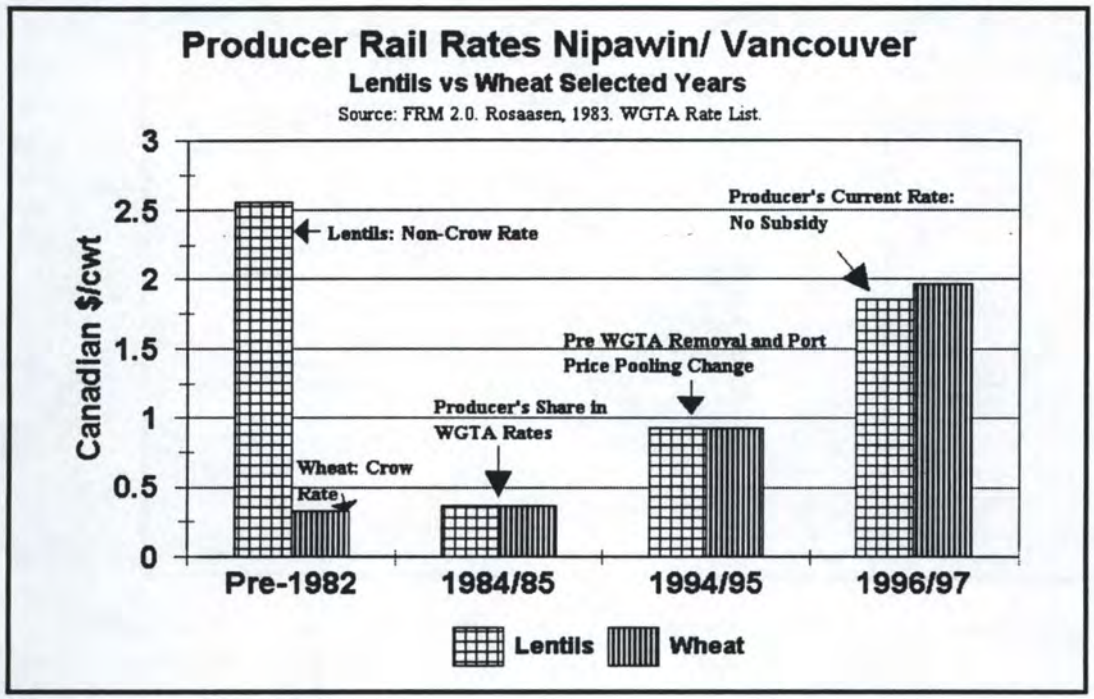

Figure 16. Producer Rail Rates Nipawin to Vancouver: Lentils vs Wheat.

The Impact of US EEP on the Crop Production Mix in Saskatchewan

US EEP on wheat reduced Canadian wheat prices and created a tremendous incentive for producers to shift to other crops such as peas, lentils, birdseed or hay for livestock.

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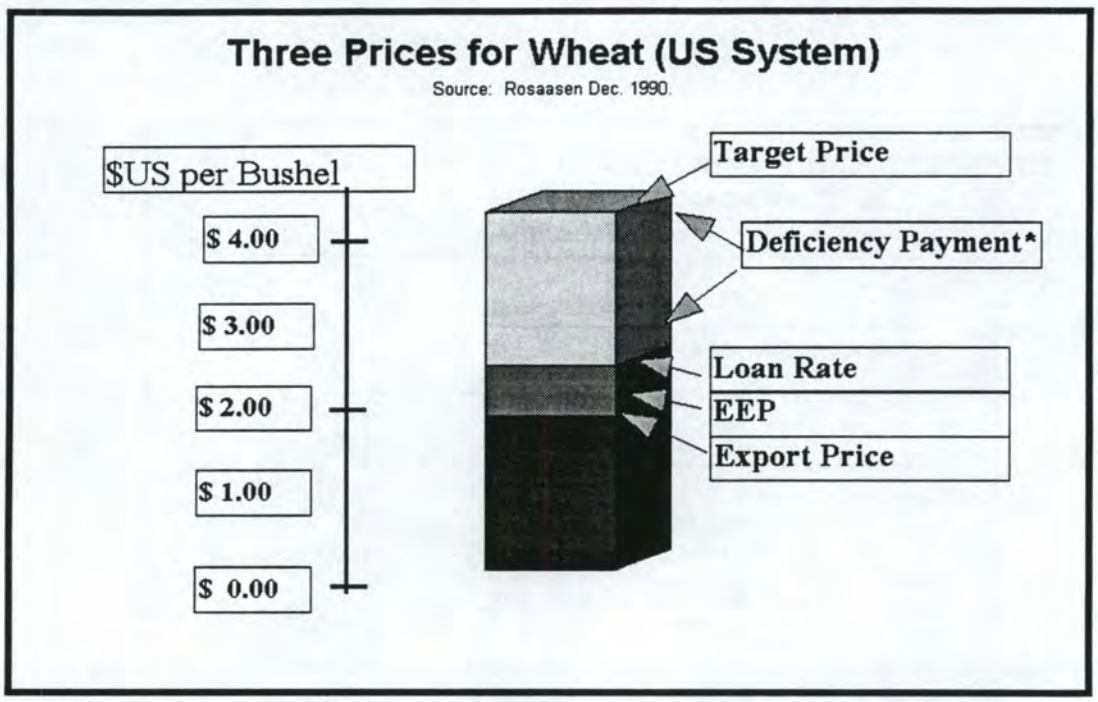
[4]Rosaasen, K.A. "The Pepin Plan - It's Impact on Saskatchewan Farmers" The Potential Impact of the Pepin Plan on Saskatchewan Communities: SCRAD Symposium Saskatoon, 23-26 April 1983. 52-83.

The new world reality for Canadian Prairie grain farmers is explained as "the three factors effecting prices of wheat"[5] which producers needed to adapt to. The three factors effecting Canadian wheat price were the US Target Price, the US Loan Rate and the EEP wheat price that applied to selected wheat importers. A graphic representation is provided, but it is conceptual since Target Price, Loan Rate and the EEP level were not fixed during the period from 1985 to date (Figure 17).



*Deficiency payments made to US producers on a proportion of output (fixed yields) when market price was below the target price.

Figure 17. Three Factors Effecting Prices for Wheat (US System).

The mix of Canadian agricultural programs became somewhat ineffective in assisting Canadian farmers. Canadian agricultural support programs were predominantly geared to supporting export commodities, especially wheat and barely, and these commodities were the focus of the Grain Trade War. Prior to the 1985 US Farm Bill, the prevailing price for Canadian wheat was the wheat price in major US markets such as Chicago, Kansas City, and Minneapolis,

[5]Rosaasen, K. A. "Good Policy Makes Good Neighbours!" The Cattle Feeder Vol. 1. No.2 December 1990.

because this was the price with which Canadian wheat competed.[6] US wheat prices were supported by the US loan rate.

Canadian wheat quality varies due to weather conditions, but generally it is very good and can achieve premiums in some markets. Canadian institutions have evolved to facilitate the export of wheat. The Canadian Wheat Board was the single desk marketing agency which sold to the domestic market for food and industrial use and to all foreign countries. Other programs such as WGSA, WGTA and the initial payment guarantee via the CWB were supportive to this wheat export goal. Canadian agricultural programs supported traditional crops but new crops were overlooked. New crops also had to wait to be included as an eligible crop under the crop insurance program. There were many hurdles to overcome for any new crop in addition to the normal problems of new agronomic practices, new markets, and the higher risk of producing a relatively unknown crop.

The graphic representation of how the Canadian agricultural program mix compares to the US Farm Bill, with its support programs, is indicated in Figure 18.[7] Canadian prairie farmers rely on wheat exports, which meant that low wheat prices would be translated into a farming enterprise that was not economically viable. Financially, many farmers could not survive producing wheat; in fact, many went through farm foreclosures or allowed their creditors to take back land on which they were unable to make payments.[8]

There was an urgent need for farmers to seek alternative crops in Canada! US farmers farmed at the adjusted target price (fixed yields and flex acres) for wheat since if the market price was low, even dropping to the loan rate, the deficiency payment per bushel increased. Canadian farmers prior to 1985 farmed at a wheat price which was equivalent to the

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[6]Public Law 480 and other programs existed but their magnitude was relatively small compared to EEP.

[7]Rosaasen, K.A., "Good Policy Makes Good Neighbours!" The Cattle Feeder, Vol.1. No.2. December, 1990.

[8]The Farm Debt Review Board and the Farmland Security Act were Federal and Provincial legislation which sought to facilitate settlement between farm debtors and their creditors during this period. In some rural municipalities (smaller districts than US counties) about one half of all farmers went through this process, often resulting in forfeiting assets or an exit from agriculture or both.

Chicago market price. The world wheat price had historically been supported by the US loan rate. EEP by the US lowered the wheat price to Canadian prairie farmers to a price below the loan rate as EEP sales were included in the annual pooled price. [9] Canadian wheat prices were very depressed. Essentially, for a Canadian farmer on the prairies, EEP meant "Explore Every Product!"

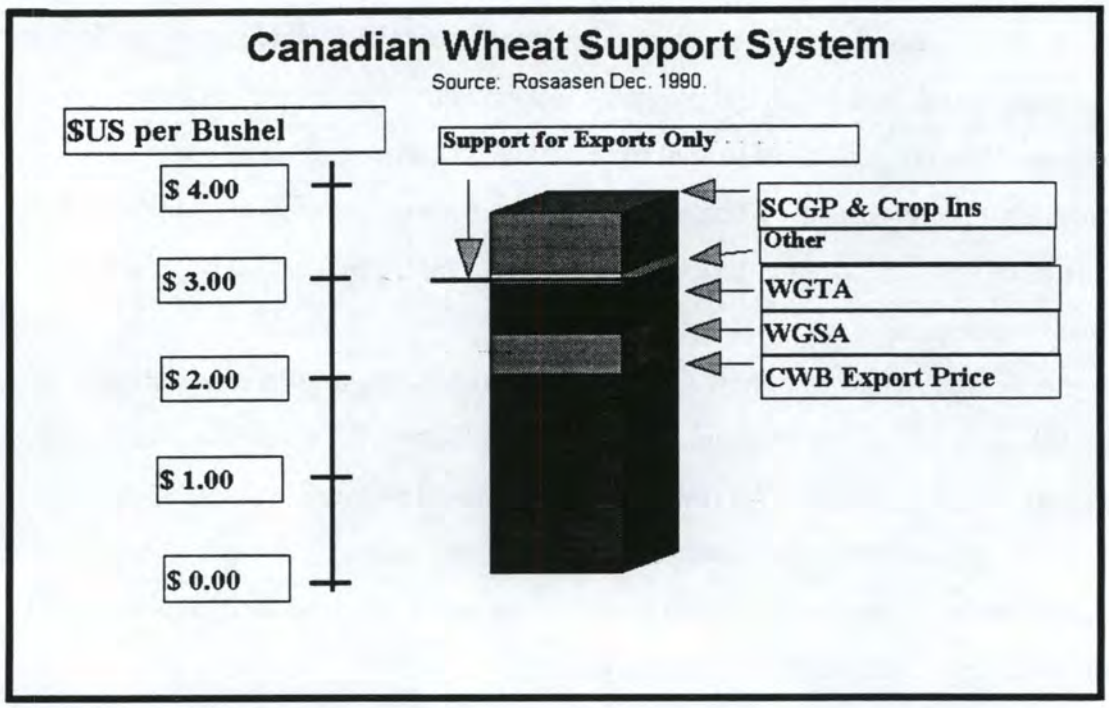

Figure 18. Canadian Wheat Support System.

Implications for US Producers

The adjustment that occurred in Canada may provide some insight into what may occur in the US as a result of the 1996 Farm Bill (Freedom to Farm). The support system for the

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[9]The Canadian Wheat Board sells all Western Canadian wheat for export and wheat for domestic and industrial use within Canada. The prices for all sales during a crop year are pooled (recognizing grade and protein differences). A single annual price for each grade and protein level results. Low priced sales to EEP markets are pooled with high value sales to Japan, US, and the Canadian domestic market. Canadian sales to low priced markets are a large part of total sales. US domestic wheat prices looked extremely attractive and individual farmers sought to truck grain to US elevators to realize this price premium.

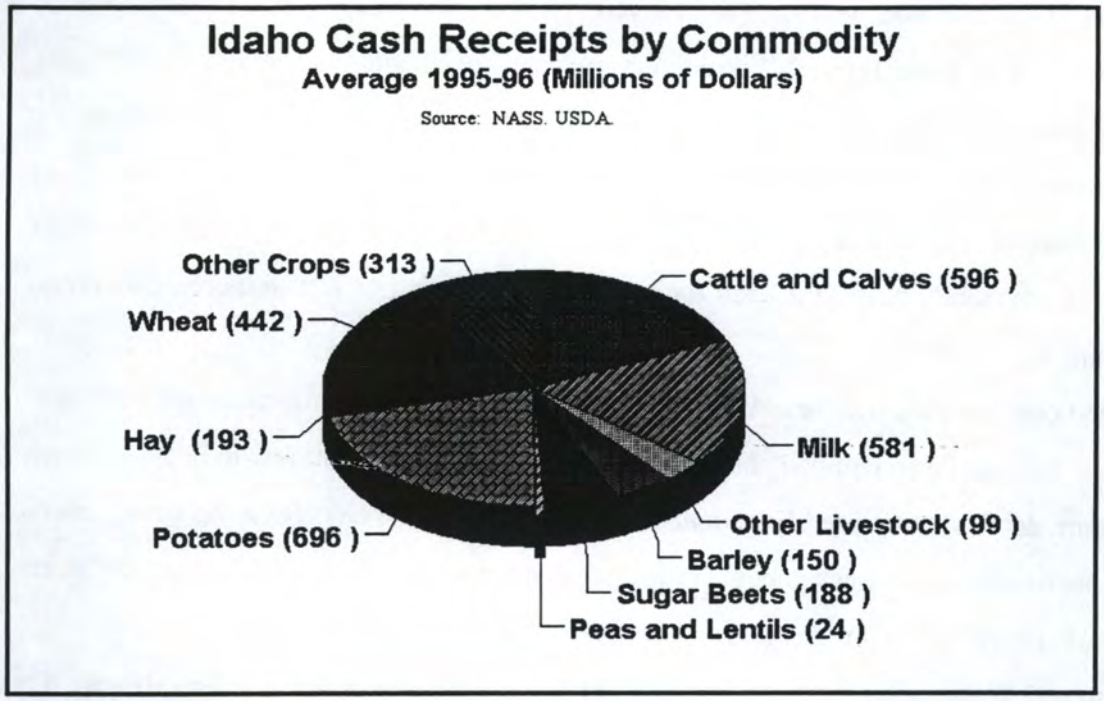

Figure 19. Idaho Cash Receipts by Commodity.

