

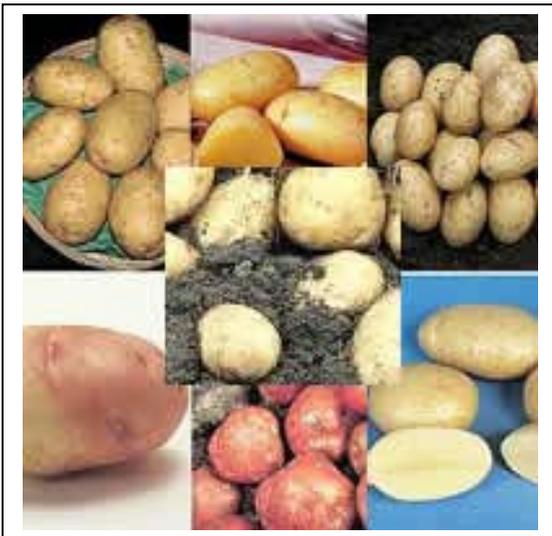
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**Potatoes for the Fresh Market:  
The Costs of Growing and Packing**

by

R. Thomas Schotzko and Kevin W. Sund\*

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# **Potatoes for the Fresh Market: The Costs of growing and Packing**

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## **Executive Summary**

This report provides information and data on the costs of growing, packing and storing of potatoes produced by Washington growers for the fresh market. It is based on actual expenditures by growers and packers as reported to the authors.

The production costs cover expenses for the 2001 growing season. These costs include all expenses from seedbed preparation to harvest and transportation to storage or packing shed. Since Washington growers produce several different varieties for the fresh market, two estimates are provided. One estimate is a weighted average of the costs provided by all participating growers. The other estimate is an average of those growers specializing in the production of the Norkotah variety. The Norkotah variety is currently the most common variety typically placed in storage for sale and shipment later in the marketing year. The actual quantity placed in storage each year is a function of harvest timing and market conditions at time of harvest.

Based on the information provided by all growers in the sample the average cost of production per acre of potatoes in 2001 was \$2017. On a hundredweight basis the cost was \$3.70. The cost of growing russet type (Norkotah) potatoes for the fresh market was \$2032 per acre or \$3.63 per cwt.

Packing cost information was provided by 3 grower-shippers in the Columbia Basin area of Washington. These operations are typical of the industry in Washington as every shipper (shipper is used synonymously with packer in this report) also grows potatoes or is closely associated with a small group of growers whose potatoes are packed by the same packer each year.

The packing cost estimate is a weighted average of the costs reported by each packer and is based on an annual volume of about 65,000 tons. The packing cost is estimated to be \$2.58 per cwt.

The largest single cost item in packing potatoes is packing materials. Total labor costs follow closely behind (wages plus payroll taxes plus industrial insurance). Those two cost items represent 87% of the variable cost of packing potatoes and 70% of the total costs. Office salaries (including corporate overhead) are the third largest expense item. Depreciation, and maintenance and repairs complete the list of the top five expense categories in this analysis. Those five categories include 86% of the total cost of packing potatoes.

Storage costs were generated using an engineering cost approach. Information on fixed and variable costs were obtained from the University of Idaho. These figures were adjusted to reflect conditions in the Columbia Basin. The most notable adjustment was energy costs as power rates in the Columbia Basin are lower than those used in the Idaho studies. Assuming a storage period of five months, the storage cost per cwt is \$0.59.

In sum, the cost to grow and pack early season potatoes for the fresh market (July through September) is \$6.28. On average, the cost to grow, store, and pack potatoes for the rest of the season is \$6.80.

# Potatoes for the Fresh Market: The Costs of growing and Packing

By

R. Thomas Schotzko and Kevin W. Sund<sup>1</sup>

## INTRODUCTION

The Washington fresh potato industry is best characterized as family owned grower/shippers<sup>2</sup>. Nearly every shipper has integrated growing, storing and packing operations. Today, these firms are locally owned and operated.

