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# Marketing Northwest Potatoes

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# About This Bulletin. . .

Potato production has expanded rapidly in the Northwest States of Idaho, Oregon, and Washington. During the period from 1968-70 this region accounted for more than one-third of the total U.S. potato crop. Increased production has resulted from new land and irrigation developments as well as increased yield per acre. The Southeast-Southcentral Idaho District produces more potatoes than any other producing area in the nation. However, the rate of increase in production has been higher in Washington in recent years. Potato production in Southwest Idaho-East Oregon has trended upward at a modest rate, although this rate of increase has been greater during the past 5 years. Other Oregon production has remained relatively stable.

The market for Northwest potatoes has expanded primarily as a result of increased potato processing. Utilization of potatoes by food processing plants has increased sharply in all areas of the Northwest except the "Other Oregon" counties. Fresh shipments actually declined on the average throughout the 1960's in Idaho and East Oregon and were only partially offset by modest increases from the Washington and Other Oregon Districts.

Trends toward later harvest and longer marketing seasons are apparent in Northwest potato areas. Total shipments are still highest during the harvest months

of August through October, but increasing storage stocks and shipments are observed during the spring and summer months.

Northwest potato areas are not well-located with respect to major marketing or consuming areas. Only about 3% of the total U.S. population resides in the 3 Northwest States. Furthermore, per-capita consumption appears to be higher in the Northcentral and Northeast Regions of the U.S. Consequently, most Northwest potatoes or processed potato products must be transported long distances in competition with other producing areas located closer to markets.

A slight upward tendency in potato prices to growers can be observed in all areas of the Northwest over the period covering the 1954 through 1969 marketing seasons. However, these trends relate to actual price data and do not take account of the rate of inflation or the changes in production costs occurring over the same period.

The economic importance of the potato industry has increased greatly within the major producing districts of the Northwest. The total farm value of the potato crop in the 3 Northwest States exceeded \$200 million per year for both the 1968 and 1969 crops. Large amounts of income are also generated as a result of processing and marketing activities. Thus, the future development of the potato industry will be an important determinant of economic conditions within these areas.

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## Idaho Agricultural Experiment Station

# Marketing Northwest Potatoes

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Carole Drury

Potato production and marketing activities comprise an important and dynamic industry in the Northwest States of Washington, Oregon, and Idaho. New land and irrigation developments along with improvements in per-acre yields have combined to bring about a rapid increase in total potato production in this region. As a result, more than one-third of all U.S. potatoes are now produced in these three states.

The market for Northwest potatoes has also expanded. Some of this expansion represents a displacement of potatoes formerly produced in other states. More important, however, is the fact that the total market for potatoes has increased in recent years and Northwest producing areas have captured a relatively large share of this expansion. The development of a series of processed potato products and the location of processing facilities in the Northwest have been largely responsible for the net market growth in the region. However, substantial volumes of fresh market sales have also been maintained from this area.

As potato production and marketing have increased in the region, the total farm value of the crop has also increased. The estimated value to growers in the three states for the 1969 crop was over \$215 million. However, potato prices are notorious for their extreme variation both within and between crop marketing years. Consequently, the behavior of prices and the factors which affect them are extremely important to the economic condition of potato growing and marketing firms as well as the general economy of the Northwest producing areas.

## Purpose of This Report

The purpose of this report is to describe the recent changes and present importance of potato production and marketing in the major producing districts of the Northwest. Four such districts are delineated, largely on the basis of data availability. These include: 1) the entire state of Washington; 2) the 10 southwest counties of Idaho and Malheur County, Oregon; 3) other counties in Idaho (primarily the southeast and south-central areas of the state); and 4) other counties in Oregon. This report not only compares growth rates, marketing patterns, and price changes in each of these districts, but also illustrates the relative position of the Northwest Region within the total U.S. potato industry.

While the report focuses upon changes or conditions which have occurred in the past, it is intended as an aid for future decision-making. Potato producers must assess market and price potentials in order to determine the volume of potatoes to be produced, the allocation of their crop among market outlets, and the timing of their sales throughout the marketing season. Processing and marketing firms must assess supply and price conditions in relation to their decisions for plant location or expansion as well as the timing of their raw-product purchases. Public and industry representatives are called upon to make a wide range of decisions with respect to the institution and operation of various programs dealing with the potato industry.

An examination of recent trends and patterns should provide additional insight concerning the forces affecting the potato industry and serve as a partial basis for these types of decisions.

## Sources of Data — Methods of Presentation

The basic data used in this report were compiled from a number of sources. Data relating to acreage, yield, production, utilization, prices received by farmers, and value of production were obtained from reports published by the USDA Statistical Reporting Service. Price and shipment patterns for fresh market potatoes were summarized from various reports or tabulations of the Federal-State Market News Services. Statistical summaries from the Market Order Administrative Committees serving the potato producing districts in the Northwest were also used. Results from previous research reports as well as statistics from a number of specialized documents are summarized for the purpose of describing the competitive situation within the potato industry.

A graphic presentation has been employed in order to summarize the large numbers of individual statistics and facilitate the comparison between producing areas. Linear trend lines have also been plotted, whenever appropriate, to further illustrate the direction and magnitude of changes in the various statistical series. No attempt has been made to project these trends toward a definite time in the future. However, such projections can be easily made by the reader for any series of interest.

# Potato Production Relationships

## Trends in Northwest Producing Areas

The total production of potatoes in an area is determined by the acreage devoted to potatoes and the yield per acre. Changes and trends in each of these categories are shown in the following sections.

### Acreage

Harvested acreages in each of the Northwest potato producing districts since 1954 are shown in Fig. 1.

The Southeast and Southcentral counties in Idaho have by far the greatest acreage of potatoes of these four producing districts. This area has also experienced the most rapid rate of growth in acreage over this 17-year period. According to the trend line computed for this area, acreage has increased at an average rate of 8,800 acres per year. This is largely a reflection of the new land and irrigation development from deep wells brought in during the 1950's and early 1960's. However, acreages during the last three years have fallen below the long-term trend line. This could be interpreted to mean that the rate of growth is slowing down in this area.

The second largest area in terms of acreage is the State of Washington. During the early years of the study period acreage remained relatively constant. Much of the acreage was then centered in the Yakima

Valley area. However, as the Columbia Basin Reclamation Project developed, potato acreage shifted toward that area. A relatively large share of the new land development in the Basin in recent years has been devoted to potatoes. For the 17-year period, potato acreage in Washington has increased at an average rate of 2,700 acres per year. The rate of growth has been somewhat greater in recent years.

Southwest Idaho and Malheur County, Oregon have followed a pattern similar to that for Washington. During the early part of the study period acreage was relatively stable and was centered in the older diversified farming areas. During the latter part of the period acreage has shifted toward the newly developed lands. Much of this development has resulted from high-lift pumping of irrigation water to the formerly arid plateaus adjacent to the Snake River and other rivers in the area. While the average rate of increase over the entire period is only 2,300 acres per year, the rate has increased somewhat during recent years.

Potato acreage in the other counties of Oregon has remained much more stable. The average rate of growth has been about 400 acres per year. This reflects the fact that potato production is carried out on farms where cropping patterns and rotations are relatively stable and where little new land development has occurred.

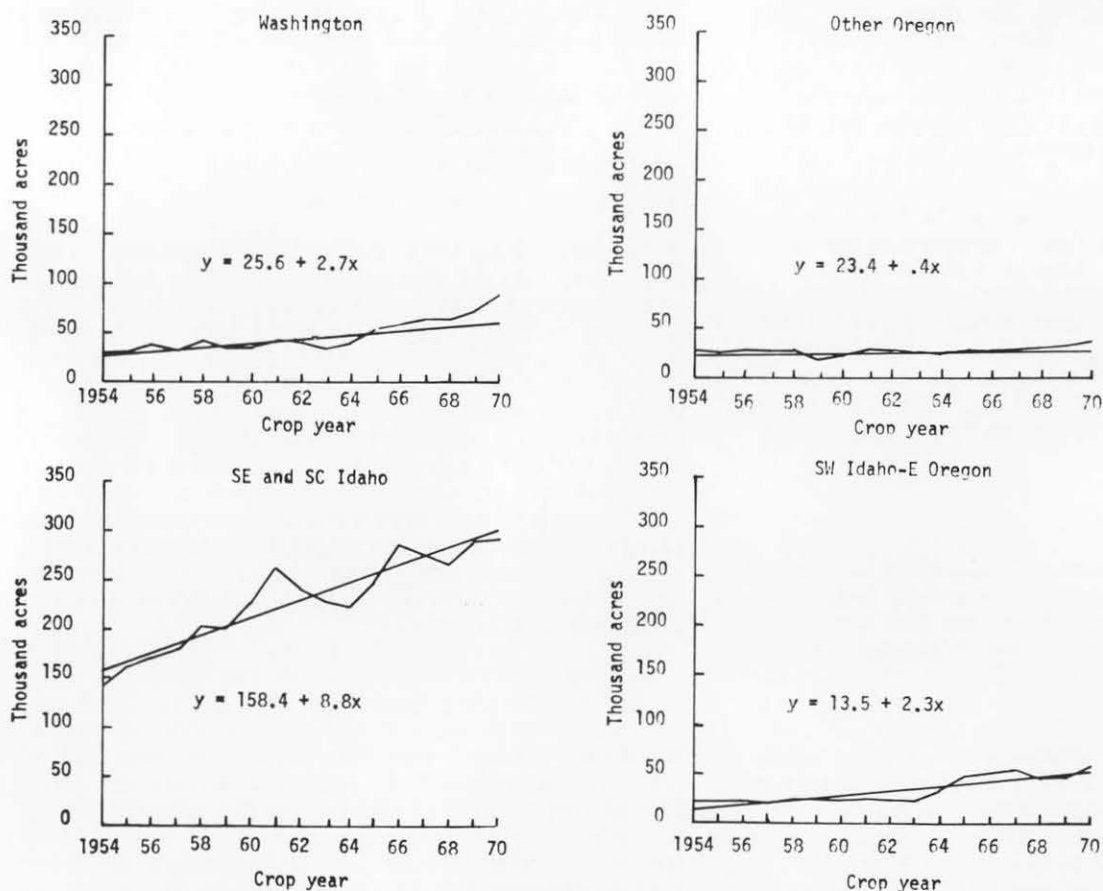


Fig. 1. Harvested potato acreage in Northwest producing areas. (Source: Appendix Table 1.)



## Yield

Potato yields per harvested acre for each of the Northwest producing districts are shown in Fig. 2. The yields are average and do not reflect the variations that occur among individual farms.

Washington State potato yields not only exceed those of the other areas in the Northwest but are also higher than any other state in the nation. Climate and soil conditions in the area are evidently well suited to potato production. These conditions along with the development and adoption of improved cultural practices have resulted in average yields approaching 400 cwt per acre and an average rate of increase of 9.3 cwt per acre per year since 1954.

Average yields have also increased at a relatively rapid rate in Southwest Idaho and Malheur County, Oregon. Climatic and soil conditions in much of the area are similar to those in the Columbia Basin of Washington. Average yields of nearly 300 cwt per acre have been recorded in recent years. Yields have increased an average of 5.7 cwt per acre per year over the study period.

Climatic conditions and particularly the length of the growing season appear to be the factors limiting potato yields in Southeast and Southcentral Idaho. The most dramatic evidence of this limitation was provided in 1964. A cold, late spring followed by killing frosts as early as mid-August resulted in an average

yield for the area of only 154 cwt per acre. During most recent years average yields have exceeded 200 cwt per acre. However, the average rate of increase for the study period has been only 1.2 cwt per acre per year.

Yields in the other counties of Oregon were quite high at the beginning of the study period. At that time Washington exceeded this area by only a narrow margin. However, the rate of increase in yields of 2.0 cwt per acre per year has not kept pace with either the Washington or the S.W. Idaho-Eastern Oregon areas. Consequently, this area now ranks third in average yields, surpassing only the Southeastern and Southcentral Idaho counties.

## Production

Total potato production for each area is shown in Fig. 3.

The Southeastern and Southcentral district in Idaho is still the leading area in terms of total potato production in the Northwest. During the last two years of the study period this area produced in the neighborhood of 60 million cwt per year. The average rate of growth over the 17-year period has been 2 million cwt per year.