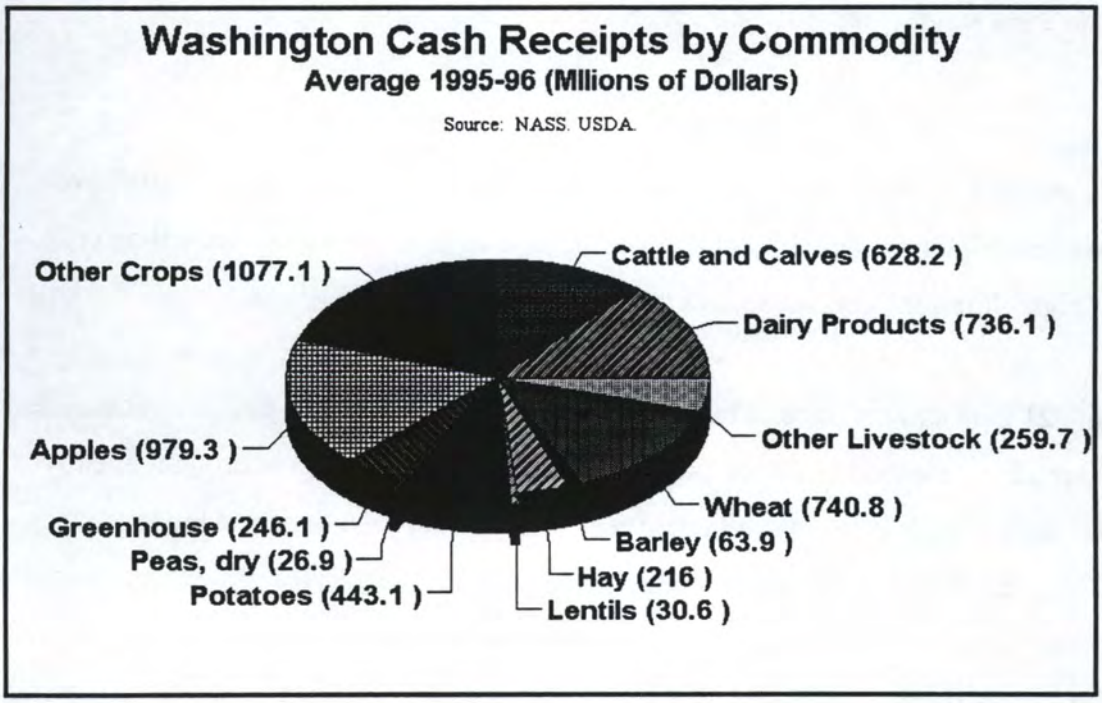

Figure 20. Washington Cash Receipts by Commodity.

traditional set of US commodities is being removed. New crops or niche crops can now be produced on land which was formerly commodity program based; and the acreage payment can temporarily be obtained until 2002. Adjustments to the new economic realities in Saskatchewan came in terms of land price declines and farm financial foreclosures. The pain was in the "withdrawal process," the withdrawal from reliance on government subsidies. The shift to peas and lentils was not merely due to the need for a rotation crop, rather, it was to increase income over wheat and barley returns.

Casual conversation with several Palouse area farmers at various meetings indicated an understanding that the Farm Bill had changed the subsidy mechanism, but few indicated a view that the magnitude was very large. Even lenders seemed to view the changes as relatively minor. The Canadian experience in Saskatchewan suggests that the income losses and variability from subsidy removal may be "larger" than many anticipate.

Idaho and Washington farm incomes are less dependant on wheat and pulse crops than in Saskatchewan. Idaho and Washington agriculture has a lesser dependence upon wheat, peas, or lentils than Saskatchewan. Dairy, beef, and horticulture products provide a more diverse and stable base for these states (Figure 19 and 20).

Land Prices

Land prices capture the rents that accrue to agricultural production. If the returns over cash costs are very high from agricultural production, land rents and therefore the selling price of land will be high. If returns decline, so will the rental rate for land and, eventually, the price of land.

Figure 21 indicates the price of farm land in Saskatchewan over the past several decades. Commodity price is an important factor as are production conditions such as drought or early frost, or other factors such as the interest rates, general economic conditions and the level of inflation. The price of land in Idaho and Washington, since 1980, indicates some fluctuations but generally prices have increased (Figure 22). Saskatchewan land prices are converted to US dollars at the annual average exchange rate for each year in Figure 23. Land values are in current dollars and are not adjusted for inflation or for

Figure 21. Value of Farm Land in Saskatchewan: 1950-96 in Can$.

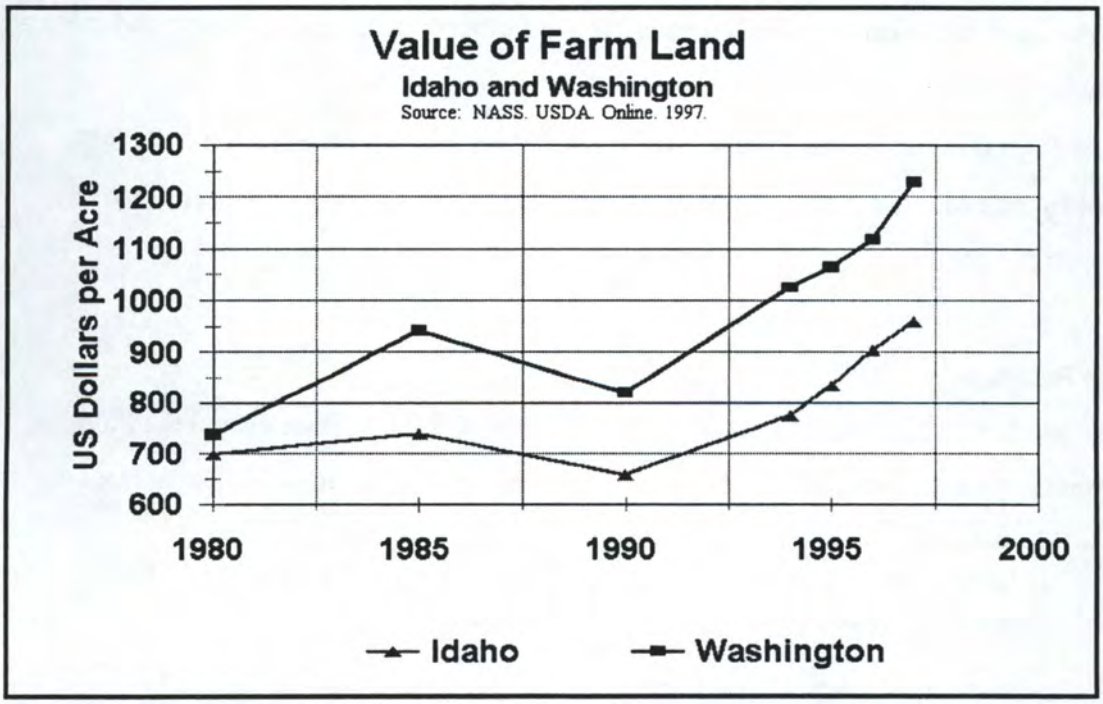

Figure 22. Value of Farm Land in Idaho and Washington.

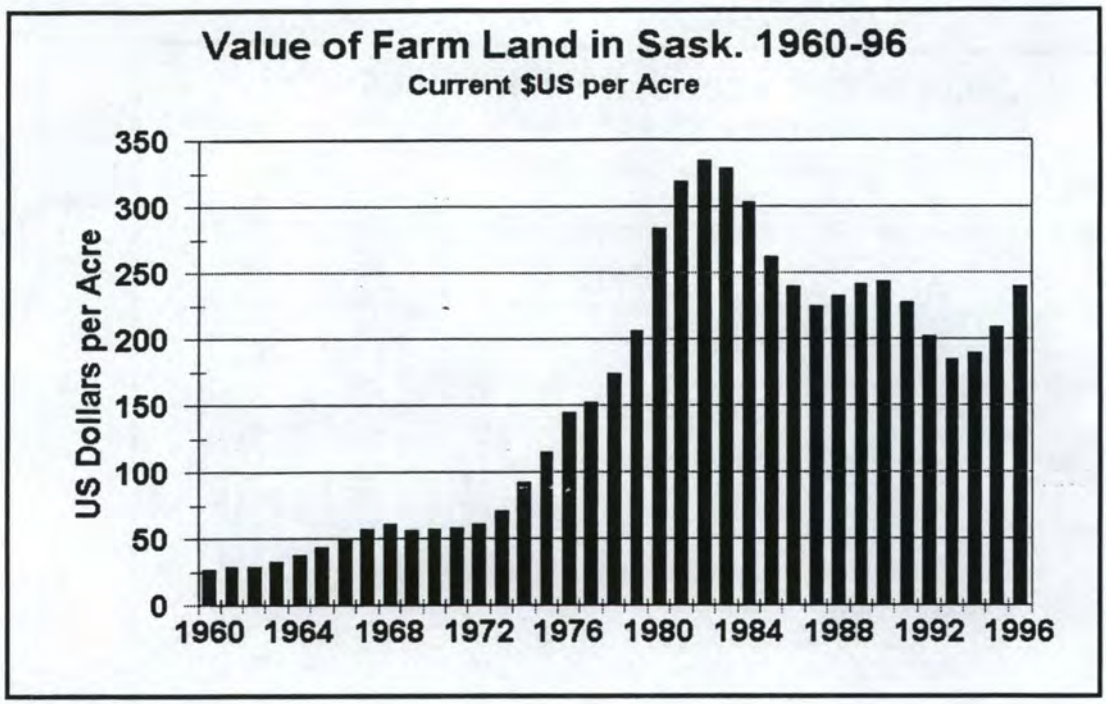

Figure 23. Value of Farm Land in Saskatchewan in Current $US.

the cost of purchasing a basket of farm inputs. Clearly, the value of agricultural capital and wealth has declined in Saskatchewan. There are fewer farmers and larger farms, a trend that has occurred throughout North America and in most of the developed world.

Many farm families on the Prairies and in the Palouse region have obtained off farm employment for one or more family members to maintain family income[10] and farm viability during the past decade.

Agronomic Practices[11]

Peas and lentils are planted in the spring in both the Canadian Prairies and the Palouse, although some fall seeded varieties are beginning to enter the Palouse region. The normal

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[10]An off farm job is important in US as health benefits are often included. This is a form of risk reduction for a farm family.

[11]A CD-ROM titled Agricultural Information for Saskatchewan Farmers, 1997 is available at the Pea and Lentil Commission office. It contains narrative and pictures of peas and chick peas under the "Economics and Agronomics" site. Some machinery such as pea rollers are also pictured. It also contains the entire Saskatchewan Agriculture and Food web site as of early 1997 with information on crop varieties, agricultural chemicals and other practices.

seeding time is in May on the Prairies and about two weeks earlier on the Palouse, although spring conditions can cause some variation. The seeding deadline for Crop Insurance coverage in Saskatchewan requires the land be seeded prior to mid June. The last half of May is considered very late seeding in the Palouse.

The normal tillage in the Palouse is to plow the stubble of the previous crop (often winter wheat) in the late fall of the year. The land is cultivated in the spring, harrowed, seeded, and/or packed. Some zero-till or direct seeding has been utilized but the technology is still in a developing stage and it is not fully proven.

The tillage practices are quite diverse in Saskatchewan with some farmers, particularly in the dryer Southern part of the region, leaving the stubble standing over winter and using direct seeding in the spring. Others cultivate the stubble with spikes (points) in the fall. It may be cultivated again or harrow packed, particularly if there is a heavy straw trash cover.

The conventional practice is to cultivate in the spring in Saskatchewan. The peas and lentils are inoculated and in some cases phosphorous, nitrogen, and sulfur are applied. Only a few areas use potash or other micro nutrients. Some farmers use little or no fertilizer on pulse crops. Direct seeding is becoming more prevalent.

Palouse farmers generally do not fertilize peas and lentils on dry land. Sulfur is added to the previous crop and carry over is sufficient for the pulse crop.

Seeding rates are about three bushels per acre for peas in both regions. Lentils are seeded at seventy five pounds per acre in the Palouse and ninety pounds per acre in Saskatchewan.

Rolling of fields is common in Saskatchewan where small rocks create harvesting problems. A large roller, sometimes containing water, is used to depress the rocks into the soil and make swathing easier. Palouse soils generally have few rocks.