There are some growers who only grow for the fresh market each year, but do not pack their own production. These growers have identified seasonal market niches which they can supply through existing grower-shippers. The seasonality and volume of the production of any one of these growers is insufficient to warrant packing facilities.

As a result of the character of this industry, fresh shipments do not exhibit wide swings in volume from year to year. The fluctuations that occur tend to be the result of variations in yield and the occasional speculator who is hoping to catch an upswing in the market for his crop. The regular needs of each shipper's steady customers are supplied by the grower-shipper and a small group of growers with whom the shipper has established close relations. Shippers are usually willing to accept potatoes from other growers, but with the understanding that the grower is responsible for the cost of packing and sales, and price is not guaranteed. Shippers do not, as a general practice, purchase potatoes from other growers.

At the same time, significant change is occurring in the Washington fresh potato industry. Packing facilities have closed and sales organizations have been consolidated. These are efficiency enhancing changes as both generate economies of size. The volume shipped is now distributed among fewer shippers which reduces the overhead cost per unit packed. The increased size of the sales agencies enhances the ability to supply additional services efficiently.

These changes are a direct result of the consolidation that has been occurring at the retail level. The top ten retailers in 2001 accounted for about 57 % of all grocery sales.<sup>3</sup> In 1990, the top ten accounted for about 29 % of those sales. The increased size of the major retailers has forced local shippers to develop new strategies to meet the demands of these larger retailers.

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<sup>2</sup> The term "shipper" as used here includes packing and shipping. Also, some shippers may also provide storage for growers who do not have on-farm storage facilities. Sales of the packed potatoes may be handled directly by the shipper or they may be handled by a sales agency under contract to the shipper.

<sup>3</sup> Progressive Grocer. April 15, 2002.

Business practices common in the nonfood sector are now also becoming commonplace in the food sector as all major retailers attempt to reduce costs to remain competitive with the new "players" such as WalMart. Retailers are demanding, and getting, more services from suppliers. Some examples include "Just-in-Time" (JIT) delivery, "vendor managed inventories (VMI) and category management. The provision of these service-related activities requires larger sales organizations than have been typical in the past.

Potato growers who do not participate in the fresh market on a regular basis find that access is becoming a greater challenge which increases the risks they bear. Financing of these occasional crops is also more difficult.

As a result of these changes within the Washington industry the population of possible participants in any survey of production and packing costs has shrunk. The participants in this study are fairly typical of the firms in the industry as it is currently structured. They were selected on the basis of their representativeness of the way in which the industry currently operates. Information was obtained from shippers who also grow potatoes and who provided information for both growing and shipping. Cost of production information was also obtained from growers who do not pack potatoes.

## **TYPE OF STUDY**

Potato production and packing costs vary from year to year due to a long list of factors. Yields, growing conditions and marketing strategy are just some of the factors that influence costs from season to season as well as within individual seasons. Further, the development of these costs can be done several ways. A common approach used by land grant institutions is to estimate costs based on practices typical to a particular growing district.

Not all of the activities listed in the budget generated by these institutions are necessarily performed each year. This approach is used to determine the sum total of all costs that will likely need to be covered over a period of years, but not necessarily in any given year, that will allow the firm to remain economically viable. They are not intended as a measure of costs in any specific year.

An accounting approach measures the actual expenses incurred by a grower or shipper in producing or packing a specific crop. It relies on actual expenditure data and actual charges for depreciation for each firm.

A key difference between the two approaches is the way in which investment costs are recovered. The accounting approach uses depreciation to recoup the costs of any investment. While different methods can be used to determine how those costs are allocated over time, the focus is on recovering the actual expenditure. A longer term

approach, which is concerned about maintaining the viability of the firm, uses replacement costs in place of depreciation.