Washington State now is the second largest producing district in the region. Total production in the state exceeded 30 million cwt in 1970. The average rate of

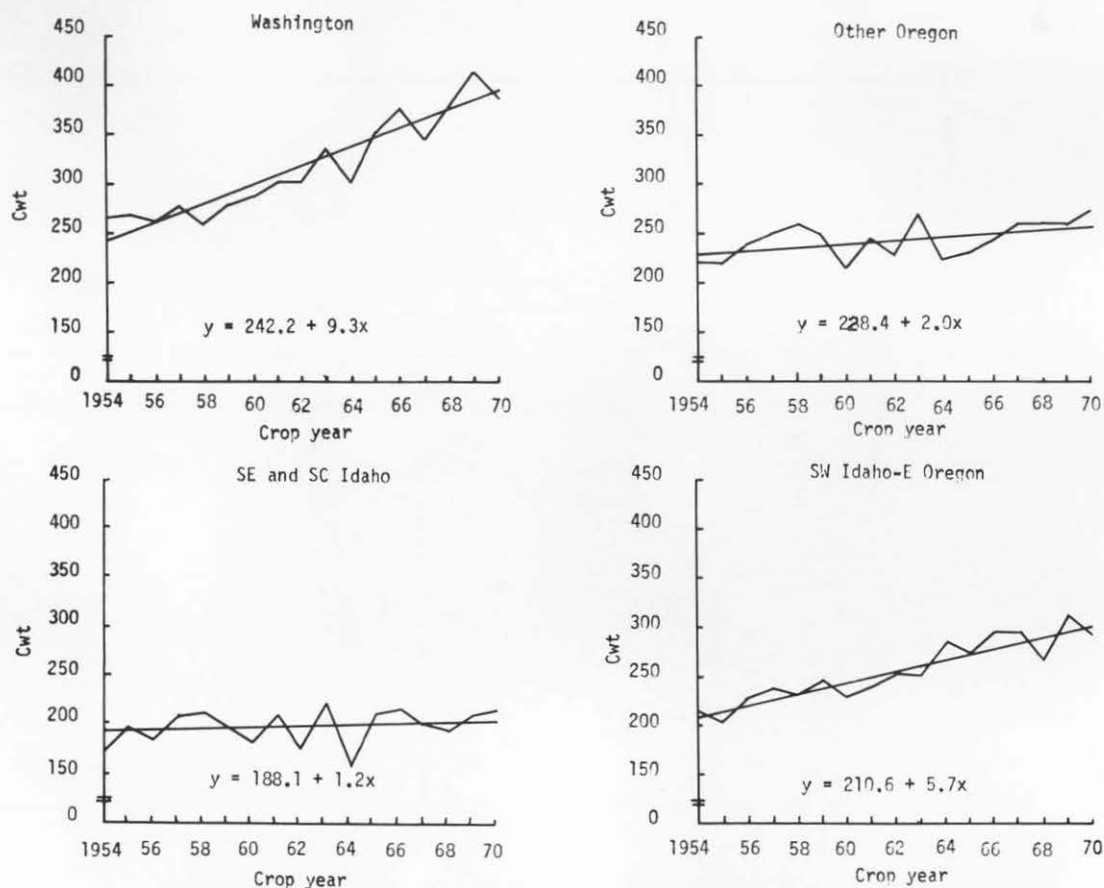


Fig. 2. Potato yield per harvested acre in Northwest producing areas. (Source: Appendix Table 1.)

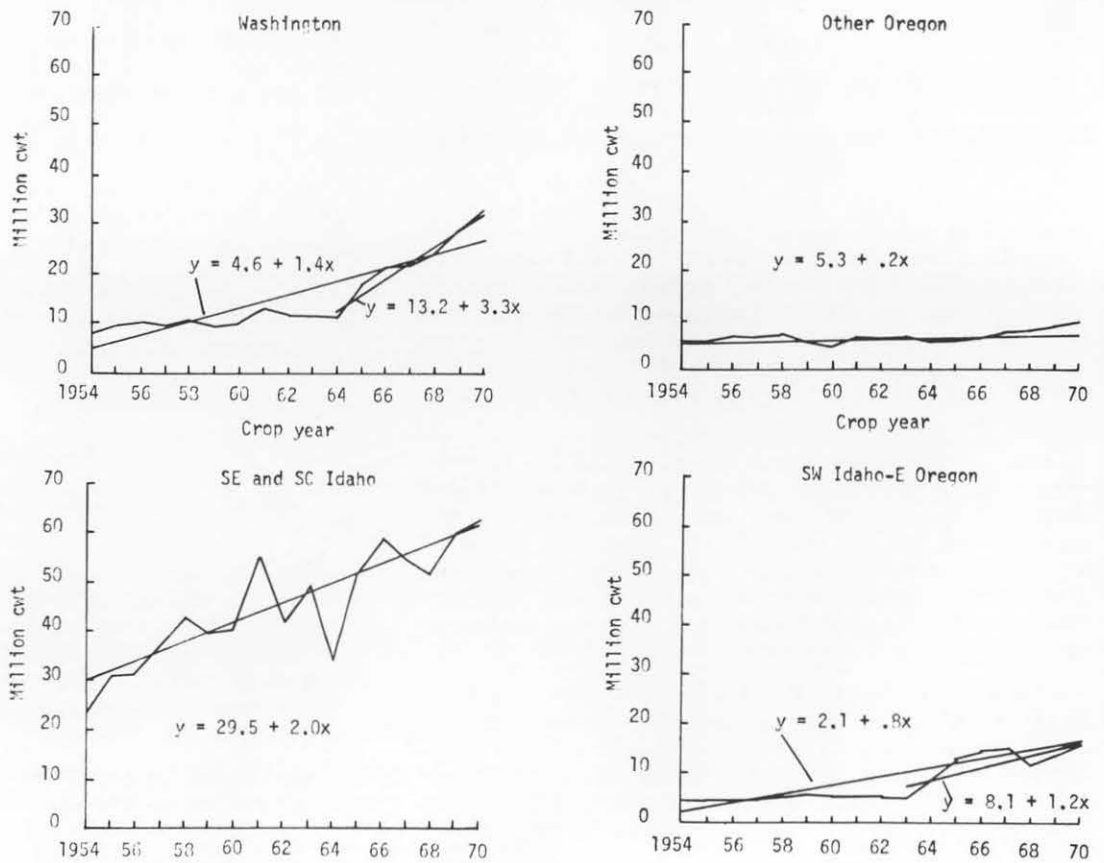


Fig. 3. Potato production in Northwest producing areas. (Source: Appendix Table 1.)

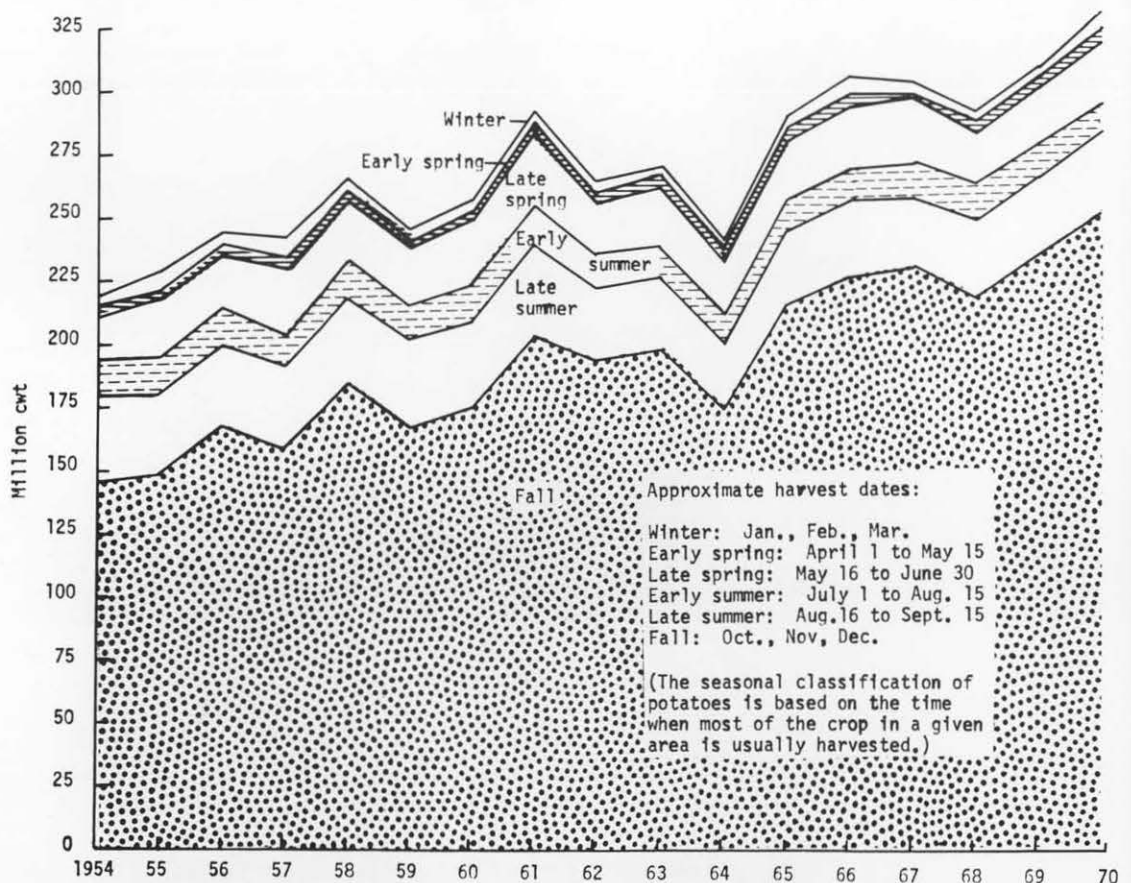


Fig. 4. U.S. potato production by seasonal group, 1954-1970. (Source: Appendix Table 2.)

growth for the study period has been about 1.4 million cwt per year. However, the rate of growth in recent years has been considerably higher. A measure of this recent growth rate is provided by a second trend line computed over the last 7 years of the period. Since 1964 the average rate of growth has been approximately 3.3 million cwt per year. Whether or not this higher growth rate will continue into the future will depend on such factors as rate of new land and irrigation development, the degree to which potatoes must compete with alternative farm enterprises, and the rate at which potato yields continue to increase.

Southwest Idaho-Malheur County, Oregon can also be characterized by two separate growth rates. During the early portion of the period production remained rather stable at about 5 million cwt per year. However, since 1963 the growth rate has been more rapid. Consequently, the average growth rate for the entire study period is only 0.8 million cwt per year, while the growth rate since 1963 has averaged about 1.2 million cwt per year.

Production in Other Oregon Counties has only a slight upward trend. The average growth rate has been 0.2 million cwt per year over the study period. During the past 3 years production has exceeded the long term trend values. However, it is not apparent whether this signifies an upturn in the long term growth rate or is merely a short run phenomenon.

## Relationships between Northwest And Other U.S. Potato Production

Potato production in the United States is classified according to season of harvest as well as by area. Production since 1954 in each of the 6 seasonal groups is shown in Fig. 4 along with a listing of the usual harvest dates for each group.

Fig. 4 illustrates two changes which have occurred in U.S. potato production during this period. First, total production has trended upward, increasing from about 220 million cwt in 1954 to almost 325 million cwt in 1970. Second, practically all of the increase in production has occurred in the Fall producing areas. Production in this seasonal group has increased from less than 150 million cwt in 1954 to over 252 million cwt in 1970.