Most fields in both regions need several applications of herbicides to control weeds. Both pre plant and post emergent herbicides are used. Weed infestations, pests, and plant diseases occur in pulse fields. Some of the costs of various products are listed in the farm input price comparison section for Saskatchewan and the Palouse. Fertilizer and fuel costs are also included.

Harvest and Marketing

The growing season is shorter on the Prairies than in the Palouse so timeliness is very important. Harvest rains can also result in crop loss and severe downgrading of crop quality. Some Prairie farmers (particularly in the Northern area or black soil zone) harvest the grain tough and then place it in aeration bins where it is dried. Reglone or Round Up are sometimes used as desiccants at harvest to enable earlier harvesting.

Peas and lentils are harvested by swathing, or in some cases using a straight cut flex header. Some producers wait until it is ready to harvest and then cut just ahead of the combine as high winds in the fall are a risk factor for swathed fields of peas or lentils.

The introduction of the air seeder has enabled farmers to cover more acres in a shorter time period. Some suggest that Prairie farmers were overcapitalized (especially in the late 1970s and early 1980s) but others suggest the ownership of larger machinery is to reduce the risk of harvest loss.[12] Many farmers harvest late into the night, some even all night during the harvest period. Palouse farmers are not under the same time constraints and the evening dew usually stops farmers at dusk. Grain aeration and drying equipment is not common on individual farms in the Palouse.

Most of the Prairie grain harvest is hauled to farm storage during harvest. The interior country elevator system has a limited storage capacity as do the numerous smaller companies who purchase peas and lentils. In the Palouse, some early harvested grains can be hauled direct to the port facilities on the Snake River at Lewiston, Clarkston, or other locations. Farmer co-operatives or privately owned storage facilities on track are also used for direct delivery from the combines. Farm truck capacity is therefore important and often larger in the Palouse region, but on farm storage capacity is smaller.

Peas and lentils are sometimes forward contracted during the growing season or at harvest, but cash sales are the dominant means of selling in both the Prairies and the Palouse. There is a forward contract for feed peas based in Europe which is traded on the Winnipeg Commodity Exchange. The price is in US dollars per metric tonne. The basis and exchange rate

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[12]The rate of new machinery and equipment replacement was reduced during the late 1980s and early 1990s but increased in 1996 in response to high wheat prices and the one time WGTA producer payout which greatly improved farmer's cash flow.

risk, result in few Saskatchewan producers utilizing the contract and the open interest and volume of trade is very low.[13]

Peas and lentils produced on the Palouse often receive a higher price than those produced in Canada. Part of this is due to the premiums achieved in the food market relative to the feed market. US peas and lentils are also eligible for the PL-480, Food for Peace program, which assists certain countries in purchasing their products. Exports of peas and lentils are the major use, usually over 75 percent of the total production. Canada has a much smaller food aid program and the volume of Canadian production is very large for peas and lentils relative to the size of Canadian food aid. Most of the pea production in Canada is exported as feed. Prices for peas and lentils in Saskatchewan are converted to US dollars and compared to Palouse prices in Figure 24 and 25. US prices are higher. Part of the price difference is due to the higher transportation and handling costs from the Prairies to salt water. The other is due to the use of US peas and lentils for food rather than feed use or non-supported sales in highly competitive markets. US PL- 480 accounts for between one quarter and one third of the US pulse exports during the 1993-97 period. (US Dry Pea and Lentil Council, June 6, 1997.) US exporters do not buy peas and lentils from Canada as they can lose their ability to export under US PL-480.[14]

Figure 26 indicates the Saskatchewan farm price for wheat expressed in US dollars. It indicates a major price change after the 1985 Farm Bill and freight rate increases. Prior to 1985, Saskatchewan farm prices were often higher than the US farm price for all wheat due to the quality premium. After 1985, it is only in drought years or periods of short supply where Saskatchewan farm prices reach US levels.

The Cropping Decision: Cost and Returns Comparison

One of the key factors in farm management decisions is the choice of crops. Crop choice depends upon agronomic and economic considerations. One crop may produce positive net returns of $80 per acre over cash costs, but if another crop produces a net return of $140 per acre,

[13]The volume and open interest on the WCE feed pea contract was 0 and 874 respectively on January 14, 1998 and 0 and 1312 on December 15, 1997. Source: WCE. Online. 1998.

[14]Personal communication Mike Makowsky, Saskatchewan Agriculture.

with the same fixed cost and risk, the crop with the lower net return may be squeezed out of the rotation.

Figure 24. Pea Prices Washington and Saskatchewan.

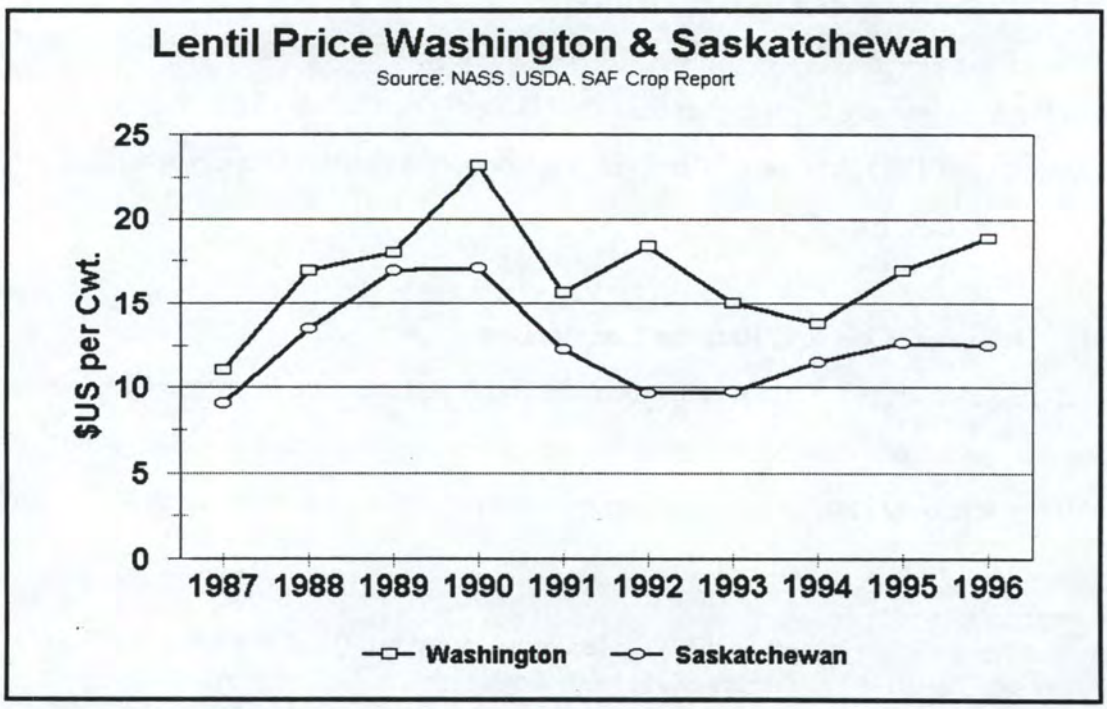

Figure 25. Lentil Prices Washington and Saskatchewan.

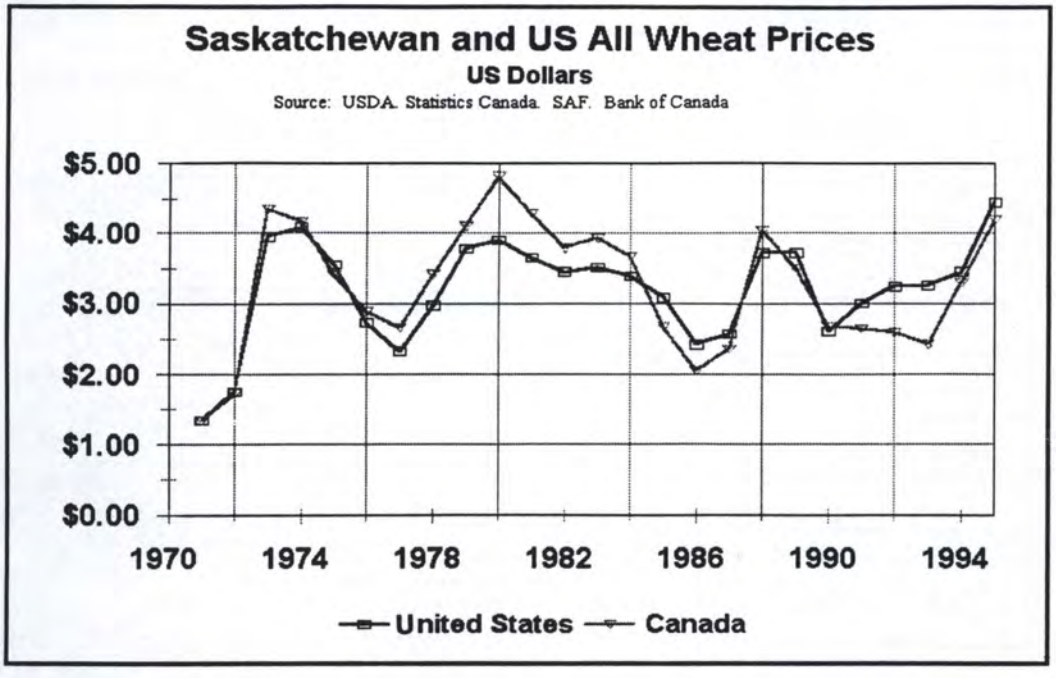

Figure 26. Saskatchewan and US Wheat Prices in US Dollars.

Planning budgets that make a reasonable set of assumptions about costs, yields, and prices provide a good indicator about relative profitability. The budgets for soft white wheat, spring peas, and lentils for Northern Idaho provide a comparison of the relative returns. Soft white wheat is a more profitable crop under these assumptions (Table 1).

The five year average yield for the period 1992-96 for winter wheat, peas and lentils for all of Idaho is 60.4 bushels, 1,908 pounds, and 1,220 pounds per acre respectively.[15] These yield assumptions used in the planning budgets appear reasonable.

Major pea production in Saskatchewan occurs in the black soil zone and lentils in the dark brown soil zone.[16] The budgets compare peas and wheat on stubble for the black soil zone. Lentils and wheat budgets are compared for the dark brown soil zone. The wheat, pea, and lentil yields for Saskatchewan for 1992-96 average 30.4 bushels per acre, 1,712 pounds, and 1,124

[15]Source: NASS. USDA.

[16]See Saskatchewan soil zone map. Appendix B.

Table 1. 1997 Northern Idaho Crop Costs and Returns Estimates*

Value or Cost per Acre

	Soft White Winter Wheat	Spring Peas	Lentils
Gross Returns	$269.50	$156.40	$217.10
Operating Costs			
Fertilizer	$38.00		
Seed	$12.00	$33.25	$15.75
Custom Spray	$1.50	$6.75	$3.00
Pesticide	$11.98	$41.88	$28.26
Crop Insurance	$2.50	$4.05	$6.10
Labor (Machine)	$24.10	$25.85	$28.74
Labor (non-machine)	$2.23	$1.87	$1.94
Fuel gasoline	$4.62	$3.91	$3.91
Fuel diesel	$6.24	$11.24	$10.42
Lubricant	$1.63	$2.27	$2.15
Machinery Repair	$7.37	$7.79	$8.02
Interest on Operating Capital (10.25%)	$8.15	$5.87	$4.41
Total Operating Costs per Acre	$120.32	$144.73	$112.70
Net Returns Above Operating Costs	$149.18	$11.67	$104.40
Cash Ownership Costs			
General Overhead	$5.18	$4.45	$4.32
Rent	$69.09	$20.32	$43.27
Property Taxes (machinery)	$3.23	$3.91	$4.50
Property Insurance	$1.15	$1.40	$1.61
Total Cash Ownership Cost per Acre	$78.65	$30.08	$53.70
Non-Cash Ownership Costs (Dep.& Int.)			
Equipment	$57.11	$68.24	$79.71
Total Costs per Acre	$256.08	$243.05	$246.11
Returns to Risk and Management	$13.42	-$86.65	-$29.01

*Source: Reproduced from the budgets EEB1-LE-97, EBB1-SP-97, and EBB1-SWW-97, R.L. Smathers.

pounds per acre respectively.[17] Peas and lentils are close to being as profitable as wheat in Saskatchewan in most years using planning budget estimates (Table 2).

Price variability can result in a shift in relative profitability. In the US, historic target price support for wheat maintained wheat as both a predictable and a profitable crop to produce. Wheat had production risk but very little downside price risk. Wheat also had upside price potential as a $5.50 per bushel price would accrue to the farmer if markets were strong. The 1996 Farm Bill has changed this. Producer returns on the Palouse will now fluctuate with wheat market prices. The US acreage payment received is no longer tied to a program acreage base or set aside rules. This will favor the production of crops other than wheat, just as it has in Canada.

Canadian wheat prices are determined after the crop is sold and then the price applies to the entire crop year, August 1st to July 31st. Wheat prices can move up and down by $1.00 or more per bushel from one crop year to the next. Pea and lentil prices fluctuate daily to producers. Wheat in Canada fits the historical set of government supports while peas or lentils did not prior to the 1980s. (See section on Factors Contributing to Pea and Lentil Production Increase in the Prairie Region.)