Opportunity costs can also be a defining difference. In this study, some opportunity costs are included. The growers providing cost information for this report included a management charge. In effect, this is an opportunity cost measuring the income that each grower could have earned in another occupation. The costs developed below are based on the information provided by owners/managers of each of the firms. All costs provided by the reporting parties are included. This study uses the accounting approach (with the modifications mentioned above) to determine the costs incurred to grow and pack potatoes in 2001.

The 2001 crop was reported by WASS to be 94.4 mil cwt grown on 160,000 acres. Both acreage and production in 2001 were the lowest in the past three years. Yields in 2001 were also lower than 2000. Since yields and total production declined in 2001 it is likely that the cost estimates provided below are slightly higher than experienced the previous year.

This study considers only potatoes grown for the fresh market. These results are not considered appropriate for any comparison with costs for potatoes grown for processing.

In recent years two changes have occurred that are creating a more dichotomous market for potatoes. First, the development of new varieties and strains of varieties with higher usable yields relative to Russet Burbank has resulted in an increase in the acres of varieties that are less acceptable for processing due to internal characteristics (or due to processed product buyer requirements), but have higher yields of usable tubers resulting in greater fresh market returns per ton of harvested potatoes.

The other significant shift is in consumer demand for potatoes. Consumers have become more interested in using more than one type of potato, creating new opportunities for “fresh” producers, but with varieties that are less suitable for the processing market.

Production of these alternative varieties can result in production costs that are significantly different from the traditional variety, Russet Burbank. In addition, market conditions can alter harvest strategies which can impact costs per cwt through premature termination of the growing season.

The remainder of this report is broken into four sections describing, in order, production costs, packing costs, storage and conclusions. Cost information was obtained for four growing operations and three grower-shippers. Because of the differences in the manner in which cost categories are developed by individual operators, results can only be summarized in broad categories.

## Fresh Potato Production Costs

The growing operations included in this survey are located in the central and southern areas of the Columbia Basin and the Yakima Valley. However, with the increased tendency to grow potatoes on leased ground, the location of actual production by any one grower can be spread across the Columbia Basin area. The bulk of the production consisted of russet type potatoes, but other varieties are also included in this survey. The description of production practices, which follows, is based on information provided by the survey participants.

Field preparation begins in the fall and usually includes ripping and fumigating. However, not all growers find it necessary to fumigate. Further, some growers now plant cover crops in the fall to reduce wind erosion and enhance the level of organic matter in the soil.

Spring work usually begins with a preplant application of fertilizer. Where cover crops have been planted it is first necessary to kill the cover crop and then fertilizer is applied. The seed bed is then prepared with a mix of operations that usually, but not always, include plowing, disking and marking for planting. At the time of planting fertilizer is again applied.

During the course of the growing season a variety of activities may be carried out. Some work is done for purposes of irrigation (e.g. ditching, dammer-diker). The actual set of activities depends on the method of irrigation (center pivot, side-roll, rill).

All growers cultivated for weed control and, when necessary, applied herbicides. Additional applications of fertilizer are made by most growers in addition to insecticides and fungicides. Growing conditions and pest pressures dictate the number of applications each season.

Prior to harvest the vines are killed to induce the skins on the tubers to "set". The killing of the vines also disrupts the bulking stage which is when tubers gain size. The fresh market for very large tubers is limited, hence, the need to minimize the number of really large tubers (over 12 oz.).

In Washington, potato harvest normally begins in early July and continues until late October. Potatoes dug in July and August are usually sent directly to the packer for sorting, packing and shipment to take advantage of a market window that sometimes provides premium returns to growers. Growers do not typically begin to fill storages until sometime during September, depending on fresh market conditions.

Based on the information provided by all growers in the sample the average cost of production per acre of potatoes in 2001 was \$2017. On a hundredweight basis the cost was \$3.70. The cost of growing russet type potatoes for the fresh market was \$2032 per acre or \$3.63 per cwt. Table 1 contains a generalized breakdown of production costs per acre and per cwt.