The major potato producing districts in the United States are identified in Fig. 5. Because of the overlap in season of harvest for some geographic areas and for ease of presentation the seasonal harvest groups have been reduced to three. The "early" classification includes both winter and early spring harvest areas. The "intermediate" states include both the late spring and early summer harvest periods. The "late" states shown on the map include late summer and fall producing areas. The percentages shown for each indi-

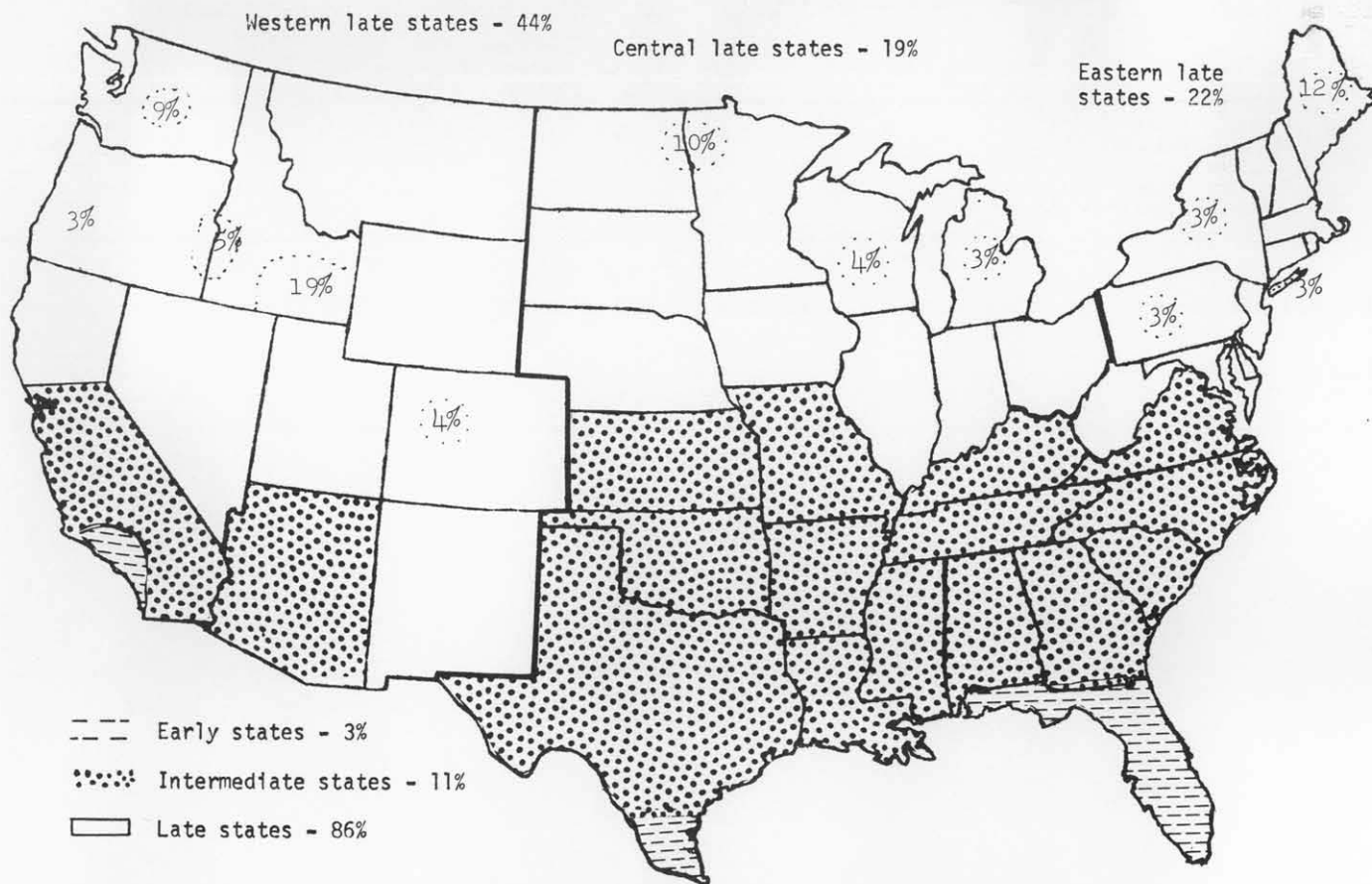


Fig. 5. Major potato-producing areas, and 1968-1970 average percentage production. (Source: U.S. Department of Agriculture [11].)

dual area are approximate, based on an average of 1968-70 production data. Some potato production occurs in practically every state. Since only the larger producing districts are noted, the absence of a percentage figure in a particular state should not be interpreted to mean that no production occurs.

Another graphic representation of the relationship between Northwest and other U.S. potato production is provided by Fig. 6. The three seasonal designations correspond to those in Fig. 5, but two separate time periods are used to show the changes in relative proportions which have occurred over a 10-year period. The first chart is based on 3-year averages for the 1958 through 1960 crop years. The second chart includes the 1968 through 1970 crop years.

Potato production in the early states has remained

at approximately 3% of total U.S. production. Intermediate state production now amounts to about 11% of the total as compared to nearly 15% in the earlier period. Total late production has increased from 82% to more than 86% of the total.

The four producing districts in the Northwest accounted for more than 35% of total U.S. production on the average over the most recent 3-year period. This compares with only 24% during the earlier period. About 19% of the total U.S. production is now produced in the Southeastern and Southcentral Idaho district. The Southwestern Idaho-Eastern Oregon district accounts for an additional 5% of the U.S. crop. Because of its recent growth, Washington State produces approximately 9% of the U.S. crop. About 3% of the total is provided by the Other Oregon areas.

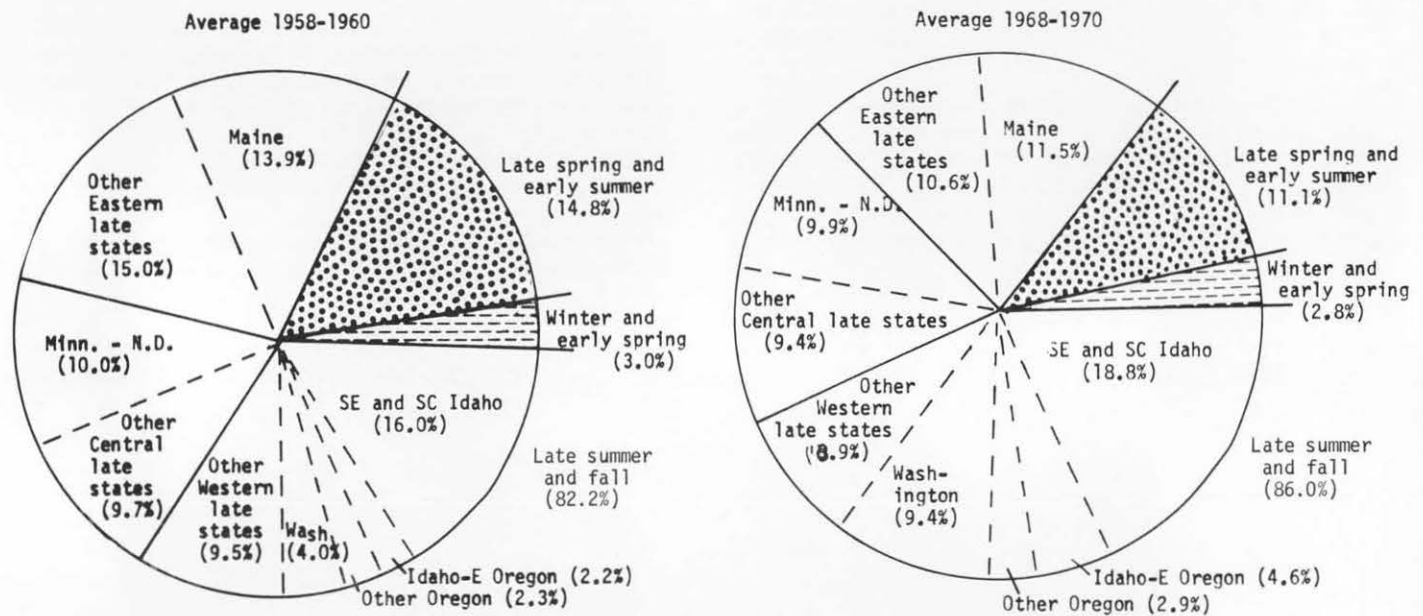


Fig. 6. Production of potatoes by seasonal group and states for 1958-1960 and 1968-1970. (Source: USDA [11].)



# Potato Utilization and Marketing

Potatoes, at the time of harvest, are basically raw materials. A number of productive processes and services must ordinarily be performed before these raw materials are made available to final consumers.

Potatoes, as final consumer goods, encompass a wide range of product forms. Just a few examples are 10-pound bags of U.S. number 1 Russett Burbank potatoes, 30-pound boxes of Grade A frozen french fries, 9-ounce packages of dehydrated potato flakes, and triple-pack boxes of potato chips. Some type of physical conversion process is normally required to change field-run potatoes into specific finished products. These processes may range from relatively simple washing, sorting, and packing operations for fresh market products to complex, industrial operations for the various processed items.

Although most of the U.S. potato crop and all Northwest potatoes are harvested during the late summer and fall seasons, consumers want potato products virtually year round. Thus storage operations for either raw product or finished product, or some combination of the two, are required in order to "change" the products through the time dimension.

Since producing areas are generally sparsely populated, most potatoes must be transported to more populous areas for consumption. Again, this transportation may involve the raw product, finished product, or, more commonly, some combination of the two.

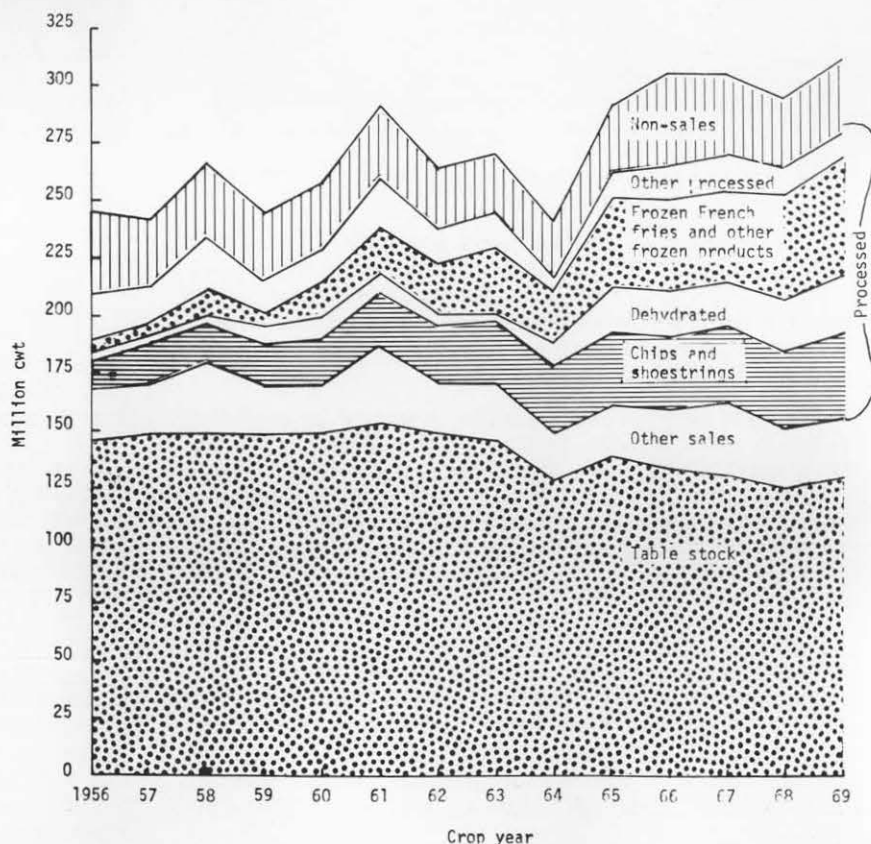
In the sections which follow, trends and patterns with respect to each of the above marketing functions are examined. The primary emphasis is again placed on Northwest potatoes with comparisons to the total U.S. potato industry.

## Potato Utilization by Product Form

While a large number of individual potato products could be identified, they are normally classified into a few general categories. The volumes of potatoes utilized in each of the major categories in the United States since 1956 are shown in Fig. 7. The largest single use of potatoes is still for the tablestock or fresh market. However, the utilization in this market has declined steadily through the years. Tablestock usage has fallen from 146 million cwt from the 1956 crop to about 132 million cwt from the 1969 crop. Since total potato utilization increased during this period, the decline in the percentage of the crop used for tablestock has been even more dramatic. In 1956 about 59% of the crop was utilized in fresh form. By 1969 only about 41% was used in this product category.

The quantity of potatoes processed, and particularly the quantity used for "food products," has registered a substantial increase in recent years. Only about 43 million cwt of potatoes were processed from the 1956 crop. A large share of these potatoes were used in the manufacture of starch and flour which

Fig. 7. Utilization of U.S. potato crops, 1955-1969. (Source: Appendix Table 3.)