Yield for wheat, peas, and lentils for Idaho and Saskatchewan are compared in Figures 27, 28, and 29. Saskatchewan wheat yields remain below US wheat yields. Saskatchewan average yields for peas and lentils are closer to Saskatchewan wheat yields. The yield advantage of soft white wheat in the Palouse over peas and lentils is much greater than the yield advantage of wheat in Saskatchewan over peas and lentils. Part of this may be due to the relatively strict rules for licensing new Canadian wheat varieties. Canadian wheat varieties must have Kernel Visual Distinguishability (KVD) from the Canadian Western Red Spring Wheat (CWRS) varieties to be licensed. In addition, CWRS varieties must meet a minimum quality criteria to be licensed. Some observers suggest the quality constraints are too restrictive and therefore reduces the yield gains which should occur in Canadian wheat varieties.

[17]Saskatchewan Agriculture and Food, 1996 Speciality Crop Report, and Crop Report.

Table 2. 1996 Saskatchewan Grain Production Budgets (Canadian Dollars) Cost per Acre

	Spring Wheat[1]	Peas[1]	Spring Wheat[2]	Laird Lentils[2]
Gross Returns	$124.00	$141.11	$99.20	$199.44
Cash Costs per Acre				
Seed	$7.26	$23.80	$15.00	$20.70
Fertilizer - Nitrogen	$4.50	$6.20	$3.37	$4.65
Phosphorus	$6.09	$8.40	$5.08	$7.00
Other	$0.00	$0.00	$0.00	$0.00
Total Chemical	$20.55	$28.35	$30.06	$42.01
Fuel	$5.91	$8.14	$5.90	$8.14
Repair	$6.09	$8.40	$6.74	$9.30
Custom Work - Hired Labor	$2.18	$3.00	$2.18	$3.00
Crop Insurance Premium	$4.32	$5.96	$7.73	$10.66
Utilities, Insurance - Misc.	$3.48	$4.80	$3.15	$4.35
Interest on Operating	$2.07	$2.85	$2.36	$3.25
Total Cash Costs	$81.45	$99.90	$72.22	$113.06
Non-Cash Costs per Acre				
Building Repair	$1.20	$1.65	$0.83	$1.15
Property Taxes	$3.26	$4.50	$2.90	$4.00
Machinery Depreciation	$10.15	$14.00	$10.98	$15.50
Building Depreciation	$1.20	$1.65	$0.83	$1.15
Machinery Investment	$7.40	$10.20	$6.74	$9.30
Building Investment	$1.44	$1.98	$1.00	$1.38
Land Investment Cost	$20.00	$28.00	$16.68	$23.00
Total Non-Cash Cost	$60.18	$61.98	$50.68	$55.48
Labor and Management	$17.45	$24.07	$13.78	$19.00
Total Costs	$165.70	$185.95	$141.90	$187.54
Return Over Cash Cost	$42.55	$41.22	$26.98	$86.38
Return Over Total Cost	-$41.70	-$44.84	-$42.70	$11.90

1. Conventional Stubble Black Soil. Wheat Yield 31.0 Bu.; Price $4.00/Bu. Pea yield 27.4 Bu.; Price $5.15/Bu.

2. Conventional Stubble Dark Brown Soil. Wheat Yield 24.8 Bu.; Price $4.00/Bu. Lentil yield 1,108 Lbs.; Price $18.00/cwt.

Source: "Crop Budgets. Freight Rate Manager. Vers. 2.0." Agricultural Information for Saskatchewan Farmers. CD-ROM. 1997.

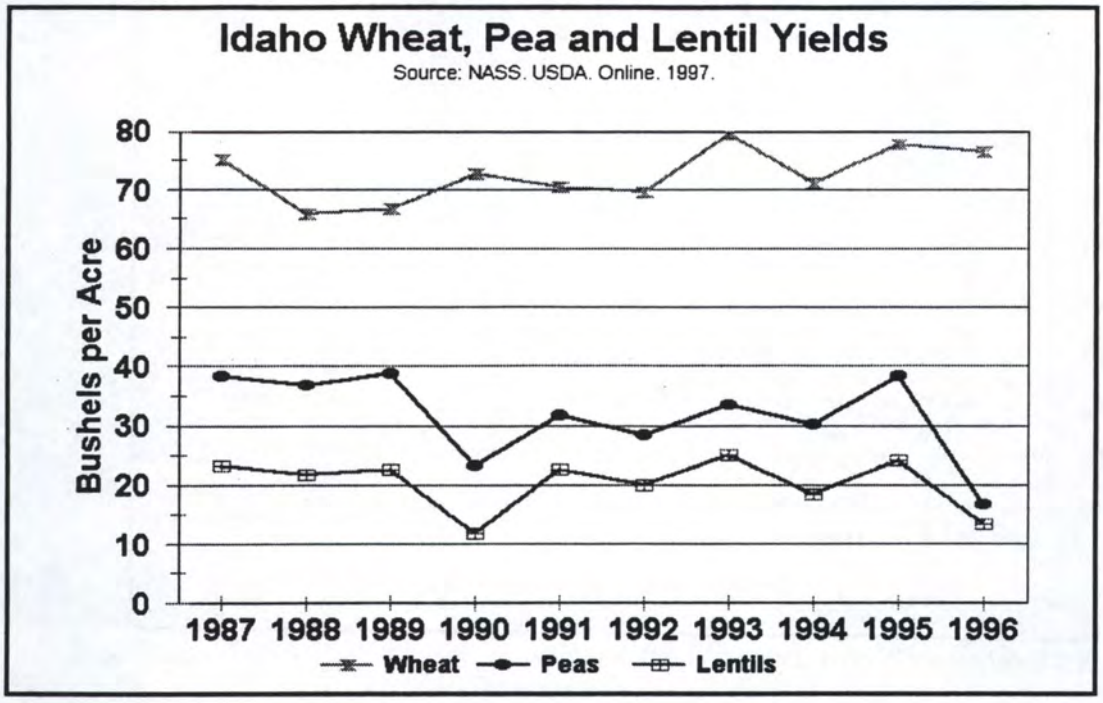

Figure 27. Idaho Wheat, Pea and Lentil Yields.

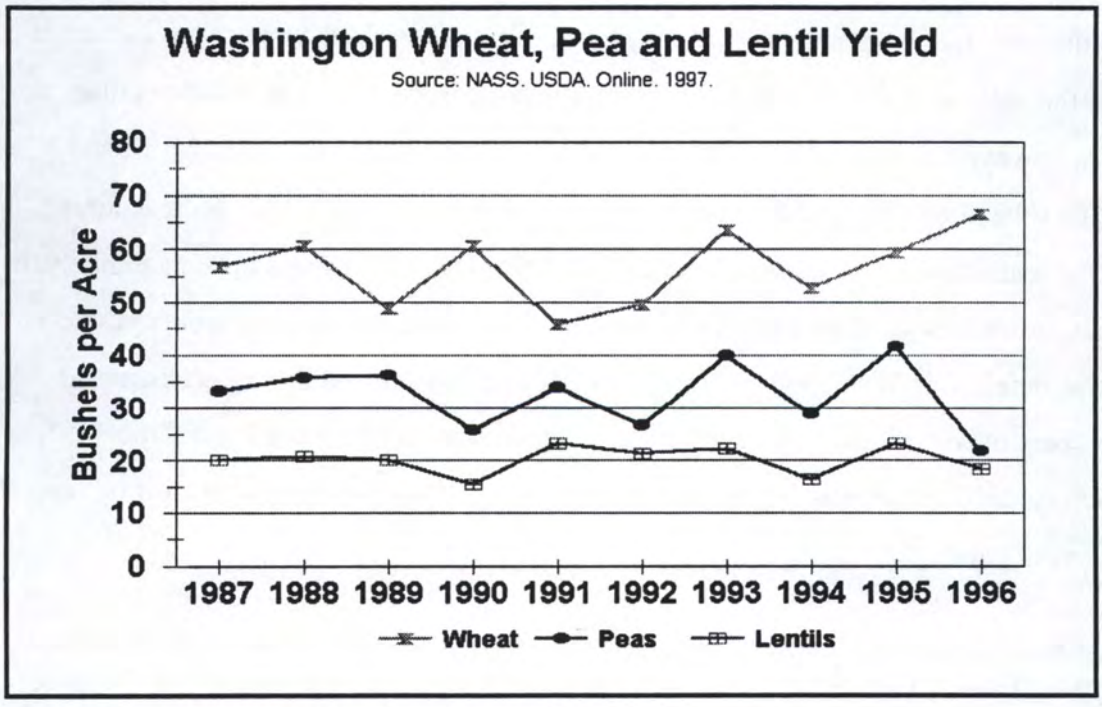

Figure 28. Washington Wheat, Pea and Lentil Yields.

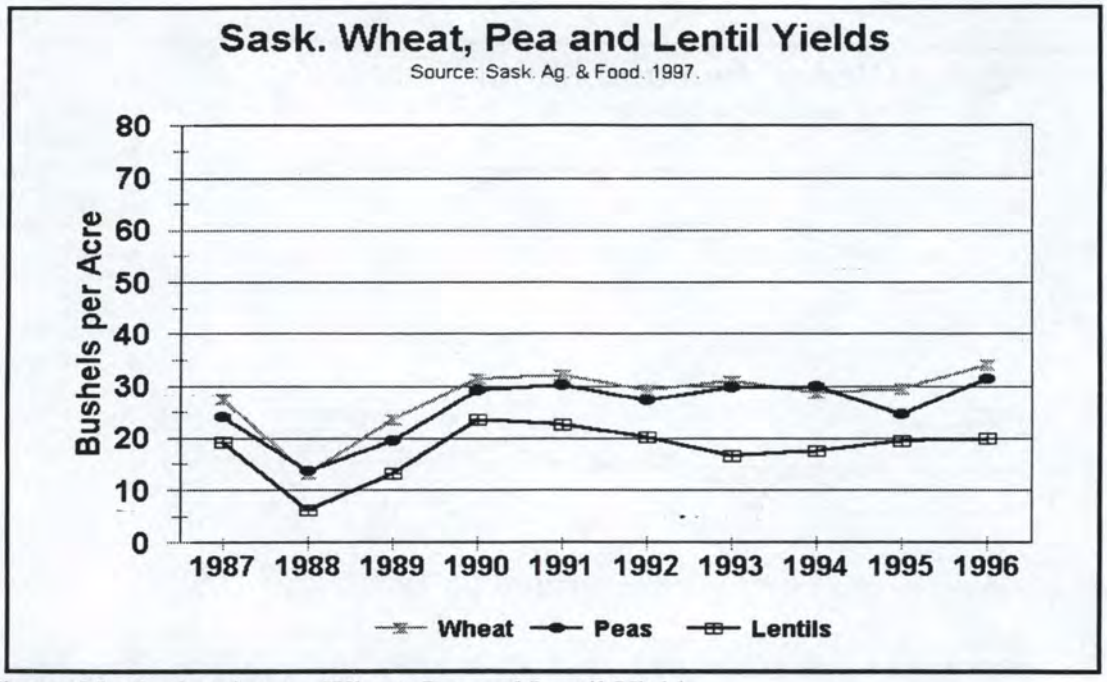

Figure 29. Saskatchewan Wheat, Pea and Lentil Yields.

Winter wheat varieties tend to out yield spring varieties. Canada uses predominantly spring varieties for wheat and only spring peas and lentils. The Palouse uses winter and spring wheat varieties, but mainly spring varieties for peas and lentils. Perhaps winter peas and lentil varieties for the Palouse could be developed which could close the yield gap between pulses and wheat. This, however, takes time and research funds. A recent study by Gareau, Muel, and Lovett suggests the public funding for cool season food legumes in the US has been declining.[18] Therefore, the realization of these potential yield gains from winter varieties appears unlikely, or in the distant future at best. A recent vote on a check off increase for peas and lentils passed in Idaho but was defeated in Washington. This generates some dissension among producers as "free riders" benefit without the same costs being paid. Saskatchewan has a Pulse Crop Development Board in place which is funded through a mandatory producer check off of one half of one percent of value.[19]

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[18]Gareau, R.M. et. al. compare research and development support for cool season food legumes among France, Canada, Australia and US and conclude: "Of the countries examined, only the U.S.A. has experienced dwindling pulse research funding over the past decade." p.15.

[19]This check off is mandatory and is pooled for all pulse crops and used for the development of all pulse crops including chick peas, faba beans and others. There is no requirement that the pea check off be used only for peas.

Peas: Cost of Production Comparison

The Saskatchewan budget for peas seeded with conventional equipment on stubble in the black soil zone is compared with the Northern Idaho budget for spring peas. The format of the Idaho budget is revised to conform to the Saskatchewan cost of production (COP) budget and all values are reported in US dollars.

The comparison of Saskatchewan cost estimates for 1997 (spring) with Idaho costs for 1997 (producing the 1997 crop) indicates total cash costs of $72.43 per acre in Saskatchewan versus $115.91 per acre in the US (Table 3). Saskatchewan's projected pea yield was 1,644 pounds per acre (27.4 bushels), while the yield for Idaho was 1,700 pounds per acre (28.33 bushels). Pea prices used in the budgets for Northern Idaho are above the prices used for Saskatchewan which is consistent with historical market prices.

The seeding rates of around 170 pounds per acre are used in both areas, but pea price and therefore pea seed cost is a lower cost in Saskatchewan. Saskatchewan often utilizes some fertilizer for peas, at just over $10 per acre. Peas are normally not fertilized on the Palouse, although some producers are careful to have a carryover of sulfur from the previous crop. Saskatchewan budgets included a cost of crop insurance of $4.32 per acre versus $4.05 in Idaho.

Chemical costs are higher in the US, partly because an application of insecticide is included in the budget for $9.80 per acre plus associated application costs by aircraft in May. Peas have only been grown over a relatively wide area in Saskatchewan for a decade or less. The insect and disease problems are yet to come. The Saskatchewan budget only includes seed inoculant and an allowance for a desiccant on 25% of the acreage as costs above the normal herbicide protection for broadleaf and grassy weeds.