As noted earlier, the level of detail in the cost data provided by individual growers precluded the development of a complete enterprise cost analysis. Ideally, costs would be separated by activity, and the equipment, materials, and man-hours required for each activity would be specified. This would include both fixed (i.e. depreciation by implement) and variable (i.e. fuel) costs associated with each activity. As a result of the variability in the level of detail provided by the growers, the categorization in table 1 was necessary to preserve grower anonymity. The cost categories for irrigation, chemicals (chemicals, fertilizer and fumigation), labor, rent and management consist exclusively of the identified costs. The other line items contain multiple costs. Equipment, for example, includes operations, maintenance, depreciation and some labor. Hence, the labor costs listed in table 1 include only labor, but understates actual labor costs because not all survey participants provided as complete a breakdown of labor expenses.

The hauling charges listed in table 1 cover the cost of moving the harvested potatoes from the field to storage or the packing house. Storage costs are not included in these costs, but are reported later in the report.

While these cost data are based on four different growing operations, they are not simple averages. The surveyed firms varied significantly in size. The final figures were calculated using the production of each farm relative to the combined production of all four operations as a weight to obtain a weighted average. For example, if grower A's production represented 25% of the potatoes produced by the growers in the sample, then grower's A's costs would represent 25% of the costs per acre.

Two sets of cost estimates are shown in table 1 due to the fact that there can be significant differences in production practices and yields between varieties. One grower produced several varieties in addition to russets while the other growers specialized in producing russet type potatoes. One column reflects costs for all growers and one column includes from only the russet growers.

**Table 1: Fresh Potato Production Costs**

Variable Costs	All Growers	Russet Growers
Irrigation	\$52.89	\$53.04
Chem/Fert/Fumigate	\$654.75	\$691.92
Seed/planting	\$363.82	\$355.45
Equipment	\$267.73	\$268.35
Labor	\$44.49	\$27.90
Hauling	\$99.43	\$93.44
Subtotal	\$1,483.10	\$1,490.09
Fixed Costs		
Rent	\$319.62	\$326.65
Management	\$141.67	\$145.02
Overhead	\$72.74	\$70.14
Subtotal	\$534.02	\$541.82
TOTAL	\$2,017.12	\$2,031.91
Yield per Ac. (Cwt)	545.3	559.2
Cost per Ton	\$73.98	\$72.68
Cost per Cwt	\$3.70	\$3.63

**PACKING COSTS**

In Washington, the potato shipping industry does not typically purchase potatoes from growers, but, rather, sells the services of packing and sales to the growers. This is a practice also common to the major fresh fruit industries in this state. As a contrast, potato shippers in Idaho commonly purchase fresh potatoes from growers, often on a scooped up basis.

Charges assessed Washington growers for packing and sales are based on the weight delivered to the packing shed. Hence, the packing cost for a ton of culls is the same as a ton of fresh market tubers. Accounting reports provided to the grower from the shipper detail the fresh sales and the receipts from the sale of any culls less the packing charges per ton multiplied by the number of total tons delivered to the shipper.

All grading, packing and materials costs are covered by the flat charge per ton and no information on these costs is shared with the grower. This approach to assessing grower charges enhances packing efficiency by encouraging growers to minimize the amount of cull and waste material delivered to the packing shed. It also gives the shipper control over the distribution of pack types, which provides flexibility in meeting the wants of the market. Since the industry standard is to charge on a per weight basis, this report adopts the same approach in detailing cost estimates.

Three potato shipping firms supplied cost information for this report. The firms are geographically dispersed in the central and southern part of the Columbia Basin. The firms vary only somewhat in size as two firms packed relatively similar volumes in the year for which they were reporting. The third firm handled significantly more volume. The numbers reported in Table 2 below are a weighted combination of the costs reported by each firm. The volume packed was used to weight the costs of each firm in the same way that the production costs were combined. Hence, the costs from the larger firm makes up relatively more of the costs reported here.