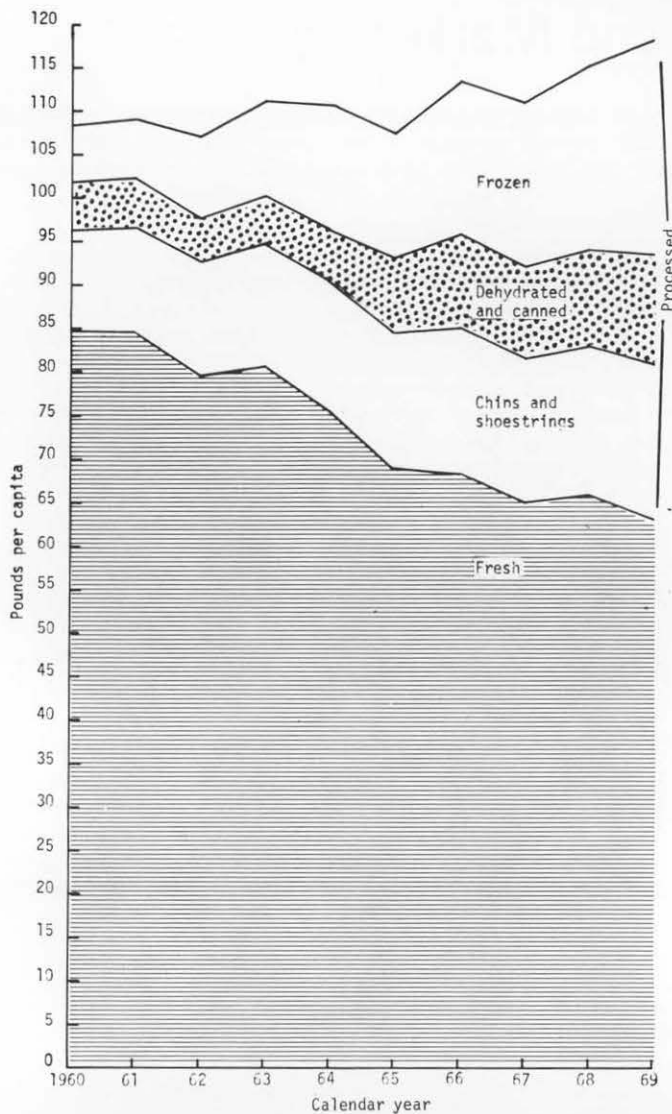


Fig. 8. Per capita consumption of potatoes, 1960-1969. (Source: Appendix Table 4.)

are not themselves finished food products. In contrast more than 122 million cwt of potatoes were processed from the 1969 crop. Only 10% of these were used in the manufacture of starch, flour, and some of the minor processed products such as canned potatoes and ingredients for hash, stew, or soup.

The leading processed potato category is now the frozen product group. Frozen french fries constitute the great bulk of this category although other frozen products such as hash browns, patties, and extruded products are also included in Fig. 7. Nearly 52 million cwt of potatoes were utilized for this product category from the 1969 crop.

Potato chips and shoestrings have utilized a steadily increasing volume of potatoes over the years. Some 35.5 million cwt of potatoes were utilized in this product category from the 1969 crop. The dehydrated products category, which includes flakes, granules, and various types of dehydrated diced or sliced items, has also registered a substantial growth. These products accounted for about 25.5 million cwt from the 1969 crop.

In addition to the above product categories, some volumes of potatoes are sold for livestock feed and seed. In 1969 about 9% of the total U.S. potato crop was used by these "other sales." Potatoes used on farms where they were grown for household use, feed, or seed, and potatoes lost through shrinkage or decay account for the remainder of the total supply. In 1969 these "non-sales" amounted to slightly over 10% of total U.S. production.

Changes in consumer attitudes and preferences in relation to fresh and processed potato products are illustrated even more dramatically in Fig. 8. These data show per capita consumption of potatoes in the United States on a calendar year basis. While the consumption of fresh potatoes has continued to decline, the consumption of processed items has increased. The net effect has been an increase in total per capita consumption during the period shown.

The utilization of Northwest potatoes is shown in Fig. 9. The most notable aspect of the utilization pattern is the spectacular increase in the use of potatoes for processing in Idaho, Eastern Oregon, and Washington. Processing has evidently not been a large factor in the market for Other Oregon potatoes.

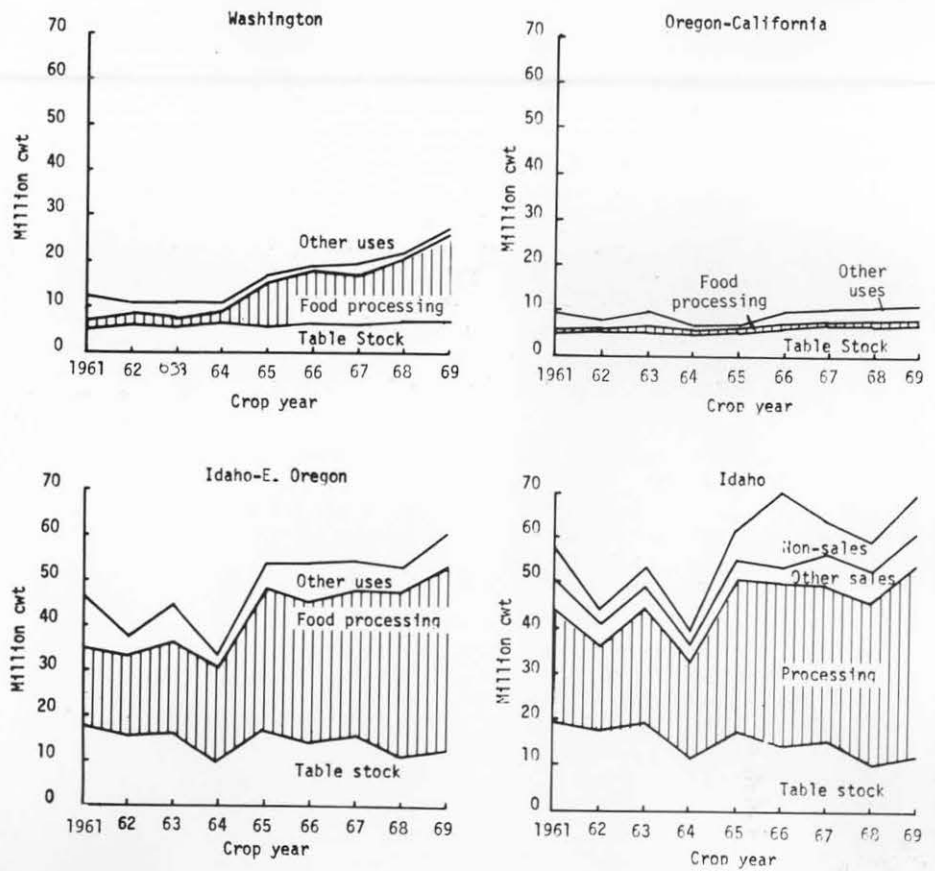
The data series in Fig. 9 are not entirely comparable, nor do they relate precisely to the areas described in the previous chapter. Three of the utilization series were compiled from the Potato Committee Managers' Joint Disposition Reports published under the auspices of the Federal Marketing Order committees serving the Northwest potato areas. These marketing orders cover Washington, Idaho-Eastern Oregon, and Other Oregon-Northern California. The fourth series in Fig. 9 was compiled from reports issued by the USDA, Statistical Reporting Service, covering the entire Idaho potato crop. This series is most nearly comparable to the utilization data for U.S. potato crops. However, this series does not include Eastern Oregon (Malheur County).

The total volumes used for "food processing" are given for each of the marketing order areas (Idaho-Eastern Oregon, Washington, and Other Oregon-Northern California). This category includes all potatoes used for chips, canning, freezing, flour, and all types of dehydrated products. Potatoes used for starch are shown with the "other uses" category in these three charts. The utilization series for Idaho potatoes shows only the total volume used for processing including starch production.

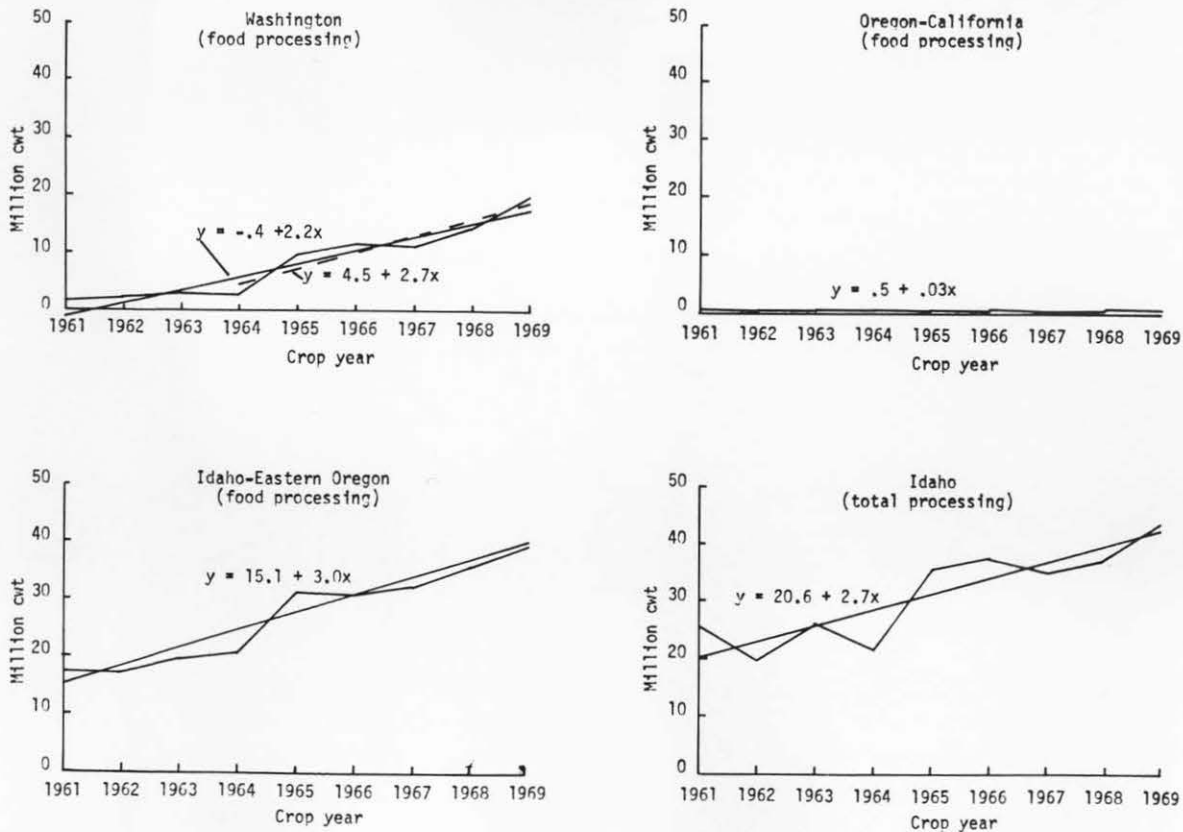
The relative size of the processing industries (particularly food processing) as well as the rate of growth of these industries in the Northwest potato areas are shown in Fig. 10. Here the volumes of potatoes used in the processing categories are shown with trend lines computed to show the rates of growth.

In spite of the inconsistencies between the areas and products included in the Idaho and the Idaho-Eastern Oregon series, the average rates of growth are quite similar. For both series the total volume processed in 1969 was in the neighborhood of 40 million cwt with an average rate of growth since 1961 of about 3 million cwt per year. (2.7 for Idaho, 3.0 for Idaho-Eastern Oregon). Nearly 20 million cwt of Washington

**Fig. 9. Potato utilization in the Northwest, 1961-1969.**  
(Source: Appendix Tables 5, 6.)



**Fig. 10. Potato processing trends in Northwest producing areas, 1961-1969.** (Source: Appendix Tables 5, 6.)



potatoes were processed from the 1969 crop with an average rate of increase since 1961 of about 2.2 million cwt per year. However, the rate of increase in recent years has been somewhat greater. Since 1964 the processing of Washington potatoes has increased at an average rate of 2.7 million cwt per year.

The other major market outlet for the Northwest potato crop is the tablestock or fresh market. Volumes and trends in this utilization category are shown in Fig. 11. Again, the volumes reported for Idaho and for Idaho-Eastern Oregon are not quite the same. Nevertheless, both series exhibit a definite downward trend. Washington and Other Oregon-Northern California fresh shipments have trended slightly upward since 1961.

It is evident, therefore, that the total market for Northwest potatoes has increased largely on the basis of increased sales for processing. The use of potatoes for processed products has increased substantially in all areas of the Northwest except the "Other Oregon" counties. Fresh market sales from "Other Oregon" counties and from Washington have not increased sufficiently to offset declining sales from the Idaho-Eastern Oregon areas. Nevertheless, the fresh market remains as an important market outlet in all areas of the Northwest.