The fuel use is $5.90 per acre in Saskatchewan while fuel costs including diesel gas and lubricants in Idaho are $17.42 per acre. This was surprising, given that diesel and gasoline prices for farmers are similar in Northern Idaho and Saskatchewan. Automobile fuel is higher in Saskatchewan than Idaho as fuel taxes are higher in Saskatchewan, but farm diesel is exempt from fuel taxes in both locations. It appears that plowing may be a heavy fuel consumer and that grain trucking and use of utility vehicles (2 tons and 3/4 tons) may be higher in Idaho. Implements pull heavier in some soils than in others. The US cost places the crop into a local elevator or in on-farm storage while the Saskatchewan cost places the grain in the farm storage bins.

Table 3. Peas: COP Saskatchewan and Northern Idaho in US Dollars[1]

	Sask. Conventional on Stubble Black Soil Zone[2]	Spring Peas Northern Idaho[3]
Cash Cost Per Acre		
Seed	$17.26	$33.25
Fertilizer - Nitrogen	$4.50	$0.00
Phosphorous	$6.09	$0.00
Sulfur	$0.008	$0.00
Chemical-Herbicides	$19.32	$27.98
Insecticides	$0.00	$6.95
Other	$1.23	$0.00
Fuel	$5.90	$17.42
Repair	$6.09	$7.79
Custom work/hired labor	$2.18	$6.75
Crop Insurance Premiums	$4.32	$4.05
Utilities, Insurance, Misc.	$3.48	$5.85
Interest on Operating	$2.06	$5.87
Total Cash Costs	$72.43	$115.91
Non-Cash Costs per Acre		
Property taxes (machinery)	$3.26	$3.91
Building repairs	$1.20	$
Machinery depreciation	$10.15	
Building depreciation	$1.20	$68.24
Machinery investment	$7.39	$
Building investment	$1.44	$
Land investment cost (rent)	$20.30	$20.32
Total Non-Cash Costs	**$44.94**	**$92.47**
Labor machine/non-machine		$27.72
Labor and management[4]	$17.45	
Total Costs (TCC + TNCC)	**$134.82**	**$208.38**
Total Gross Returns (Price x lbs/ac)	**$102.30**	**$156.40**
Returns Over Cash Costs (TGR + CC)	**$29.87**	**$40.49**
Returns Over Total Costs (TGR - CC)	**($32.52)**	**($51.98)**

[1]Slight description changes were made to make the budget comparison between countries in a single format.

[1]Yield in Northern Idaho is 1,700 lbs/ac and price is $8.75/cwt.
Yield in Saskatchewan is 1,644 lbs/ac and price is $6.22/cwt.or $6.22/cwt US.

[2]Source: 1997 Cost of production. SAF Converted to $US. ($1.00 Can. = $0.725US).

[3]Source: EBB1-SP-97. R. L. Smathers. University of Idaho. 1997.

[4]Saskatchewan farmers do not pay workman's compensation; Idaho farmers pay $0.04/dollar payroll for workman's compensation.

Repair costs are $6.09 per acre for Saskatchewan compared to $7.79 per acre for Idaho. The repair cost in Saskatchewan is a simple estimate at 6% of the machinery investment per year. US machinery investment is valued at 75% of replacement costs with repairs as a proportion of investment. The US farm machinery budgets typically use new machinery prices and estimated life from the University of Nebraska tests. In reality, many farmers use older machinery and have lower costs. The units of machinery observed in fields in Idaho and Washington suggests that the age of machinery is mixed from new to twenty years old or more for both tractors and combines.[20]

Custom work, hired labor in Saskatchewan, is $2.18 per acre and usually is for work in seeding and harvest. In Idaho, custom air spraying and custom spraying total $6.75 per acre. There is a need to use air spraying due to wet soil conditions when timely spray application is required in Northern Idaho.

General overhead and interest on operating costs are also lower in Saskatchewan than Idaho. Idaho had a higher interest rate during the periods compared, and generally higher operating costs to finance.

The real property taxes in Saskatchewan at $3.26 per acre slightly exceed the Idaho cost of $2.79 per acre (including the personal property tax on machinery).

The depreciation and interest costs on farm buildings and machinery are $21.39 per acre in Saskatchewan compared to $45.94 per acre in Idaho. This could be due to the relatively high valuation of machinery in the Idaho budgets, an actual over capitalization of grain farms in Northern Idaho, and/or the higher interest rates or shorter use life expected for these assets.

The estimated land investment cost at $20.30 per acre in Saskatchewan is similar to the estimated rent of $20.32 per acre for land cropped to peas in Idaho. This was surprising, but the one quarter share of the crop and the inputs used in pea production is below the one third crop share assumption for these in the soft white winter wheat budget. In the wheat budget, the land rent was $69.09 per acre. (See the comparison of peas, lentils and soft white wheat Table 1.) Saskatchewan farm budgets use a constant land rent for all crops across a soil zone. This cannot

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[20]Machine valuation in Idaho perhaps is high and reflects the use of new machinery in cost estimates. Canadian supply managed sectors like chicken and dairy have cost of production estimates that error on the high side because higher costs have historically supported higher prices.

be used in Idaho as Southern Idaho budgets have a land rent of $325.00 per acre for potatoes (irrigation investment required) and other crops are seeded for agronomic reasons.

The labor and management returns in Saskatchewan are $17.45 per acre. Machine and non-machine labor in Idaho are at $27.72 per acre and management is allocated as a residual return when returns exceed costs.

Total production costs for peas are $134.82 per acre in Saskatchewan and $208.38 per acre in Idaho. The projected returns for peas in the budget for both Idaho and Saskatchewan are above cash costs but below total cost. Returns from peas in Saskatchewan were much more competitive with the wheat alternative than for Northern Idaho. Despite the lower cash returns in Idaho for peas as compared to wheat, peas will probably remain as an important rotation crop. The yield of wheat following peas or lentils is higher than wheat on wheat by about 25% or 17 to 20 bushels per acre. The research results for selected Palouse sites are shown in Table 4.

Table 4. Winter Wheat Yield Following Rotational Crops as a Percentage of the Yield Following Pea, Moscow and Genesee, Idaho

Previous Crop	W. wheat yield as % after pea	# of tests
Dry Pea	100(106 bu/A)	4
Winter Wheat	76	2
Spring Wheat	84	2
Spring Barley	82	4
Winter Rapeseed	85	2
Spring Canola	96	4
Yellow Mustard	98	4
Brown Mustard	98	2
Crambe	99	4
Lentil	99	2

Source: Guy, Stephen and Russ Karrow. "Alternate Crops for Direct Seeding in the Dryland Inland Northwest." Northwest Direct Seed Intensive Cropping Conference. Doubletree Hotel, Pasco. 7-8 Jan. 1998.

The benefits of alternate crops, especially peas and lentils are evident from the agronomic work. A simple budget does not incorporate these very important longer term agronomic effects.[21]

[21]Improved profits from greater crop diversity in rotations have been documented for South Dakota. Northwest Direct Seed Intensive Cropping Conference proceedings, p.27, 28.

Lentils: Cost of Production Comparison

Table 5 compares the budget for lentils in Northern Idaho to the budget for lentils in Saskatchewan when planted on stubble in the dark brown soil zone. US dollars and the Saskatchewan budget reporting format are used.[22] Similar differences exist between lentil production in Saskatchewan and Northern Idaho as exist for peas. The budgeted cost using cash cost is lower in Saskatchewan than Idaho as are total costs. Lentils are budgeted at a rent of $39.22 per acre in the US while the land cost in Saskatchewan is $16.68 per acre. The lower land rent at one quarter share (gross returns and share of inputs) for peas and lentils versus one third share (gross returns and share of inputs) for wheat appears to have become the common practice in the Palouse. These rental shares are used in budgets for Idaho and Washington in numerous publications.

The returns to lentils in both Saskatchewan and Northern Idaho covered cash costs. The returns projected for Idaho almost covered total costs and in Saskatchewan projected returns exceeded total costs. The 1997 price projection used for Saskatchewan appears to have been over optimistic as prices are several cents per pound below the anticipated level.

The returns from lentil production in Idaho were slightly above returns from spring peas, but choice of price or yield assumptions can have a major impact. Lentil yield at 1,300 pounds per acre was slightly above the US ten year average, while the pea yield assumption of 1,700 pounds per acre was slightly below the ten year average (1987-96).

The soft white winter wheat budget in Idaho can also be compared to the hard red spring wheat on stubble in both the black and the dark brown soil zone in Saskatchewan by viewing Table 1 and Table 2. Table 2 is reported in Canadian dollars. Idaho costs in US dollars are higher, but the expected returns result in a much higher expected net return. The relative profitability of soft white wheat is much greater than the profitability of peas and lentils in Idaho. In Saskatchewan, their expected net returns are much closer and peas and lentils often appear more attractive than wheat. The lower cost of production demonstrated in these published budgets are consistent with the more detailed survey work of Meyer, Schoney, and Hartmans

[22]Both Laird and Eston lentils are produced in Saskatchewan. Laird varieties are 80% of the lentil acreage. No line item comparison is provided as a description of each cost difference.

Table 5. Lentils: COP Saskatchewan and Northern Idaho in US Dollars[1]

	Sask. Conventional on Stubble Black Soil Zone[2]	Spring Peas Northern Idaho[3]
Cash Cost Per Acre		
Seed	$15.01	$15.75
Fertilizer - Nitrogen	$3.37	$0.00
Phosphorous	$5.07	$0.00
Sulfur	$0.00	$0.00
Chemical-Herbicides	$28.35	$28.26
Insecticides	$1.45	$0.00
Other	$0.65	$0.00
Fuel	$5.80	$16.48
Repair	$6.74	$8.02
Custom work/hired labor	$2.18	$3.00
Crop Insurance Premiums	$7.73	$6.10
Utilities, Insurance, Misc.	$3.15	$4.32
Interest on Operating	$2.36	$4.41
Total Cash Costs	$81.96	$83.34
Non-Cash Costs per Acre		
Property taxes (machinery)	$2.90	$4.50
Building repairs	$0.83	
Machinery depreciation	$11.24	
Building depreciation	$0.83	$79.71
Machinery investment	$6.74	
Building investment	$1.00	
Land investment cost (rent)	$16.68	$43.27
Total Non-Cash Costs	**$44.22**	**$127.48**
Labor machine/non-machine		$30.68
Labor and management[4]	$13.78	
Total Costs (TCC + TNCC)	**$135.96**	**$210.82**
Total Gross Returns (Price x lbs/ac)	**$144.59**	**$217.10**
Returns Over Cash Costs (TGR + CC)	**$62.63**	**$104.24**
Returns Over Total Costs (TGR - CC)	**$8.63**	**($24.24)**

[1]Slight description changes were made to make the budget comparison between countries in a single format.

[1]Yield in Northern Idaho is 1,300 lbs/ac and price is $16.70/cwt.
Yield in Saskatchewan is 1,108 lbs/ac and price is $18.00/cwt.or $13.05/cwt US.

[2]Source: 1997 Cost of production. SAF Converted to $US. ($1.00 Can. = $0.725US).

[3]Source: EBB1-Le-97. R. L. Smathers. University of Idaho. 1997.

[4]Saskatchewan farmers do not pay workman's compensation; Idaho farmers pay $0.04/dollar payroll for workman's compensation.

(1996) which compared barley production costs between Idaho and the Prairies.[23] Meyer, Schoney, and Hartmans surveyed producers to determine production cost differences. Lower land values and lower overhead costs in Saskatchewan relative to Idaho were key differences.

Price Comparison for Selected Inputs

Prices for some major inputs during the 1996 planting season are compared between Saskatchewan and Northern Idaho in this section. The inputs include fertilizer, fuel, selected agricultural chemicals, and transportation costs to salt water. Land prices, interest rates, and a single retail price quote on a tractor are included.

Prices for fertilizer were slightly less expensive in Saskatchewan than in the Palouse in 1996, especially anhydrous ammonia (Table 6). Farm fuels were slightly cheaper in Saskatchewan than in Idaho. Saskatchewan gasoline prices are reported without the 15 cent per liter provincial fuel tax and are for bulk farm sales. Up to 1,585 gallons per year qualify for this provincial tax exemption. Idaho gasoline price includes the state taxes. However, most farmers use predominantly diesel which is tax exempt for field work.

Table 7 compares some chemical prices between Saskatchewan and the Palouse but should be interpreted with caution as no levels of active ingredients are specified for US chemical prices. No direct comparisons are made, but prices appear to be somewhat lower in Saskatchewan if US active ingredients were similar.

Other important inputs in agriculture are interest costs, land prices, and machinery costs. Land costs are considerably higher in the Palouse region than Saskatchewan, although there are some recent high priced land sales in Saskatchewan at over $1,000 per acre or about US$725 per acre. Interest rates have been lower in Canada than in the US recently, although this is not the long term norm. Operating loans for good customers have been at floating rates, and during the 1996-97 period have been below 6% at times.

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[23]Both farm production costs and net returns in the Prairie region on a per bushel basis were lower in Saskatchewan than in Idaho (Dryland barley. Table 4, p.17).