The information provided by the shippers covered different fiscal periods. One firm provided information for calendar year 2000. Another firm reported costs for calendar year 2001 and the third firm supplied information from its annual report for the fiscal year ending June 30, 2001. As a result it was necessary to make some adjustments to more closely approximate a common value of the dollar. Where appropriate, adjustments were made in labor, packing materials and utilities costs. Other costs were not adjusted as the producer price indices as reported by the U.S. Department of Labor indicated small price changes that moved in both directions. (See, for example, "PPI Detailed Report", U.S. Dept. of Labor, January 2002) The adjustment applied to labor was 2.6%. The producer's price index indicated that electricity rates increased and packing materials declined in price, 2.4% and -0.9%, respectively, between 2000 and 2001.

Wage rates, in particular, have been rising as a result of the indexed minimum wage currently in effect in Washington. In this study it was assumed that the indexed increase that applied to the minimum wage was also applied by employers to the wages of those who received more than minimum wage.

In terms of information reported, one shipper supplied packing costs only. One shipper provided detailed costs on packing and storage. The third provided total cost information that included expenses for packing, storage and a seed cutting operation. Some selective cost information was available by operation for the third packer. Where no detail was provided, costs were allocated to the various operations on the basis of sales revenue generated.

Warehouse costs are broken into fixed and variable categories. The fixed costs are those that are not directly associated with volume handled. As occurred with growing costs, categorization differences among packers resulted in having some

**Table 2: Packing Costs**

	<b>Total Cost</b>	<b>Cost per Cwt</b>
<b>Variable Costs</b>		
Warehouse labor	\$1,027,601.60	\$0.79
Payroll taxes	\$21,015.78	\$0.02
Industrial Insurance	\$10,060.29	\$0.01
Packing materials	\$1,283,833.07	\$0.99
Brokerage	\$42,839.36	\$0.03
Maintenance and repairs	\$138,900.72	\$0.11
Utilities	\$43,014.83	\$0.03
Truck expense	\$9,783.48	\$0.01
Interest Expense	\$27,999.65	\$0.02
Professional Services	\$4,860.28	\$0.00
Equipment Rental	\$72,432.44	\$0.06
Misc. Warehouse supplies	\$2,108.45	\$0.00
Chemicals	\$1,698.73	\$0.00
Inspection and fees	\$1,630.09	\$0.00
Other	\$8,835.68	\$0.01
<b>Total Variable Costs</b>	<b>\$2,696,614.46</b>	<b>\$2.07</b>
<b>Fixed Expenses</b>		
Office Salaries	\$292,254.42	\$0.22
Insurance	\$55,159.57	\$0.04
Depreciation	\$150,907.02	\$0.12
Office supplies	\$4,360.79	\$0.00
Dues, assessments, etc.	\$23,157.13	\$0.02
Travel and Promotion	\$21,086.75	\$0.02
Advertising	\$10,390.38	\$0.01
Bad debts	\$77,772.33	\$0.06
R.E. and P.P. taxes, licenses	\$27,601.76	\$0.02
<b>Total Fixed Costs</b>	<b>\$662,690.14</b>	<b>\$0.51</b>
<b>Total cost</b>	<b>\$3,359,304.60</b>	<b>\$2.58</b>
<b>TOTAL TONS PACKOUT</b>	<b>\$64,986.86</b>	
<b>COST OF PACKING PER TON</b>	<b>\$51.69</b>	
<b>COST OF PACKING PER CWT</b>	<b>\$2.58</b>	

categories that include costs of more than one type. Licenses, for example, are reported in both the “Dues’ entry and the “Tax” entry.

Each of the shippers is organized as a corporation and there are some expenses that can be classified as corporate. Explicitly identified corporate expenses have been added to “office salaries”.