## Potato Storage and Seasonal Marketing Patterns

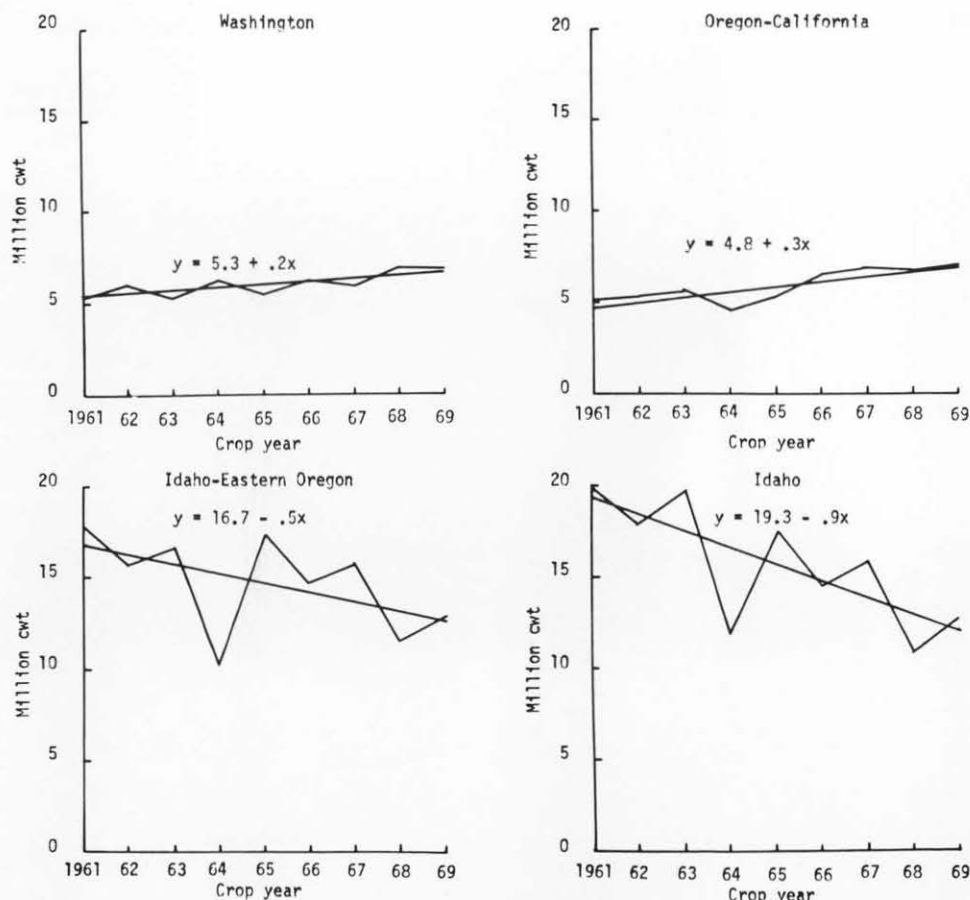
Storage operations represent another significant aspect of the marketing system for potatoes. Fig. 12 indicates the importance of this marketing function. This chart shows the production of fall crop potatoes in the United States along with the stocks of these potatoes in storage on the following December 1 and March 1 for each crop year since 1954.

The volume of potatoes going into storage has changed about in proportion to the quantity of Fall potatoes produced. Approximately two-thirds of the Fall crop has been represented by storage stocks on December 1. By March 1 of the following year approximately one-third of the fall crop has been left in storage. This indicates that something over two-thirds of the crop is initially placed in storage and a significant volume is held for periods of 5 months or longer.

### Storage of Northwest Potatoes

Similar data for Northwest potatoes are shown in Fig. 13. Since storage stocks data are published only by states, these totals are shown rather than data for the four producing districts.

Fig. 11. Potato table stock usage trends in Northwest producing areas, 1961-1969. (Source: Appendix Tables 5, 6.)





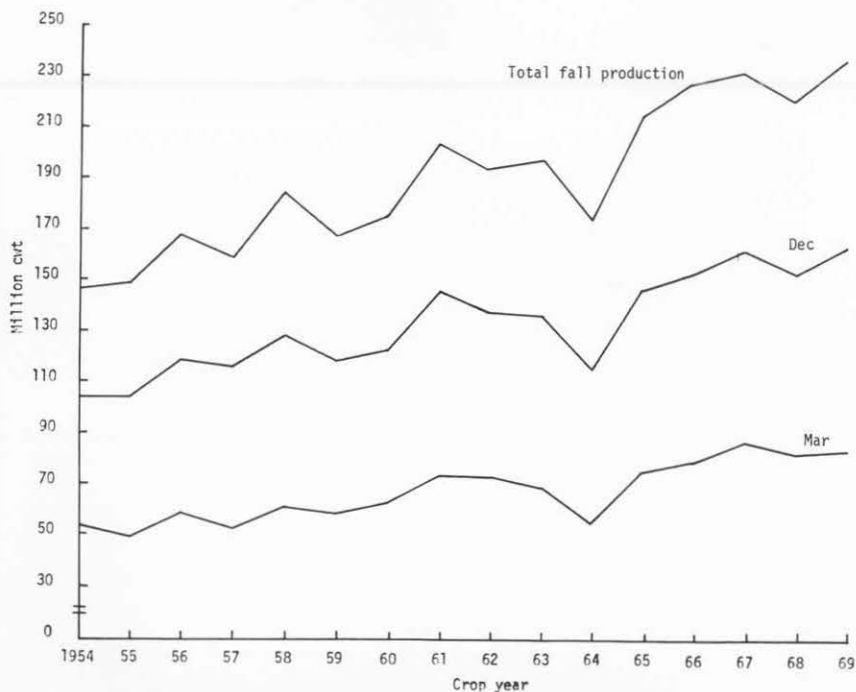
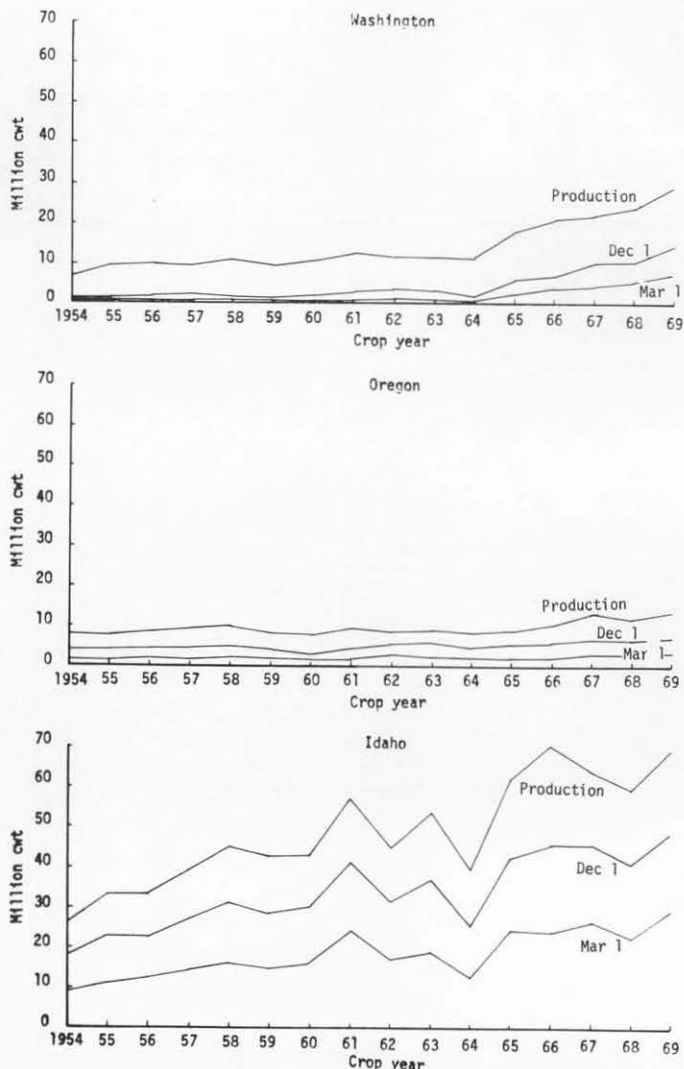


Fig. 12. Production and stocks on hand estimates of U.S. fall potatoes, 1954-1969. (Source: Appendix Table 7.)

Fig. 13. Production and stocks of potatoes on hand in Northwest states, 1954-1969. (Source: Appendix Table 7.)



Washington potatoes were, traditionally, harvested during the late summer period and marketed directly from the field. Consequently, very few Washington potatoes were stored during the early years shown in Fig. 13. In recent years the proportion of fall crop potatoes has increased and so has the proportion of the crop going into storage. To a large extent this is another reflection of the increase in processing activities which require longer seasons for efficient operations.

Some increase in the proportion of the potato crop stored in Idaho and Oregon can also be observed. However, a relatively large share of the potatoes in these states has always been harvested in the fall and placed in storage. In recent years over 40% of the Idaho crop has remained in storage by March 1. This indicates that the length of the storage season is increasing along with the volume of potatoes placed in storage.

#### Seasonal Shipment Patterns

Complete data concerning the seasonal use of potatoes are not available. However, fresh market shipments from major potato producing areas are tabulated by the USDA Market News Service. These data

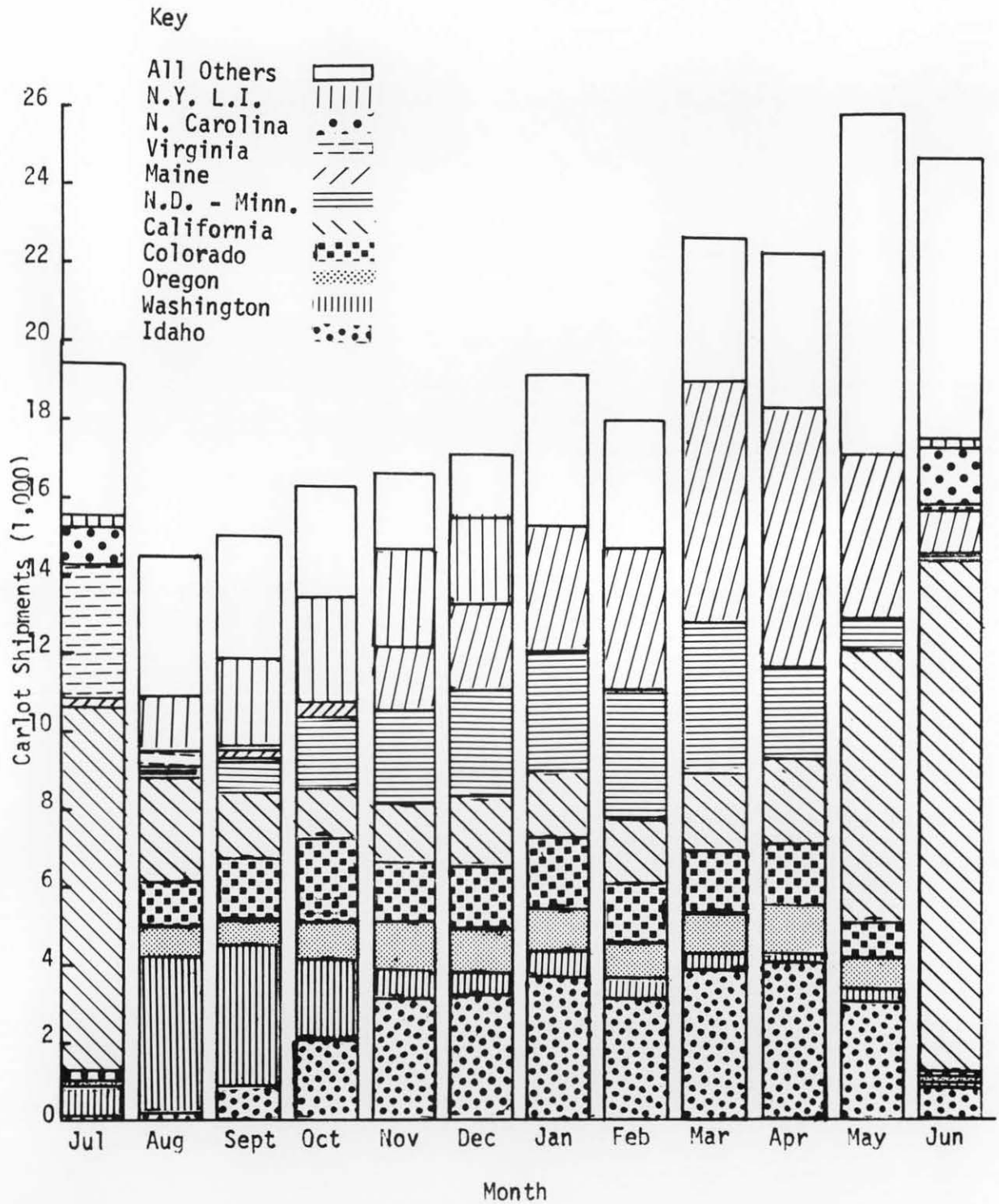


Fig. 14. Monthly carlot shipments of potatoes, average 1965-66 to 1969-70. (Source: Appendix Table 8.)

were used to construct Fig. 14. Total reported shipments (rail and truck) for each month were averaged over the most recent 5-year period to show the average seasonal pattern of shipments.

Commercial shipments tend to be lowest during August. This may be because consumers use fewer potatoes then, or because more potatoes are available from home gardens and local production from small plots sold directly through farmer markets. Practically all commercial shipments during July, August, September, and October move directly from the field into marketing channels without appreciable storage.

Commercial shipments tend to increase as local or non-commercial supplies are exhausted. From November through the winter period practically all of these shipments originate in the Fall harvest areas. As the season progresses new-crop potatoes become increasingly important with storage stocks declining to insignificant levels by mid-summer.