Table 6. Selected Farm Input Price Comparison Palouse and Saskatchewan[24]

Input	Saskatchewan Price Can$	Sask. price US units & US$	Northern Idaho
Urea 46-0-0	$395.87/MT	$260.37/ton	$292.00/ton
Anhydrous Ammonia 82-0-0	$549.30/MT	$361.28/ton	$491.00/ton
12-51-0	$473.46/MT	$311.40	11-52-0 $354.00/ton
Gasoline Unleaded	$0.4067/liter*<6000l $0.5567/liter*>6000l	$1.116/gal**<6000l $1.523/gal**>6000l	$1.47/gal***
Diesel fuel	$0.3461/liter*	$0.95/gal**	$1.02/gal***

*Prices collected and reported are for bulk farm purchases of 900 liters or more. Diesel fuel has a 7% GST but this is refunded to businesses upon filing. Gasoline price of $0.4067/l applies on up to 6000l of gasoline for farm use, but the $0.15/l provincial tax applies on farm volumes over 6000l. The $0.4067/l gasoline price includes a $0.10/l excise tax which is not refundable. The 7% GST on gasoline is refundable to businesses.
**One US gallon = 3.785 liters.
***Gasoline price includes road use taxes of $0.25/gal state excise and $0.244/gal Federal excise tax, diesel prices do not. Diesel used for hauling grain on highways must pay road use taxes. Source: 1996 Crop Inputs Cost Summary for Idaho. A.E. No. 96-12.
Sask. Ag&Food: April May and June prices. STATFACTS-April 1997. Selected Saskatchewan Herbicide Prices. Online. Dec. 1997.

Machinery costs are difficult to compare as retail prices can vary by dealer as the starting point for price negotiations may differ in each business. Equipment specifications also vary, and the Palouse region often needs triple tires instead of dual and hillside combines due to steep hills. A single telephone call to two dealers, one in Saskatchewan and one in the Palouse district, resulted in a single observation comparison. No specific list of options were included in the price inquiry. The price quote for a JD 9400 425 h.p. 4 wheel drive tractor with duals was $168,000 in Idaho and the Saskatchewan dealer quote was US$145,000, (US$0.725=Can$1.00). Exchange rate changes can alter relative machine prices quickly. As usual, shopping around for machinery can sometimes be worth the time spent, but local servicing and parts availability is also a decision criteria.

[24]Prices are for Northern Idaho, November 1996, and East Central Saskatchewan for April and May average, 1996.

Table 7. Chemical Cost Comparisons Saskatchewan and Northern Idaho, 1996[25]

Idaho		Saskatchewan			
US Chemical	**Price/Unit**	**Chemical**	**Active Ing.**	**Price/unit**	**Price in $US/US unit**
2,4-D Amine (4lb)	$3.75/qt	2,4-D Amine 500	500g/l	$4.85/l	$3.33/qt
Far Go L	$10.75/qt	Avadex BW liquid (triallate)	400g/l	$8.84/l	$6.06/qt
Banvel 4E	$23.85/qt	Banvel	480g/l	$30.13/l	$20.67/qt
Stinger (clopyralid)	$136.30/qt	Lontrel 360 (clopyralid)	360g/l	$121.56/l	$83.39/qt
MCPA Amine	$4.65/qt	MCPA Amine 500	500g/l	$5.84/l	$4.01/qt
Roundup Ultra	$13.40/qt	Roundup	356g/l	$8.91/l	$6.11/qt
Treflan 4 Ec	$9.90/qt	Treflan QR5gr	5%gr	$1.53/kg	$0.69/lb
Lorsban 4E	$14.60/qt	Lorsban	480g/l	$15.91/l	$10.91/qt
Malathion 6%	$0.80/lb	Malathion	500g/l	$8.16/l	$5.60/qt

Source: All Idaho prices from 1996 Crop Inputs Cost Summary for Idaho. A.E. No. 96-12.
Sask. Ag&Food: April May and June prices. STATFACTS-April 1997. Selected Saskatchewan Herbicide Prices. Online. Dec. 1997.

[25]Caution must be used as active ingredient level in the US agricultural chemicals are not always specified, neither are the levels identical to Canadian agricultural chemicals. The levels for Canada are specified to assist US farmers to examine the chemical container in the US and make the comparison. Chemical prices in published Canadian sources are not available for Sencor, Pursuit and other chemicals used for peas and lentils. $1Can.=$0.725US.

Tax differences

Only property taxes in the two nations are included in the cost of production budgets compared. These differences are minor.[26]

Tax system differences in terms of income tax rates and federal provincial transfers and transfers to rural municipalities and towns and cities are beyond the scope of this paper. Three visible differences are that property taxes are a deduction for a farmer as a business expense in Canada, but property taxes are not a deduction for personal income tax for a town or city resident. Both groups deduct property taxes in the US in computing their income tax payable.

The marginal tax rate in Canada includes both the federal and the provincial rate, and in the province of Saskatchewan the marginal rate is about 52% at an income of $60,000.[27] (This is US$43,000 at current exchange rates of $1.00Canadian=$0.725US). The Canadian and Saskatchewan tax is about Can.$23,000 on this level of net income or an average tax rate of 38.3 percent.

Machinery, buildings, and personal property are taxable in the US under property taxes. Farm buildings are taxed as part of farm property in Saskatchewan but receive very favorable rates as do farm homes. Farm machinery such as tractors, combines and cultivators are not taxed as property in Saskatchewan.

Transportation and Cost Comparison to Salt Water

Palouse is much closer to salt water than the Prairie region. Transportation cost differences have increased with the revision in transportation policy in Canada. Transportation

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[26]Some Washington state budgets included higher property taxes in production cost estimates. For example, Eastern Whitman Counties property taxes were $5.00/acre. Source: 1995 Crop Rotation Budgets for Eastern Whitman County, Washington. EB 1437, p.29.

[27]US income tax rates, the variation between states with no income tax versus some income tax, and health costs for a family would also be interesting to compare, but it was beyond the scope of the study. The marginal US tax rate is 28% for the same level income. Idaho producers would have a marginal rate of 8.2% additional income tax.

costs receive more detailed treatment because many US farmer still believe significant subsidies exist in Canada.[28] This is no longer the case.

Rail transportation costs have been a major focus of Prairie farmers since settlement began. Rail transportation rates for a selected list of eligible grains were frozen at the prevailing level on Canadian Pacific Railway lines by the Crows Nest Pass Rate Agreement in 1897, and reduced by 1899 to the Crow rate level. The actual rail rates charged over the next two decades were often below the maximum rate allowed due to competition. With WWI and inflation after, rail rates exceeded Crow rates. The political power of the Prairie region after WWI resulted in a legislated set of "Statutory Rates" set at the same level as the original Crow rates for all railways. Despite decades of inflation, these maximum rates were maintained until the early 1980s. Government subsidies to rail branch lines and a purchase of rail hopper cars were used to keep the grain moving as railways deemed Western grain transportation to be unprofitable. Wheat was included in the Crow rates; lentils and peas were not. Figure 16 (which was illustrated earlier) indicates the change in rail rates in the early 1980s when the statutory rates ended and farmers began paying an increased rail rate. The Canadian government paid the difference between the farmers freight rate and the WGTA rates (initially over 75 percent of the total rail cost). The proportion of the rail rate paid by farmers increased over time under the WGTA legislation. In 1995-96, the Canadian government terminated the WGTA subsidy paid to the railway for the transport of grain to Vancouver for export and for all uses to Thunder Bay.

The relative rates for lentils and wheat from Nipawin (Northeastern Saskatchewan) to Vancouver indicate the magnitude of their relative change. Peas, like lentils were not included in the Crow rates but were included as an eligible grain under WGTA. The rail and elevator handling cost to ship a 70 bushel per acre feed barley crop to port from Nipawin is $1.25 per bushel or Can.$87.60 per acre, or US$63.51 per acre. Moving a 1,300 pound lentil crop to The elevation and storage costs for prairie grains have historically been regulated by the Canadian Grain Commission. This included country elevator handling tariffs, storage tariffs and removal of dockage charges. Charges were also regulated at terminal elevators (inland and at

[28]A comment heard several times by Rosaasen in Idaho and Washington when introduced as a Canadian was the comment, "Oh, that's where the wheat and the transportation is subsidized so much." This statement was true at one time. It is not true today.

Vancouver from Nipawin is Can.$1.61 per bushel or Can.$34.97 per acre or US$23.35 per acre.[29] The reduced freight bill by producing lentils relative to feed barley is just over US$30.00 per acre at Nipawin. port positions). These regulations now only require filing of the maximum tariff to be charged (1996). The maximum rates filed for wheat, lentils, and canola for two country elevator firms in 1996-97 are provided in Table 8. Elevators often charge the maximum rate filed although rates are negotiable, especially for larger producers.

Table 8. Canadian Country Elevator Tariffs* in US cents per Bushel

	Wheat	Lentils	Canola
Elevator Handling Tariff			
Saskatchewan Wheat Pool (SWP)	16.89	26.05	19.07
United Grain Growers (UGG)	21.65**	37.31	31.09
Removal of Dockage			
Saskatchewan Wheat Pool (SWP)	6.57	10.50	8.75
United Grain Growers (UGG)	6.51	10.40	8.67

(In US$ at exchange rate $0.725US=$1.00Can.)
All charges on Average Gross Weight (AGW).
*Rates in effect November, 1996. New rates may be filed by the company during the year.
**Rate includes US$0.92 per bushel levy by the Canadian Grain Commission. Non Board wheat may have a charge of 36.21 cents (US) per bushel at selected UGG elevators.
Source: Canadian Grain Commission.

Canadian elevator and rail charges are higher than the typical charges in the Palouse region. The base rate of .27/bu from Carkston and Lewiston to the Pacific Coast results in a

[29]This rate includes an elevator handling and removal of dockage cost of US$0.21 per bushel for barley and US$0.365 per bushel for lentils plus movement costs. The interest costs incurred during movement are not included. The advantage of lower rail transportation cost on lentils is partly offset by high elevation and handling costs.

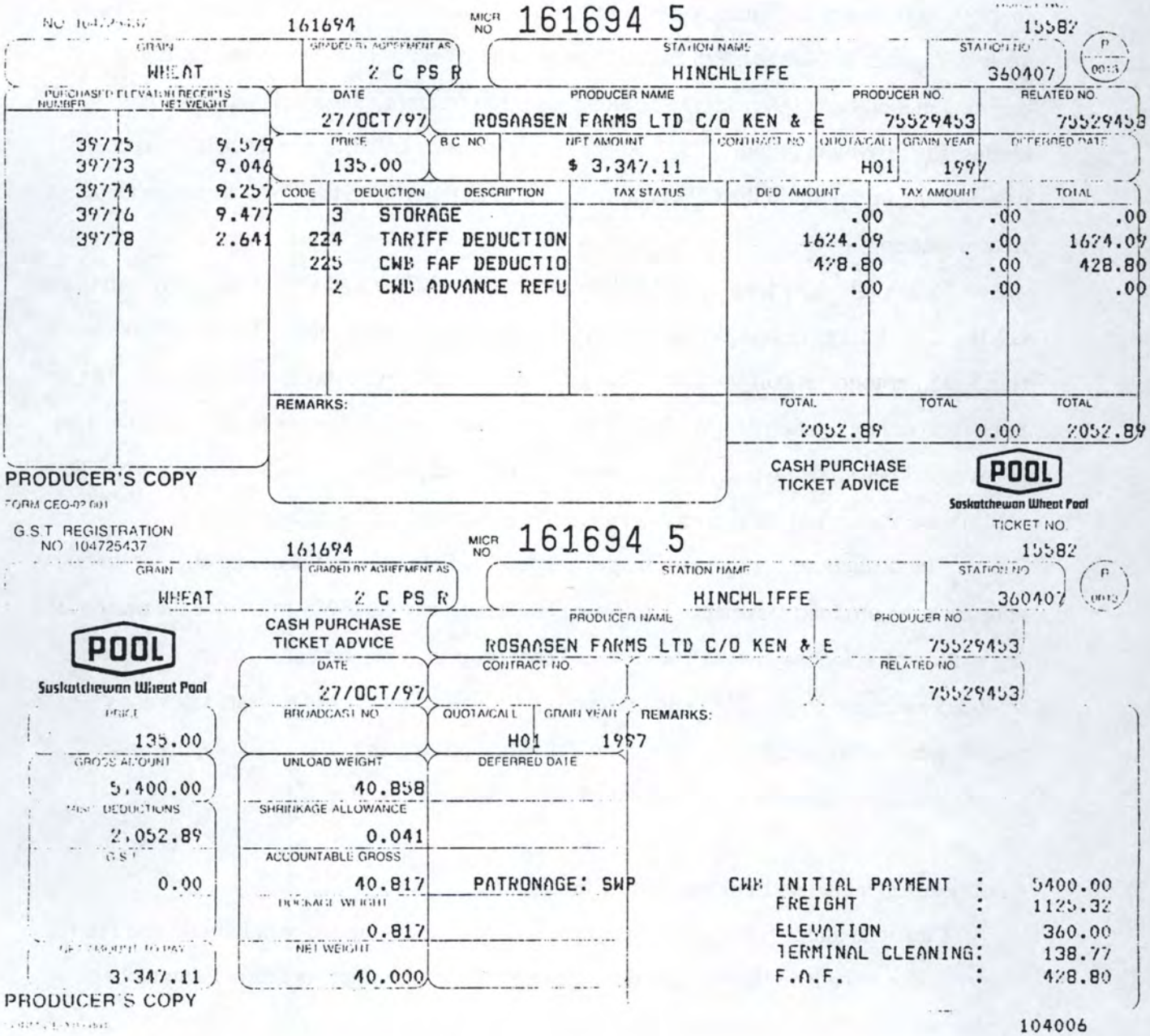

Figure 30. Saskatchewan Producer Wheat Cash Ticket, 1997.

much lower base than is the case in Saskatchewan of about US$0.92/bu.).[30] Undamming the Snake River could result in significant transportation rate increases.[31]

A cash ticket printed from the sale of No. 2 CPS Red Wheat at Hinchliffe, Saskatchewan in 1997-98 is shown in Figure 30. Hinchliffe has a more favorable freight rate than some areas such as Nipawin in Northeastern Saskatchewan. The wheat price is the prevailing initial payment in October, 1997 with the deductions for rail freight and local elevator charges. A modest final payment (about US$27.50 per metric tonne or US$0.75 per bushel) is expected based on the mid point in the CWB estimated range as reported in the CWB December Pool Return Outlook.