As indicated in Table 2, potato packing costs are estimated to be \$2.58 per cwt. This is exclusive of storage costs. This is based on an annual volume of approximately 65,000 tons of product shipped fresh.

The largest single cost item in packing potatoes is packing materials. Total labor costs follow closely behind (wages plus payroll taxes plus industrial insurance). Those two cost items represent 87% of the variable cost of packing potatoes and 70% of the total costs. Office salaries (including corporate overhead) are the third largest expense item. Depreciation, and maintenance and repairs complete the list of the top five expense categories in this analysis. Those five categories include 86% of the total cost of packing potatoes.

It is possible to evaluate the impact of volume on cost per cwt of packed product. This is done by dividing total variable costs by total tons (or cwt), and then multiplying that value by several different volumes to get total variable cost for each of the selected volumes. Since fixed costs do not change with volume, those costs would be added to each of the total variable cost figures to determine total cost for each volume. Dividing each of the total cost values by the tons (or cwt) packed will give the cost per ton (per cwt). For example, the cost to handle 75,000 tons would be  $\$662,690 + (\$2.07 \times 75,000 \times 20)$  or  $\$3767690$ . The cost per cwt for packing 75,000 tons is  $\$2.51$ . The cost to handle 65,000 tons is  $\$662,690 + (\$2.07 \times 65,000 \times 20)$  or  $\$3,353,690$ . The cost per cwt at 65,000 tons is  $\$2.58$ .

## STORAGE COSTS

Storage is as important to the fresh potato industry as it is to processing. However, it is important to keep in mind the fact that potato shippers begin shipping new crop potatoes at the beginning of harvest. Since harvest stretches from early July into October, most, if not all, of the potatoes packed during the first three months of the season have come directly from the field and are packed without being stored.

Further, shippers are busiest during the first three months of the crop year. While fresh potatoes are shipped from Washington in every month of the year, the greatest volumes occur early in the marketing season. For the crops harvested in the years 1996 through 2000 the proportion of each crop shipped during the first three months of the season ranged from 35.5% in 2000 to 43.5% in 1996 and an average of 38% for that five year period<sup>4</sup>. As a result, the fresh potato breakeven price is

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<sup>4</sup> State of Washington Potato Committee, Monthly Disposition Report. Various Reports.

significantly less at the beginning of the marketing season as storage costs have not been incurred. After October 1, it is reasonable to expect some storage costs to be incurred.

Complete storage costs were provided by only one respondent to the survey. Another respondent included storage costs in their response, but those costs were not separated from packing. This second firm used proportion of sales by activity (packing, storage, and seed cutting) as a means of allocating costs that could not be sorted by activity. The fact that only two observations were available ruled out the use of these data due to lack of sufficient numbers to guarantee confidentiality.

The University of Idaho Cooperative Extension Service periodically generates enterprise production cost budgets for potatoes and includes storage costs in some of the budgets. The most recent budgets provide storage costs for 2001<sup>5</sup>.

The University of Idaho studies use an engineering cost approach to determine costs per cwt. Included in the list of costs are depreciation for equipment and buildings, energy, chemicals (sprout inhibitor and sanitation), labor, interest on the value of the stored potatoes and shrink<sup>6</sup>.

In this study several adjustments are made to the University of Idaho figures to reflect Washington conditions. The costs to be included in this study are ownership costs, shrink, chemicals, electricity and labor. The other costs included in the University of Idaho budgets are covered in the packing costs reported above.

The ownership cost is set at \$50045 per storage. Total storage capacity is assumed to be 8000 tons and the units are filled to 95% of capacity. This results in a fixed cost of \$6.58 per ton or \$0.33 per cwt.

An acceptable level of shrink is 5-6% per season for Norkotah, the most common fresh market variety. Using a 5 month storage period, actual shrink will be about 2.5%. The actual dollar loss is the cost of production for the russet type potatoes (\$3.63/cwt) times the loss in weight. That figure is \$0.09 per cwt.