Fig. 15 shows the average monthly percentages of total U.S. potato shipments that originated in the three Northwest states. As might be expected, Northwest percentages are at their peak during the harvest season in the region. These percentages decline gradually as the storage season progresses and competition increases from new-crop areas.

Fresh shipment patterns for the three states show the disparity between states in the region (Fig. 16). Washington's earlier harvest season and its tradition of shipping large volumes during the late summer season produce a relatively high percentage of U.S. shipments in late July, August, and September. Washington's shipments fall off rapidly in October and November and then decline slowly through the remainder of the season. Idaho and Oregon shipments, on the other hand, increase during the fall harvest season and remain relatively high through April and May. By June all three of the states have exhausted the bulk of their supplies, although in recent years increasing quantities have been stored and shipped during the summer months.

### Regional Potato Consumption and Geographic Marketing Patterns

The geographic distribution of potato sales from each producing district is determined largely by competitive forces. These forces include the demand for potato products in various consuming regions, comparative production and processing costs for potato products from competing producing areas, comparative freight rate structures for transporting either raw or finished products, and product differentiating practices employed by different producing areas. Federal and state marketing orders impose some restrictions on the quality and quantity of potatoes which can be shipped from certain areas. However, there are generally no legal or economic sanctions imposed on domestic potatoes by receiving states or market areas.

Practically all U.S. potato sales are confined to domestic markets. Exports of fresh potatoes are important at certain times in some production areas

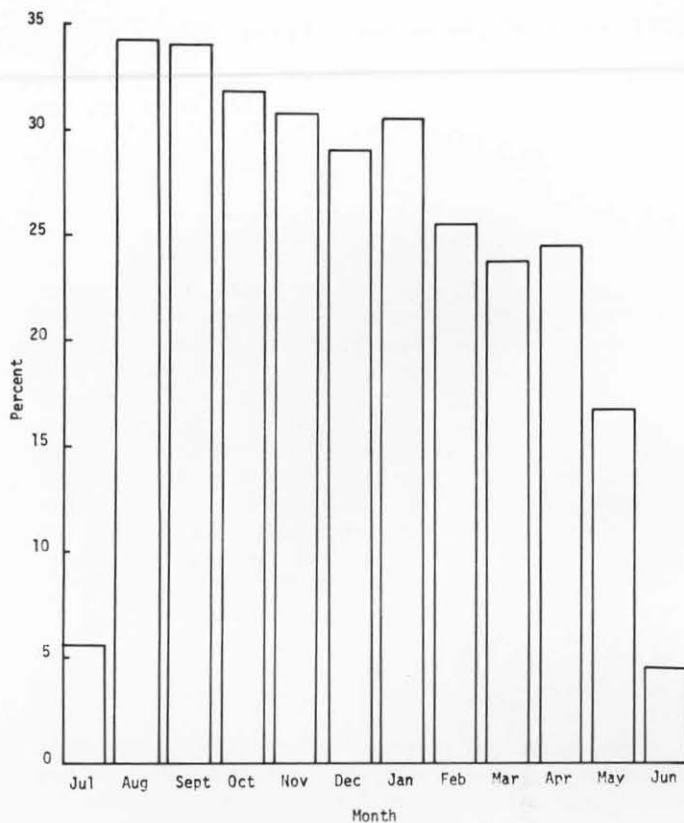


Fig. 15. Average monthly percentage of U.S. potato shipments originating in the Northwest, 1965-66 to 1969-70. (Source: Appendix Table 8.)

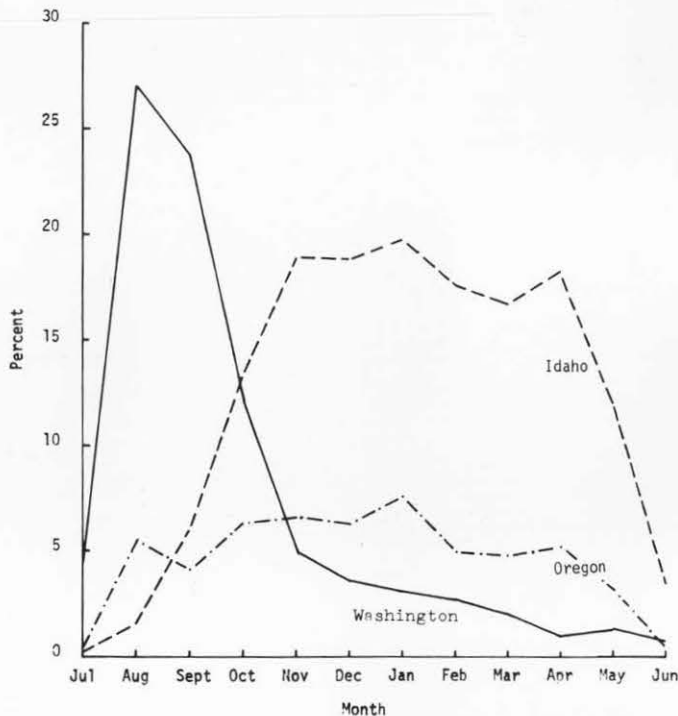


Fig. 16. Average monthly percentage of U.S. potatoes shipped from Idaho, Washington, and Oregon, 1965-66 to 1969-70. (Source: Appendix Table 8.)

such as Maine and eastern Virginia, but export sales of fresh potatoes seldom exceed 1% of total U.S. production in a given year. Imports of potatoes are even less of a factor. Industry efforts have increased foreign sales of dehydrated potatoes, but, foreign trade is not an important factor in the market for most other processed potato products. Consequently, the information presented in this section pertains exclusively to geographic areas within the United States.

Data are not available to delineate precise regional marketing patterns for each potato producing area. By the same token, an analysis of the competitive position of each potato producing area with respect to each market area in the United States is beyond the scope of this report. Nevertheless, some evidence is cited in this section concerning the relative importance of different geographic market areas. Transportation problems and costs for potato products from Northwest producing areas are also discussed. Finally, fresh market potato unload statistics are tabulated for selected cities as an indication of the distribution pattern associated with Northwest and competing potato producing areas.

#### Regional Population Distribution

One indication of the market potential for potato products in a given region is the number of consumers or population of the area. Fig. 17 shows one delineation

of geographic areas for the 48 states with population totals in 1969 and the percentage of U.S. population encompassed by each of the regions.

Only about 3% of the total population resides in the Northwest states. Only about 17% resides in the 11 Western states. Since over 35% of the average annual potato production comes from the Northwest producing areas, it is apparent that these areas depend on relatively distant markets for a large share of their potato products.

#### Regional Differences in Consumption

Household consumption gives another indication of the relative importance of different geographic market areas for potatoes. Fig. 18 shows the regional classification used in household food consumption surveys conducted by the USDA in 1955 and 1965 and total pounds of potatoes purchased by the average household in each region during one week in both survey years.

Data for a single week may not exactly represent consumption patterns over an entire year. Differences in size and composition of households among regions may also account for some of the differences shown. Nevertheless, it appears that potato consumption on a per capita basis is higher in Northeast and North-central regions than in the South and West. This again emphasizes the dependence of Northwest producing areas on distant markets to the East.



Fig. 17. Regional resident population of the United States, including percent of total, 1969. (Source: U.S. Department of Commerce [13].)



## Transportation Problems and Costs

The importance of transportation in the marketing system for Northwest potatoes is apparent. The fact should be stressed, however, that transportation represents a complex and dynamic industry. Consider, for example, the number of originating points and final destinations just for potato products; the number and combinations of alternative transport modes (rail, truck, barge, and perhaps even air); the number of individual carrier firms for each mode; and the number of auxiliary services which must be performed in moving potatoes between two distant points. Moreover, the changes occurring in transportation are evidenced by the stream of new firms, routes, equipment, and methods appearing in this industry each year. It is not surprising that major trade associations in the potato industry devote a significant share of their efforts to transportation problems, or that large firms employ trained specialists to supervise the transportation function.

The complexity and changing nature of transportation make a description of this phase of potato marketing extremely difficult. However, one aspect of the transportation problem facing Northwest producing areas is all too apparent. This is the relatively high cost of transportation to major market areas outside the Western Region.

Table 1 illustrates this situation. The data are quoted rail freight rates for dehydrated potato prod-

ucts. These rates are similar to the basic rates for fresh market potatoes, but fresh shipments are normally assessed an additional charge for protecting the load from heat or cold. By the same token, freight rates for frozen products are normally higher than rates for either dehydrated or fresh potatoes because of the need for constant refrigeration. Nevertheless, the relationships between rates from different shipping points illustrated for dehydrated potatoes in Table 1 indicate the situation facing all types of Northwest potato products.

Rates from Idaho are slightly lower than those from Washington to most markets. However, both of these Northwest areas face substantial freight rate differentials in comparison to competing producing areas outside the western region. In fact, transportation cost differentials are even more significant than those shown in Table 1 for certain types of fresh market packs which can be produced practically anywhere in the United States, including areas adjacent to the major population centers. If Northwest potato products are to compete in distant markets they must either command higher prices than competitive products or return less to producers and sellers. Both of these compensating mechanisms have probably been involved in the marketing of Northwest potatoes in the past.

Product differentiating practices such as producing preferred varieties; grading, sizing, and packaging for improved consumer acceptance; and industry adver-



Fig. 18. Regional household consumption of potatoes per week, 1955 and 1965. (Source: U.S. Department of Agriculture [8])

**Table 1. Rail freight rates from selected producing areas to selected markets, fresh potatoes, 50,000 lbs. minimum.<sup>1</sup>**

Destination	Idaho Falls, Ida.	Moses Lake, Wash.	Grand Forks, N.D.
	\$/cwt	\$/cwt	\$/cwt
New York City	2.19	2.42	1.67
Chicago	1.62	1.83	.82
Miami	2.29	2.40	2.05
Dallas	1.36	1.55	1.40
Cleveland	1.96	2.22	1.40
Minneapolis	1.43	1.45	.35
Kansas City	1.08	1.28	.82
Atlanta	1.83	1.99	1.63
Los Angeles	.76	1.14	-
Denver	.87	1.08	-
San Francisco	.76	.98	-

Source: Compiled with the assistance of Edd Moore, Manager, Idaho Growers-Shippers Association, Idaho Falls, Idaho; Don Freter, Rogers Brothers Inc., Idaho Falls, Idaho; and Dennis Conley, Sunspiced Inc., Moses Lake, Wash.

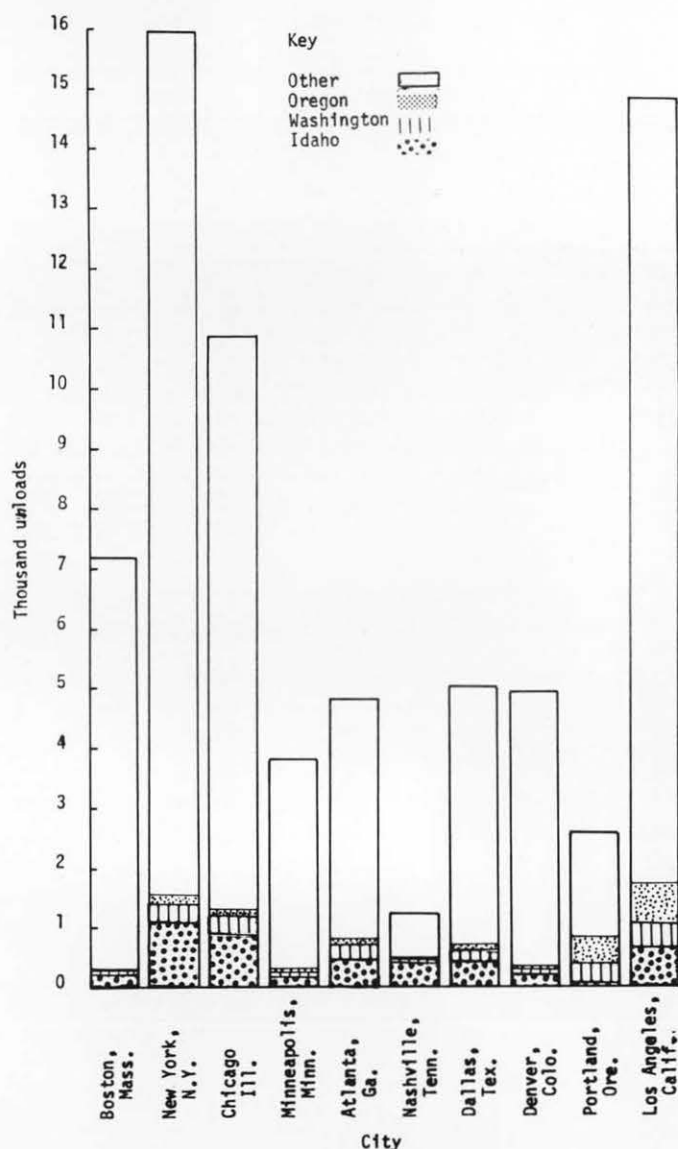
<sup>1</sup> There are some additional charges associated with protection of the potatoes from heat and/or cold during shipment. See text.

tising and promotion programs, have resulted in premium prices and nation-wide distribution for at least some Northwest potato products. Fig. 19 shows the total carlot unloads of fresh market potatoes in major cities and the number of unloads that originated in the Northwest states. Note that significant quantities of Northwest potatoes are received in all major market areas in spite of transportation cost differentials.