Essentially forty tonne or 1,469.7 bushels of No. 2 CPS Red Wheat was delivered to the CWB via the Saskatchewan Wheat Pool elevator company at Hinchliffe. The initial payment is Can.$135 per tonne at port position. The value is US$2.66 per bushel at port position. The net price received by the farmer is $3,347.11 per forty tonnes or $83.678 per tonne (Canadian), or US $60.667 per tonne or US$1.65 per bushel. If the final payment is US$0.75 per bushel, then the final price received for delivery at Hinchliffe would be US$2.40 per bushel.

The deductions for interest charges and terminal elevator and handling charges do not appear on the producer payment. These are deducted from total CWB sales revenue prior to the calculation of a final payment. These annual costs plus the operating costs of the CWB are provided each year in the CWB annual report. (A small summary of the years sales are given in a press release and the highlights are sent to individual producers.) These costs apply under current regulated rail rates which are scheduled to be deregulated in 1999.

Common Agricultural Problems and Challenges

Financial and agronomic management will be challenging for both Palouse and Prairie farmers. The old adage "If you can't do anything else...go farming!" is dead. Farm managers must be multi skilled to survive in agriculture today. The cost-price squeeze continues and

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[30]Communication with Continental Grain, Lewiston, Id. And rate of note of Canadian Grains Commission.

[31]Some environmental groups advocate removal of the dams along the Snake River system to save the salmon.

farmers must continue to adopt technology and improve on farm efficiency. Now, however, they are dependent upon this technology and some of the rules concerning technology are undergoing changes, especially agricultural chemicals and environmental regulations.

Producers share common problems concerning the availability of chemicals and the licensing procedures for small crops. The lower expected returns for chemical companies from the development, testing and licensing of chemicals for small crops reduces their incentive to develop new chemicals, and results in fewer choices and higher costs or both.

New legislation in the US is forcing a review of all currently used chemicals. Some observers suggest that many may be withdrawn from the market.[32]

There may be benefits to the producers on the Palouse and on the Prairies if common names, ingredients, and testing were used for agricultural chemicals. Currently, Canadian rules require that a chemical be tested by brand name, even if the active ingredients are the same. This has served to maintain mark-ups and profits in the chemical industry. It may not be serving long term interests of the agricultural producers and indeed, the chemical industry.

The specifications in US units and metric units in Canada also makes comparisons more complex. Labeling requirements can also serve as a non-tariff barrier to cross border movement of agricultural chemicals.

Another major common concern is the development of more herbicide resistant weeds, a process that began about three decades ago. Publications now warn:

> "Weeds can be resistant to herbicides with different modes of action (for example, aryloxyphenoxy compared to sulfonyluera). For example, in Australia a biotype of rigid ryegrass is resistant to at least five distinct herbicide families. This is called *multiple-resistance.*"[33]

Management of agricultural chemicals requires greater management and meticulous field record keeping by the producer.

Unanswered questions remain. Are there any undesirable long term consequences from using agricultural chemicals that have not yet been revealed? What about contingent liability if

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[32]Pea and Lentil Annual Conference, December, 1997, presentation by Dr. Bob Mahler.

[33]Pacific Northwest 1997 Weed Control Handbook, Oregon State University, Washington State University, and the University of Idaho. P.37.

damage is found in ground water or run-off thirty years from now? Who is responsible and "carries the clean up bag," the chemical manufactures, the applicator, the government who granted the license, or the owner of land on which the chemical was applied?

Environmental concerns are growing both in US and Canada. The former view of a family farm having clean air and water and growing a large garden has been replaced by the "industrialized livestock unit" or the 3,000 acre farm dependant upon agricultural chemicals. New legislation in Idaho is forcing efforts to maintain clean air and water. The Environmental Protection Agency (EPA) assists in implementing the clean water act and its amendments.

Agriculture is viewed as a major source of pollution. Table 9 illustrates the major sources of pollution in rivers and lakes in the United States. New guidelines for Total Maximum Daily Load (TMDL) will be used as a tool to determine the amount of pollution a water body can receive and the sources of the pollution.

Everyone wants clean air and water, but these changes will not reduce current production costs. Canada is probably on a similar path in the effort to reduce pollution but it is not yet at the same stage. Compliance will cost. The question is who pays?

Plant breeders rights have placed a greater emphasis on genetic material and more private research funds are attracted. The result is a wide choice among products, but not much solid information on which will perform best. The pea seed list for Saskatchewan in 1997 indicates the decision challenges for today's managers (Appendix C). The price for each new seed variety is high. Property rights have been altered as breeders now capture much of the rents from new, more productive varieties that formerly accrued to farmers. Public institutions are being crowded out by private firms in this research. Basic agronomic research that benefits wheat, barley, pea, lentils, or other crop producers is extremely important, but increasingly difficult to fund.[34] Is there research to indicate how well direct seeding works in your area?

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[34]Numerous Agriculture Canada Research stations which formerly worked in these areas have been closed in the past decade.

Table 9. Leading Sources of Water Quality Impairment in Rivers and Lakes of the United States, 1994.

Source Rank	Source	% of Sampled Rivers Impaired by the Source	Source	% of Sampled Lakes Impaired by the Source
1	Agriculture	60%	Agriculture	50%
2	Municipal Sewage Treatment Plants	17%	Municipal Sewage Treat. Plants	19%
3	Hydrologic/Habitat Modification	17%	Urban Runoff/Storm Sewers	18%
4	Urban Runoff/Storm Sewers	12%	Unspecified Nonpoint Sources	15%
5	Resource Extraction	11%	Hydrologic/Habitat Modification	12%
6	Removal of Streamside Vegetation	10%	Industrial Point Sources	11%
7	Forestry	9%	Land Disposal	11%

Source: O'Laughlin, J. Idaho Water Quality Policy for Nonpoint Source Pollution: A manual for Decision Makers. University of Idaho. Dec. 1996.

Producers share common problems concerning how to establish the next generation in farming if that is a goal. Will the tax system effectively eliminate inter generational transfer? What happens if key agricultural chemicals are suddenly withdrawn from the market?

Producers on the Prairies and the Palouse should seek to identify these common emerging concerns. For example, benefits might be achieved by having agricultural chemicals use the same name and active ingredient in Canada and US. This might reduce costly testing in both nations and provide the farm support that the chemical industry may need in upcoming legislative reviews.

An arrangement for two to more farmers to attend each others annual meeting might be a mechanism to explore the common interests of producers. Perhaps sharing information on input cost monitoring would also be of common interest to farmers in different countries.

Producers share many common views, values, and problems independent of their country. The challenge is to use these commonalities to improve their agriculture and their country.

The Future for Pea and Lentil Producers in the United States

The freight cost changes in the Prairie region and the termination of government subsidies are perhaps an early indicator of what to expect in the US grain economy, especially in the Northern Plains. The US target price for wheat is gone. Other crops, particularly those of higher value with lower weight and bulk per acre become more attractive. The Dakotas and Montana face high rail rates. The Dakotas are already expanding production of peas and lentils. This is expected to continue. The attractiveness of wheat with its historical predictable price level, has been reduced as US futures market price in Chicago, Kansas City or Minneapolis now apply.

There is greater risk in using inputs when the price of the commodity can fall. The Northern Plain States may also begin to compete with the Palouse for PL-480 shipments of peas and lentils, especially if the bids are basis the Gulf Ports. Palouse will continue to have an advantage for the Pacific Northwest bids for peas and lentils.

Peas and lentils in the Northern Plain states may become more competitive as their volumes increase. Currently high volumes of wheat mean economies in handling. It may take days or weeks to accumulate enough lentils for a carload at a point. Similarly, hedging mechanisms are well developed for wheat, but not so for peas and lentils. The greater distance to move is a disadvantage to the Northern Plain states. Handling charges, margins, and risk were greater in the Prairie region during the development of the pea and lentil industry, but these are now becoming more competitive as the industry grows. If the Prairies and Northern Plains could combine product, they may gain competitive advantages in world markets.

This study only focused on costs and supply factors and did not consider demand, consumer needs, or potential for market growth. In the long run producers benefit from enhanced demand for peas and lentils as this will ensure industry growth. Market growth can come from increases of current uses and from identifying new uses for the current products. Both need to be enhanced through research and marketing.[35]

Land rents and values will adjust as the agricultural industry evolves during this period of change. Crop rotations and the mix of crops may change as prices fluctuate and the thin margins

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[35]One classic example is US wheat programs which increased demand for wheat in Korea at the expense of rice.

increase the risk in agriculture. Price risk is now with the producer. Supply risk is with the consumer.

Democratic political systems allow citizens to influence the policy outcome in any nation. Farmers producing peas and lentils will have some influence in the final outcome.

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Appendix A

Crop Insurance: This program offers voluntary participation to insure crops against yield loss. Farmers pay a premium and both the Federal and Provincial governments make contributions. (Farmers pay about 50 % of costs.) Yields by grain are insured at 60 to 80% of historical average yield (with a low and high price option) with higher premiums for higher dollar per acre coverage. Crop insurance remains in 1998.

GRIP: The Gross Revenue Insurance Plan was introduced in 1991. The program was funded 33.3% by producer levies, 25 % by the province, and 41.66% by the Federal government. It used historical yield (actual yield determined by sales or individual crop insurance coverage, or area yield based on soil classification) multiplied by a 15 year indexed moving average price (IMAP). For example, a producer yield of 30 bushels per acre of wheat, an IMAP of $4.15 per bushel resulted in a guaranteed return of $124.50 per acre on acres seeded to wheat. If a producer produced 10 bushels of wheat per acre and market price was $3.00 per bushel, the producer received $30.00 per acre from the market and $94.50 per acre from the GRIP program. If a neighbor produced 40 bushels per acre at a $3.00 per bushel market price, he received $120.00 from the market and $4.50 per acre from GRIP. The program changed in the various provinces after year one but was terminated in the mid 1990s with different provinces withdrawing on different dates.

NISA: The Net Income Stabilization Program was introduced in 1991 at the same time as GRIP. Producers contributed 2% of gross eligible farm sales (in after tax dollars) on a voluntary basis and Federal and Provincial governments made a combined contribution greater than 2%. (Rules changed several times.) The producer account accrues interest at a slight premium above short term rates but can only be accessed when the producer=s income falls below a five year average, below $10,000 per year, when exiting from agriculture, or at retirement age. All government and provincial contributions plus interest are taxable on withdrawal. The producers original contribution can be taken out tax free after the other money has been withdrawn. Other rules

restricting the withdrawal to a maximum of a five year withdrawal period make it somewhat unattractive for spreading retirement income. NISA remains in place in 1998.

SCGPI: The Special Grains Program I (1986-87) made a payment (acreage based payment) of approximately $1 billion dollars to producers of traditional grain crops across Canada due to the low producer returns resulting from the grain trade war. Peas, lentils, caraway, and other minor crops were not included.

SCGPII: The Special Canadian Grain Program II (1987-88) made a second ad hoc payment (acreage based payment) of over $1 billion dollars to producers on a broader spectrum of grain and oilseed crops across Canada. Peas and lentils and some other minor crops were included.

WGSA: The Western Grain Stabilization Act created a voluntary program for Western Canadian farmers where levies were collected on sales of eligible grain for commercial and export sales. The normal producer levy of 2% of sales value was matched by the Federal government plus an additional 2%. The program paid out to producers when net cash flow in the Prairie region fell below a historical moving average level. WGSA operated from the mid-1970s until the late 1980s when it was terminated.

WGTA: The Western Grain Transportation Act terminated the statutory rates (often called Crow Rates) which had placed a ceiling on rail freight rates for eligible prairie grains moving to Thunder Bay (domestic or export use) and through other Canadian ports for export. The Federal government initially contributed over 600 million dollars annually to pay the railways the regulated rate. Farmers paid less than one quarter of the total rail freight rates initially. The list of grains eligible for WGTA expanded beyond those under Statutory Rates (Crow Rates). Peas and lentils were in WGTA but not in the original Statutory Rates. The farmers share of rail costs slowly increased from 1983 until the mid 1990s when it reached about one half of the total rail rate. WGTA was terminated and the Federal subsidy ended in 1995-96. A one-year transition payment equal to about two years of freight subsidy was paid to Prairie land owners during 1995-96.