Power rates in the Columbia Basin appear to be significantly lower than in Idaho. The rate used in the Idaho studies is \$0.05 per kwh. In Grant Co., Washington<sup>7</sup>, the rate is \$0.375 per cwt for the first 8000 kwh and then drops to \$0.0225 per kwh. The power charge per cwt of stored potatoes for five months in Idaho is \$0.03. For the purposes of this study the cost of electricity per cwt of potatoes for five months is set at \$0.02. The chemical (\$0.08) and labor costs (\$0.07) are the same as used in the Idaho study.

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<sup>5</sup> See for example, Patterson, Paul, et.al. "Russet Burbank Commercial Potatoes: On-Farm Storage" EBB3-P02-01. University of Idaho, College of Agriculture, Cooperative Extension Service.

<sup>6</sup> Paul Patterson, Personal Communication, 11 July 2002.

<sup>7</sup> According to the 1997 Census of Agriculture, Grant Co., with 44,263 harvested acres, was the number 1 producing county in Washington.

Total variable storage cost per cwt is the sum of the costs for shrink (\$0.09), electricity (\$0.02), chemicals (\$0.08), and labor (\$0.07), which equal \$0.26. Summing the variable and fixed costs gives a total storage cost of \$0.59 per cwt for five months of storage.

Transportation has not been explicitly mentioned. Hauling from the field to storage or the packing shed is covered in the production cost budget. Hauling from storage to the packing shed is included in the packing budget.

## **SUMMARY AND CONCLUSIONS**

This report contains the results of a survey of selected growers and grower-shippers to estimate the cost to produce, pack and store potatoes grown in central Washington in 2001. The cost information collected for this analysis is primarily drawn from those costs which are associated with determining income tax exposure. However, the results reported here do not include any income tax liabilities incurred by the operations. In addition, some operations reported management charges that are actually opportunity costs, but not deductible as an expense for income tax purposes.

Four sets of cost data were obtained on the production of potatoes. Three of the four growing operations grew primarily russet type potatoes (Norkotah). The other operation produced several varieties which were sold at harvest. All reported costs were incurred in growing the 2001 crop.

The average total cost per cwt for all growing operations was \$3.70. The cost for russet type potatoes only was \$3.63. In Washington, the russet types are more commonly, but not always, preferred for storage.

Three packing operations provided cost information for this study. All three operations pack potatoes for at least 11 months out of the year. Most of the potatoes shipped by these operations are russet type varieties. However, early in the season, which begins in July, other varieties can be packed to take advantage of a market window that often provides profitable prices.

Two of the operations were equivalent in size and the other respondent handled significantly more volume. The costs of these operations were combined in weighted fashion, using the proportion of the total volume handled by each firm as the weight. Based on these figures the total variable cost to pack 100 lbs of potatoes for the fresh market was \$2.01. Fixed costs were determined to be another \$0.57. The total cost for the 2001 season is estimated to have been \$2.58.

Storage costs were generated using information gleaned from budgets published by the University of Idaho Cooperative Extension Service and modified to more closely fit Washington conditions. The estimate is based on 5 months of storage which likely overstates actual average storage costs as most of the fresh crop has been shipped by

this time. (The disposition reports cited earlier indicate that only 20 –25% of the fresh crop remains after February.) It is estimated that the cost to store a cwt of potatoes for 5 months is \$0.59.

**Table 3: Growing, Packing and Storage Costs per Cwt for 2001**

	All	Russet
Growing Costs	\$3.70	\$3.63
Packing Costs	\$2.58	\$2.58
Storage Costs		\$0.59
Total Cost	\$6.28	\$6.80

In conclusion, based on the information provided by the survey respondents, table 3 contains the estimated cost of production, packing and storage for 2001. Storage costs are not included in the “All” column to show costs when potatoes are harvested, packed and shipped without being stored.