While fresh market potatoes from the Northwest have benefitted from product differentiation, certain processed items have had to compete on more of a standard product and price basis. This means that unless Northwest processors enjoy cost advantages such as lower wage rates, utility costs, or tax structures, they cannot afford to pay as much for raw product as their competitors closer to markets.

However, finished potato products are "weight-losing" in nature during the manufacturing process. Consequently, a unit of raw product need not bear the entire amount of the transportation cost differential for the finished product. For example, from 2½ to 3 pounds of field-run potatoes are required to make 1 pound of frozen french fries. If a Northwest processor faces a transportation cost disadvantage of \$1 per cwt of finished product, then he must pay from 33 to 40 cents per cwt less for raw product to be on an equal basis with his competitors in other areas, assuming all other costs and prices are equal.

The more weight reduction which occurs in the processing of a finished-product from the raw product, then the less important is the transportation cost differential in relation to regional differences in raw product costs. Thus, in the case of dehydrated prod-



**Fig. 19. Average number of potato unloads for representative cities that originated in the Northwest, 1965-1969. (Source: Appendix Table 9.)**

ucts, which require 7 or 8 pounds of field-run potatoes per pound of product, a freight rate differential of \$1 per cwt can be offset by a reduction of raw product cost of about 12 to 14 cents per cwt.

These same "weight-losing" properties account largely for the manufacturing of most processed potato products in the producing areas rather than nearer the markets. It is generally more economical to ship the finished product over comparatively long distances than to ship the raw product somewhat shorter distances. The exception to this rule is provided by potato chip processors. The problems of maintaining high quality in the finished product during shipment over long distances, plus the unit cost associated with low bulk-density products, provide for more economical locations in the terminal market areas.

# Potato Prices

Potato prices are determined, or at least influenced, by a large number of forces or conditions. The most important determinant of the price of any product is usually assumed to be the quantity of that product available for sale. According to the Law of Demand, larger quantities can only be sold at lower prices and, conversely, smaller quantities can command higher prices, other things being equal.

However, these "other things" are almost never equal. Population, consumers' incomes, prices of other goods and services which compete for consumer purchasing power, and the attitudes and preferences of consumers all change through time and complicate the task of accurately measuring price-quantity relationships for a particular product. Moreover, potatoes are not a single product, but rather encompass a wide range of individual product forms. This complicates even more the measurement of demand relationships for potatoes.

For these reasons, a complete analysis of the demand and price situations facing the potato industry is beyond the scope of this report. Rather, potato prices at a number of points within the marketing system are examined to show their behavior during past time periods. Such a description of past price changes and trends may provide insights regarding the forces

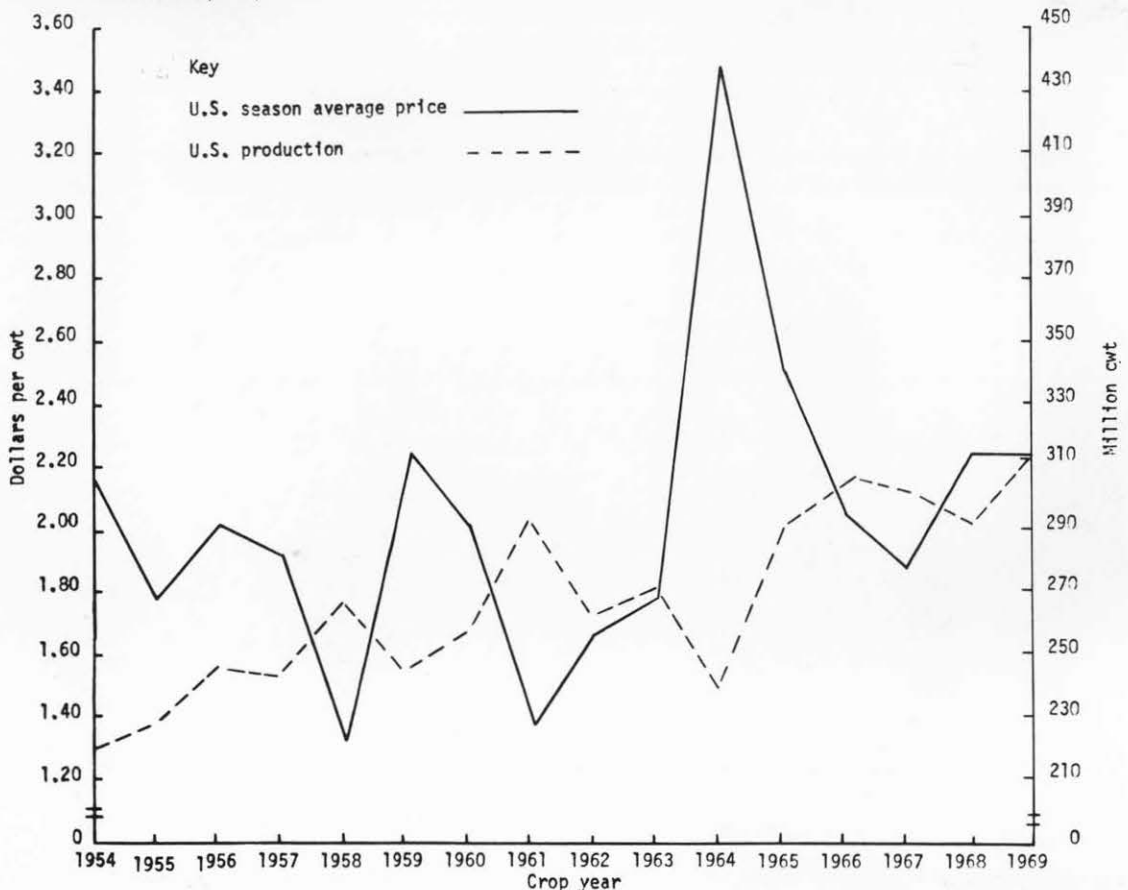
which will affect potato prices in the future. Major emphasis is placed on prices in the Northwest producing areas. However, relationships between producing area prices and prices at other points in the marketing system are also illustrated. Comparisons are also made between the prices of Northwest potatoes and potatoes from other producing areas.

## Season Average Potato Prices

A great deal of variation occurs among the prices which farmers receive from one crop year to another. The extent of this price variation for the entire U.S. potato crop is shown by Fig. 20. The prices are average prices received by all farmers for all potatoes produced. This figure also shows the production of potatoes during each crop year. Note that there is normally an inverse relationship between production and price. That is, a rise in production is usually accompanied by a decline in price and vice versa. Furthermore, a relatively small change in production is usually accompanied by a relatively large change in price.

Potatoes are often used as an example of a commodity facing an inelastic demand. Previous studies have found elasticities of price with respect to production in the range of -0.2 to -0.4. An elasticity of

Fig. 20. U.S. season average price to growers and total U.S. production, 1954-1969. (Source: Appendix Tables 2, 10.)



-0.2 means that a 1% change in production causes about a 5% change in price in the opposite direction. This suggests that consumers want to maintain about the same level of potato consumption and they will pay higher prices in years of short supply in an attempt to maintain that level of consumption. Conversely, it suggests that even sharp price concessions in years of large supplies will not bring about correspondingly large increases in consumption.

Variation among season average potato prices in Northwest producing areas is illustrated by Fig. 21. Again these are average prices for all potatoes sold regardless of use or market. Price patterns are generally quite similar among these areas and the prices for any particular area are closely related to the national demand-supply-price situation.

One noticeable deviation from this pattern occurred in 1964. That year resulted in an unusually short supply

of Fall-crop potatoes and extremely high prices in most major producing areas. However, prices in the Southwest Idaho-Eastern Oregon areas, and to a lesser extent in the Washington area, did not reach such high levels as prices nationally or in the other producing areas of the Northwest. This is probably attributable to the timing of sales within these two areas. Much of the crop in these two areas is produced under contract or sold directly at harvest. By the time the very short crop became apparent, many of these potatoes had already been sold. Differences in timing of sales and volume of contracting probably account for many of the other, less apparent deviations between individual producing area prices.

A slight upward trend is exhibited by the price series in each Northwest area. The average rate of increase over the 17-year period ranges from less than 2 cents per cwt per year for Southwest Idaho-Eastern

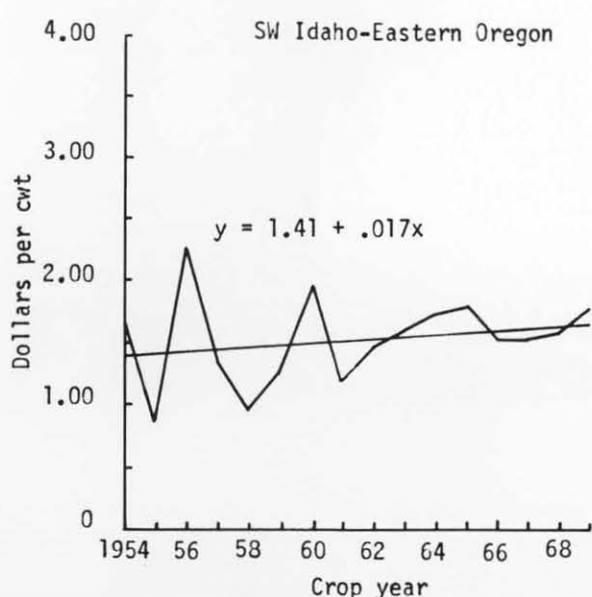
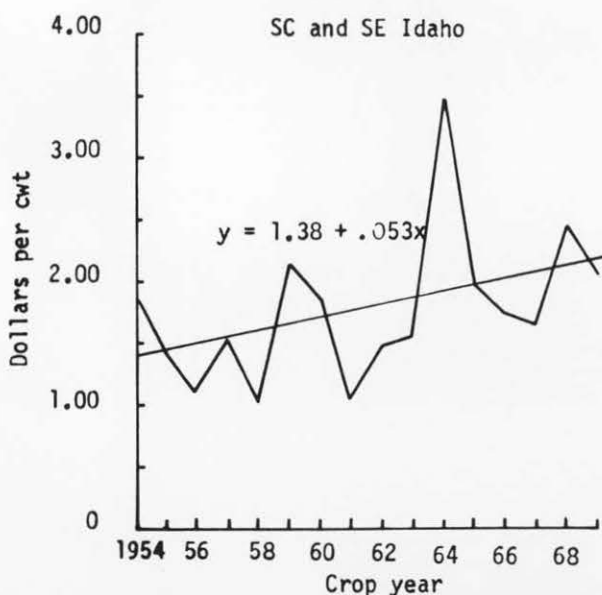
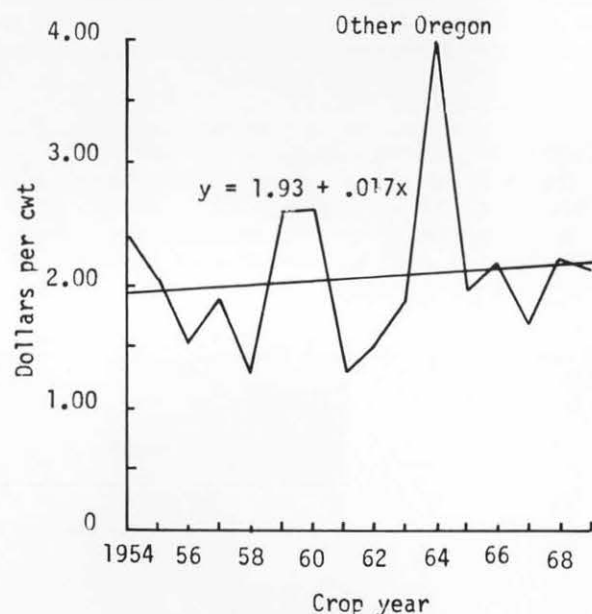
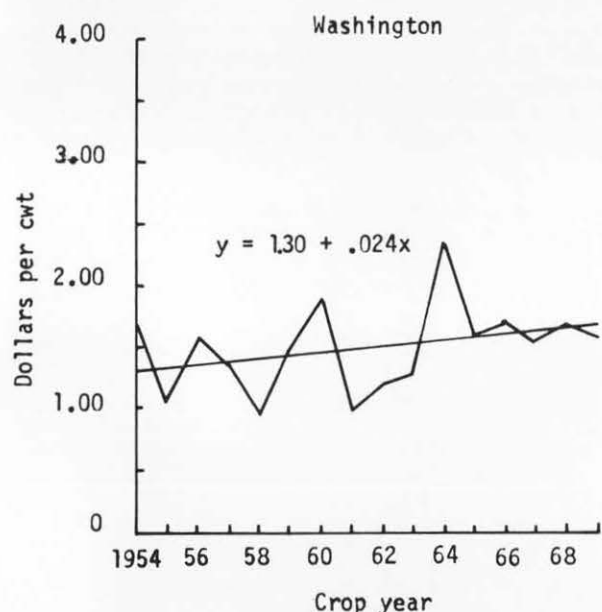


Fig. 21. Season average price to growers for Northwest potatoes, 1954-1969. (Source: Appendix Table 10.)