Appendix C

SAF Saskatchewan Agriculture and Food

Varieties of Grain Crops - 1997
Pulse Crops

Last Update: January 1997

Field Pea

Main characteristics of varieties

Type & Variety	Yield as % of GRANDE			Relative Maturity*	Vine length (cm)	Resistance to**					Seed weight (g/1000)
	Areas 1,2 & South 3	Areas 4 & North 3	Irrigation			Ascochyta blight	Powdery mildew	Seed coat breakage	Lodging	Bleaching***	
Food Type Yellow-Seeded											
GRANDE	100	100	100	M	90	P	P	G	F		260
AC Tamor	81	64	75*	L	57	P	G	G	P		280
Alfetta(SL)	106*	108*	105*	M	72	P	P	P	F		290
Anno (SL)	73	85	115	E	63	P	P	P	F		250
Baroness (SL)	89	90	101	E	71	P	P	F	F		290
Bohatyr	85	80	85	M	73	F	P	P	F		270
Carneval (SL)	91	92	119	E	72	F	P	P	G		250
Carrera (SL)	103*	107*	114*	E	55	VP	VP	P	P		270
Celeste	80*	71*	103	E	65	P	P	P	P		270
Choque (SL)	79	79	108	M	60	P	P	F	F		260
CPB CONCORDE	99*	99*	115*	E	57	P	P	P	P		280
CPB SPITFIRE	84*	88*	124*	M	62	P	P	P	P		230
CDC Winfield	99	97	90	M	62	VP	VP	P	F		260
DISCOVERY	NR	NR	107	M	63	P	P	P	F		320
Eiffel (SL)	99	112*	106*	E	67	VP	VP	P	F		290
ENDEAVOR	NR	NR	109	M	73	P	P	P	F		260
Express	92	90	91	M	62	P	P	P	P		240
FLUO (SL)	83	87	90*	VE	85	P	P	F	F		320
Highlight (SL)	90	92	104	E	66	P	G	P	F		210
Impala (SL)	88	93	101	M	72	P	P	P	F		270
LG 110 (SL)	100*	108*	102*	E	51	VP	VP	P	F		260
Mandy (SL)	101*	91*	105*	M	57	VP	VP	P	F		270

MARCO (SL)	95*	85*	124*	E	62	VP	VP	P	F		260
MIKO (SL)	96	82	110	M	75	P	P	P	F		260
Montana (SL)	89	95	103	E	55	P	P	G	P		300
MUSTANG (SL)	94	86	105	E	60	P	P	F	P		210
NARVA (SL)	101*	105*	111*	E	65	VP	VP	P	F		260
PROFI(SL)	96	94	102	E	72	P	P	P	F		270
Richmond	91	91	89	M	67	F	P	P	P		210
Scorpio	83	75	94	E	56	P	P	P	P		280
Spring D	86	85	90*	E	62	P	P	F	F		240
Stehgolt	61	75	NA	E	45	P	P	P	P		290
Tara	82	82	87	L	96	F	G	F	F		210
Tenor (SL)	100*	107*	100*	E	72	VP	VP	P	F		260
Titan	76	70	80	L	109	P	P	P	P		250
Topper	82	74	NA	M	102	P	P	P	P		290
Trapper	79	80	NA	L	95	P	P	P	P		140
Victoria	86	85	NA	M	84	P	P	P	P		190
VOYAGEUR (SL)	NR	NR	109	M	62	P	P	P	F		190
YORKTON	98	97	97	M	72	P	P	P	F		270
Food Type Green-Seeded											
Ascona (SL)	81	71	124	M	50	P	P	P	F	P	300
OPBPHANTOM(SL)	94	78	101	M	48	P	P	P	F	P	310
Clipper	96	82	100	M	59	P	P	P	F	F	300
Danto (SL)	73	56	100	M	52	P	P	F	F	F	290
Emerald	80	84	97	M	75	P	P	F	F	F	250
Keoma (SL)	90	86	100	M	53	P	P	P	F	G	240
MAJORET (SL)	84	82	109	M	54	P	P	F	G	F	250
Obelisque (SL)	100	98*	102*	E	62	VP	VP	P	F	F	310
Olvin	98*	98*	96*	M	64	VP	VP	F	P	F	270
ORB (SL)	72	76	102	M	55	P	P	P	F	P	240
Princess	77	60	91	E	58	P	P	G	P	G	200
Radley (SL)	77	75	91	M	57	F	P	F	F	G	210
Ricardo	81	74	127*	M	52	F	P	F	P	F	280
TOTEM	94	84	93	M	47	P	P	P	F	F	240
Trump	71	64	NA	L	63	P	P	F	P	F	250
Maple/Colored flower types											
CDC April (SL)	88*	77*	78*	L	53	F	P	G	F		140

CDC Vienna (SL)	94*	87*	99*	L	61	F	P	G	F		170
Sirius	76	75	NA	M	96	P	P	G	P		240
Whero	64	63	NA	L	110	P	P	G	P		210

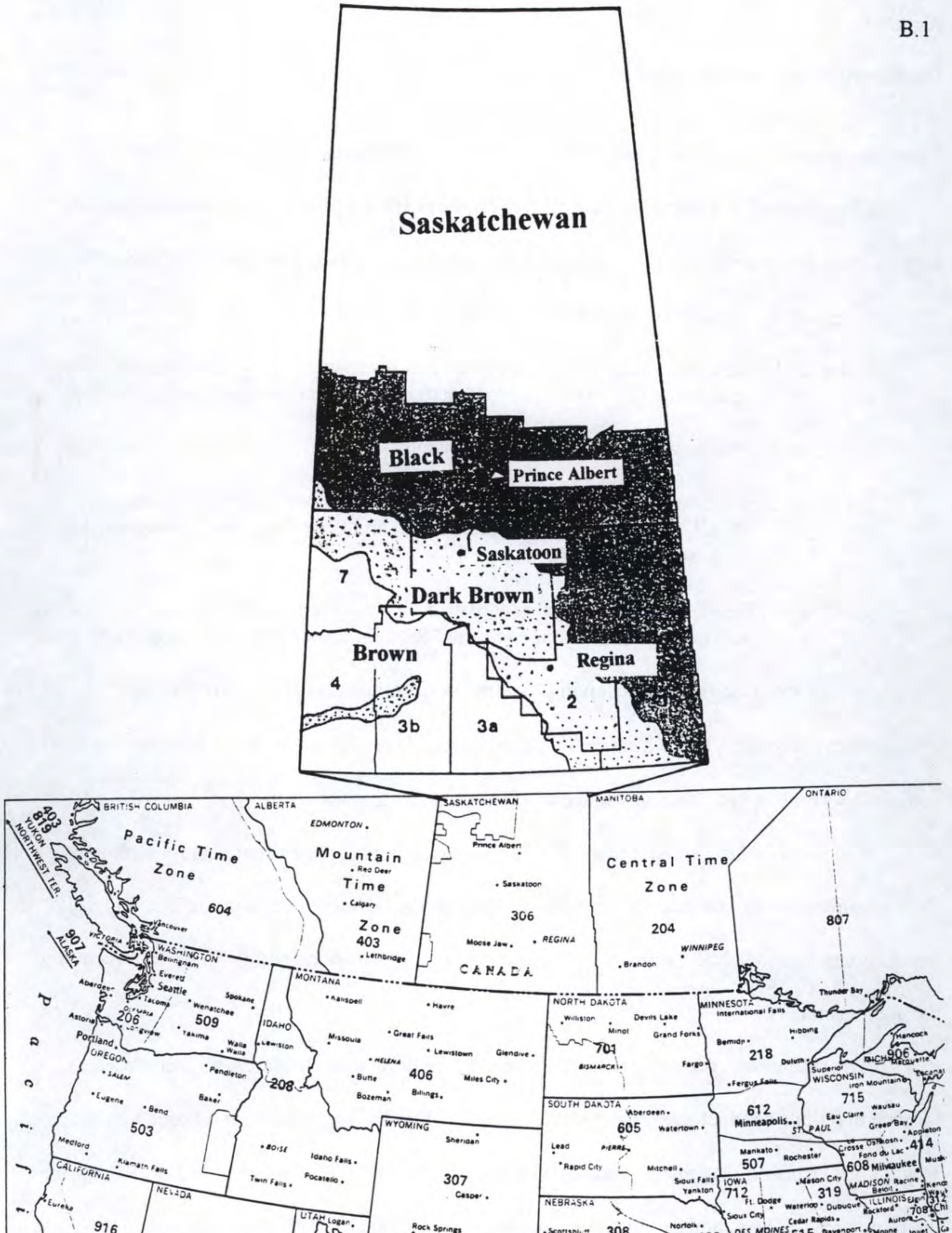
NA Not available SL Semi-leafless variety
NR Not recommended on dryland in Saskatchewan *Limited data
Relative maturing ratings compared to GRANDE: VE = very early; E = early; M = medium; L = late
Resistance ratings: VG = very good; G = good; F = fair; P = poor; VP = very poor
Use of capital letters in variety names is as they were registered. ® Plant Breeders' Rights

AT TIME OF PRINTING:

Protected by Breeders' Rights: GRANDE, Alfetta, Baroness, Carneval, Carrera, Celeste, FLUO, Highlight, Montana, Richmond, Topper, Emerald, MAJORET, ORB, Trump.

Applied for Protection: Choque, CPB CONCORDE, CPB SPITFIRE, DISCOVERY, Eiffell, ENDEAVOR, Impala, LG110, Mandy, MARCO, MUSTANG, NARVA, PROFI, Scorpio, Spring D, Tenor, VOYAGEUR, CPB PHANTOM, Clipper, Danto, Olivin, TOTEM.

Appendix B


Saskatchewan
Black
Prince Albert
Saskatoon
7
Dark Brown
Brown
Regina
4
2
3b
3a
BRITISH COLUMBIA
ALBERTA
SASKATCHEWAN
MANITOBA
ONTARIO
Pacific Time Zone
Mountain Time Zone
Central Time Zone
604
403
306
204
807
CANADA
Edmonton
Calgary
Lethbridge
Saskatoon
Regina
Moose Jaw
Winnipeg
Brandon
Seattle
Portland
206
509
503
208
406
701
218
605
612
715
307
308
402
712
319
507
916
707
702
303
815
309
217
414
608
906
415

Appendix D.

Registration Pesticides Process in Canada.

Note: The following process is based on a complete and satisfactory submission.

The submission process for pest control products are outlined by Pest Management Regulatory Agency (PMRA) of Canada. Submissions are grouped by the following categories:

Category A: New active ingredients and major new uses.

Category B: New formulations, changes in current formula, new host and or parts added to existing products, and renewal or conversion of temporary registration.

Category C: Product registration and amendments.

Category D: Import for Manufacture and Export Program (IMEP), Own Use Import (IOU), master copy, and Private Label and User Requested Minor Use Label Expansion (URMULE).

Category E: Research permits for new actives, new use of registered actives, and notifications that are required for field research certified out in Canada.

Within seven days, upon receiving a submission, submission is verified to ensure completeness according to the *Registration Handbook*. Accepted submissions are then issued a submission number, which acknowledge receipt of the submission.

Submissions are then screened for acceptability according to current data requirements. Data requirements can be amended or updated through the development of guidelines and international harmonization activities. The screening process is done within 45 days of receiving the submission.

The submission review is done to ensure that performance standards are met. Various science divisions conduct a review of data, which includes the preparation of a Proposed Regulatory Decision Document (PRDD) when required. The applicant is notified if PRDD is or is not required. The submission review can take up to 550 days. If PPRD is required a

consultation period begins. This is done over a 45 day time period, at which time the applicant is given 10 days to respond to any requests for clarifications.

The Chief Register sends a letter of intent to register to the applicant with the regulatory decision. The applicant has 30 days to submit the final label after receiving the letter. When the final label is received by PMRA another 45-day time period can be taken to approve the final label and issue the certificate of registration.

In Saskatchewan there is no provincial level registration. All pesticide registration is done at a federal level by PMRA.

PMRA Registration Fees

Pesticide containing new active ingredient:

	Fee ($C)
Application for registration	262.00
Product chemistry	1,172.00
Toxicology data	98,248.00
Exposure data	24,384.00
Metabolism data	6,034.00
Residue data	8,448.00
Environmental fate data	26,953.00
Environmental toxicology	14,882.00
Value and effectiveness data (pest control product)	906.00
TOTAL	**181,289.00**

Pesticide for new use:

	Fee ($C)
Application for registration	262.00
Product chemistry	1,172.00
Toxicology data	35,456.00
Exposure data	24,384.00
Metabolism data	6,034.00
Residue data	8,448.00
Environmental fate data	26,953.00
Environmental toxicology	14,882.00
Value and effectiveness data (pest control product)	906.00
TOTAL	**118,497.00**

Pesticide Registration Process in United States

Pesticide registration is required on a state level, as well as on a federal level, and varies among states. Idaho Department of Agriculture requires an application and fee of $120 per product be submitted. A stamped label or letter of acceptance for verification is also required for new product registration. Each registration is valid for one calendar year and expires yearly on December 31. A $5 late penalty fee is charged for those renewal applications that are not filed with the department prior to January 1. The registration process can take anywhere between two weeks to two months, depending on the number of applications the department receives at that given time.

Pesticide registration in the state of Washington is much like the process used in Idaho. A complete application packet and fee of $145 per product must be submitted to the Department of Agriculture. Renewal is required annually, and expires on December 31; applications and fees must be submitted to the department prior to December 31. Applicants are allowed to register for up to a two year period at a time. A late fee of $25 per product is charged after January 1, for late renewal. The time taken for registration process varies between sections.

EPA FEE

	Fee (US$)
Petition or request for a new tolerance or tolerance higher than already established (+ $1,600 for each food commodity >9)	64,025 base
Petition or request for: • lower tolerance than already established for same chemical • establishment of a tolerance on additional food commodity at same tolerance level • (+ $975 for each food commodity)	14,650 base
Petition or request for exemption from the requirement of a tolerance	11,800
Petition or request for temporary tolerance or temporary exemption from the requirement of a tolerance	25,575
Petition or request for a temporary tolerance for a pesticide chemical with other uses at same or higher numerical level (+ $975 for each additional food commodity sought)	12,750 base