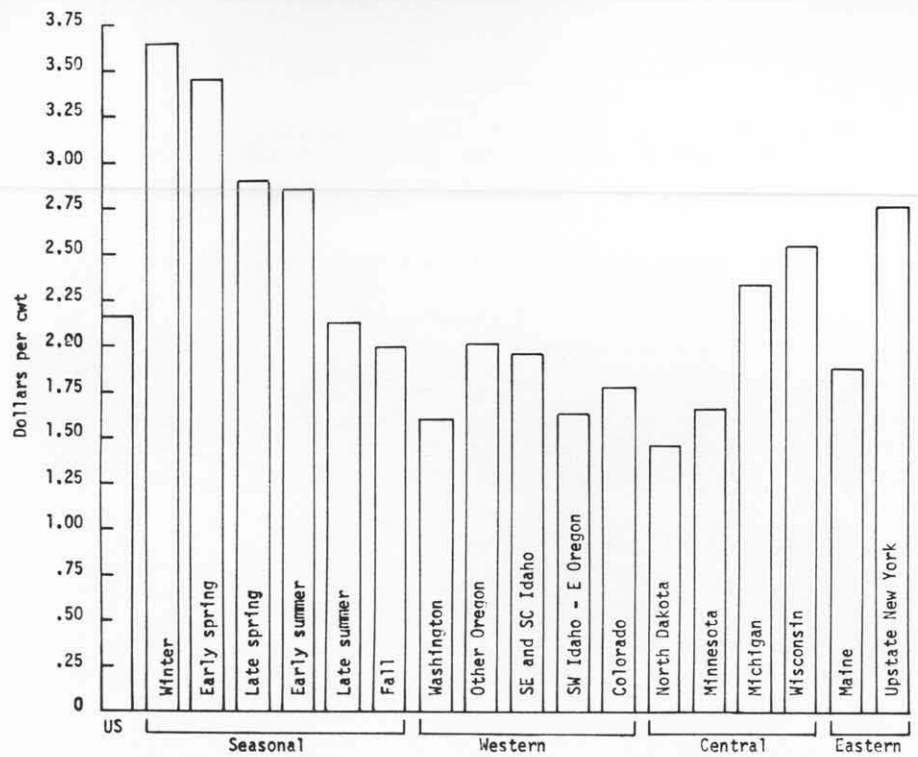


Fig. 22. Season average price to growers by seasonal groups and states, 1965-1969 average. (Source: Appendix Table 11.)

Oregon and Other Oregon counties to slightly over 5 cents per cwt per year for the Southeast-Southcentral Idaho area.

Fig. 22 compares season average prices received by farmers among major producing areas and seasonal harvest groups. These data are averages of season average prices received by farmers for the 5 crop years from 1965 through 1969. The average for all U.S. potatoes is shown by the first bar. Average prices for each of the six seasonal harvest groups are shown next followed by average prices in selected major late producing areas.

Differences between these average prices reflect a number of conditions or factors. Some of the differences can be attributed to location with reference to market areas. That is, producing areas located closer to market ordinarily realize a higher net price for potatoes at the farm level. Another important facet of price differences by regions has to do with the variety and quality of potatoes sold and product differentiation associated with certain areas.

Still other differences in grower prices can be attributed to the fact that growers in some areas perform certain marketing functions which are performed by specialized marketing firms in other areas. In certain areas growers do their own washing, sorting, and packaging and the price received reflects payment for these services in addition to payment for the potatoes. Consequently, a considerable degree of caution needs to be used in making direct comparisons between areas.

Additional insights about potato prices can be gained by comparing prices at the producing area level to those at other points in the marketing system. The USDA has studied marketing costs and margins over long periods of time. Fig. 23 summarizes the results of some of these studies for potatoes.

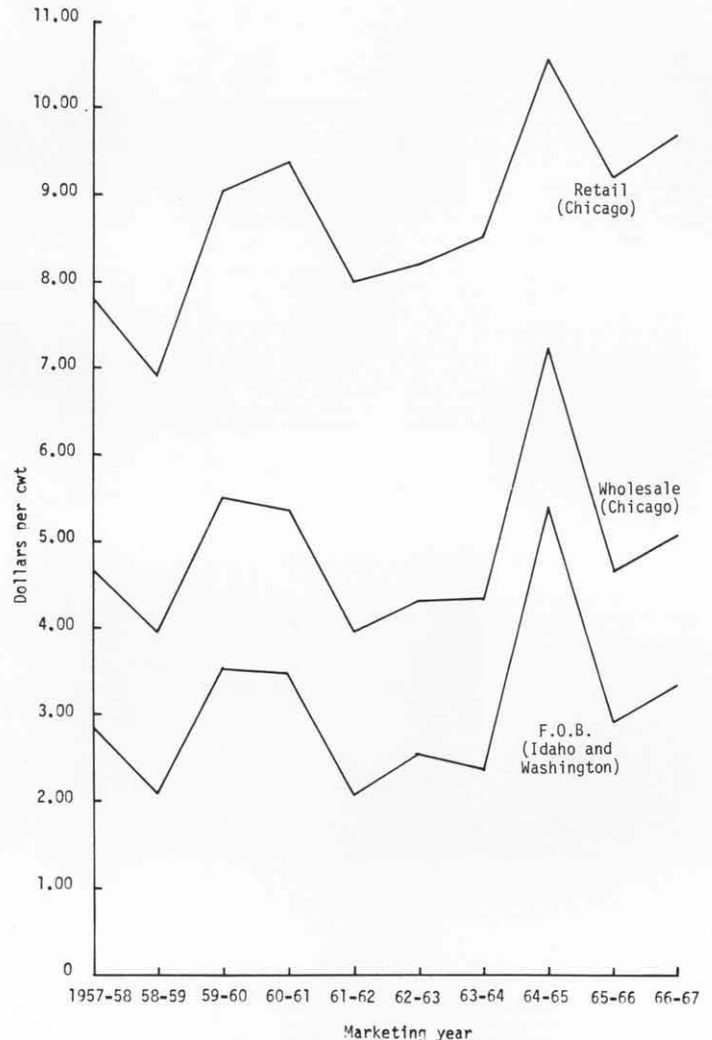


Fig. 23. Season average prices of Western Russet potatoes at various market levels, 1957-58 to 1966-67. (Source: Appendix Table 12.)

The top line in Fig. 23 denotes the average retail price for Western Russet Burbank potatoes in the Chicago area during each marketing season. The second line is the average price for similar potatoes at the wholesale level in Chicago during the same periods. The spread between the wholesale and retail level represents the costs of distribution, warehousing, some additional packaging, and any profits realized by firms performing these services.

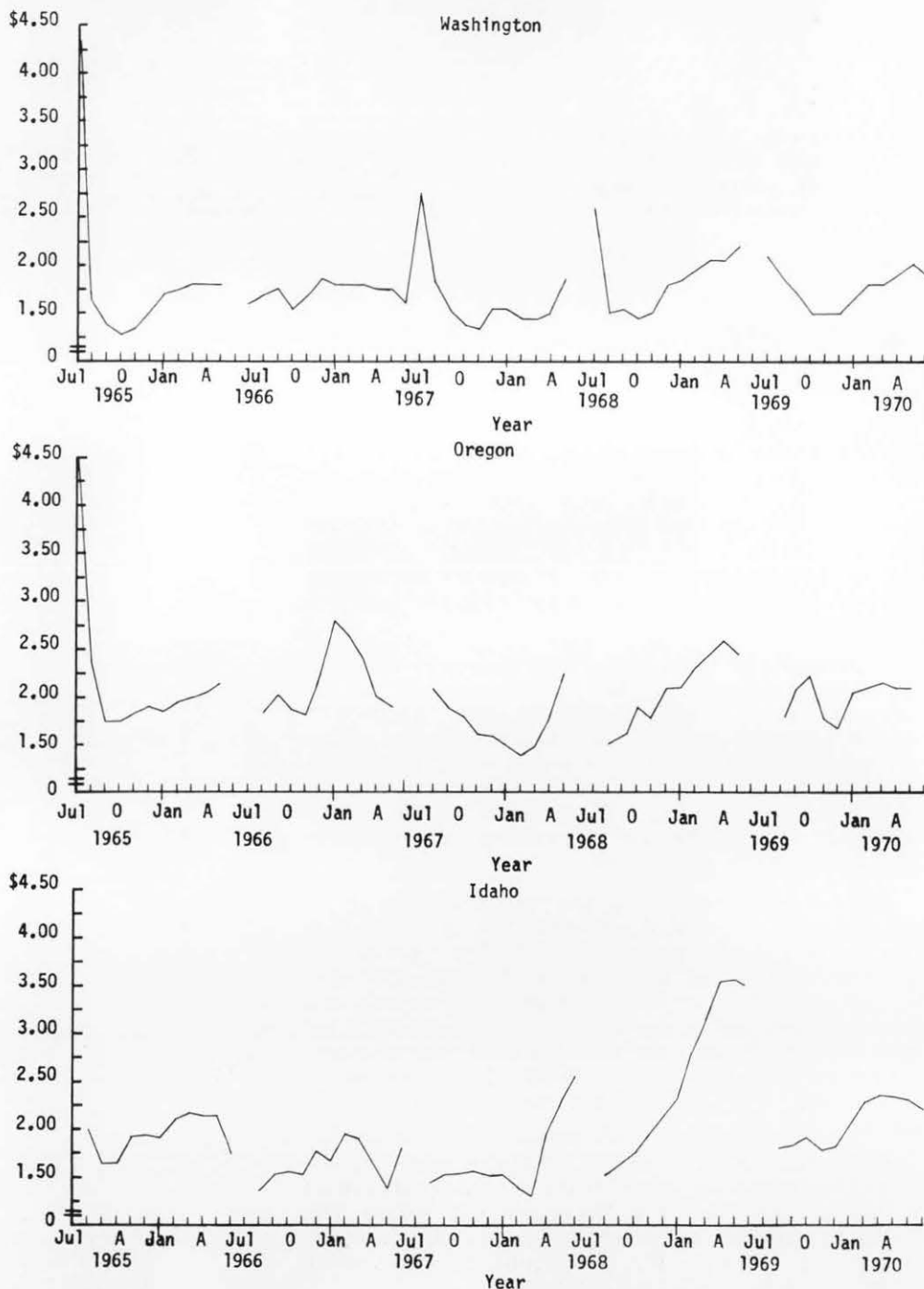
The bottom line in Fig. 23 is the F.O.B. shipping point price for Western Russets. These were primarily Idaho prices although Washington prices were used in a few cases. The F.O.B. price is not a price to the grow-

er, but rather the price received by packer-shippers for U.S. No. 1 potatoes after they had been washed, sorted, packed, and loaded on cars or trucks for shipment. The spread between these prices and wholesale prices is largely a reflection of transportation charges although some profits and services performed by wholesalers must also be covered.

### Intra-seasonal price variation

The prices discussed to this point have been average prices for an entire production and marketing season. Variation is often greater within a given year than between years, as is illustrated by Fig. 24. This shows

Fig. 24. Monthly potato prices received by Northwest farmers, July 1965 to June 1970. (Source: Appendix Table 13.)



the variation in monthly potato prices in the three Northwest states. It is difficult to see a consistent pattern of prices from the scatter of points in these charts.

Monthly prices during a 5-year period were averaged to obtain the data in Fig. 25. Here, a definite pattern becomes apparent for each of the three producing states. Washington normally enters the market earlier than the other states, and the average price received for these early potatoes is relatively high. As harvest spreads throughout the late summer and fall producing areas, prices drop rapidly. Prices on the average are lowest during the harvest season and tend to rise throughout the storage season. This, in turn, reflects the cost of storing potatoes, including the weight and quality losses which occur during the storage period.

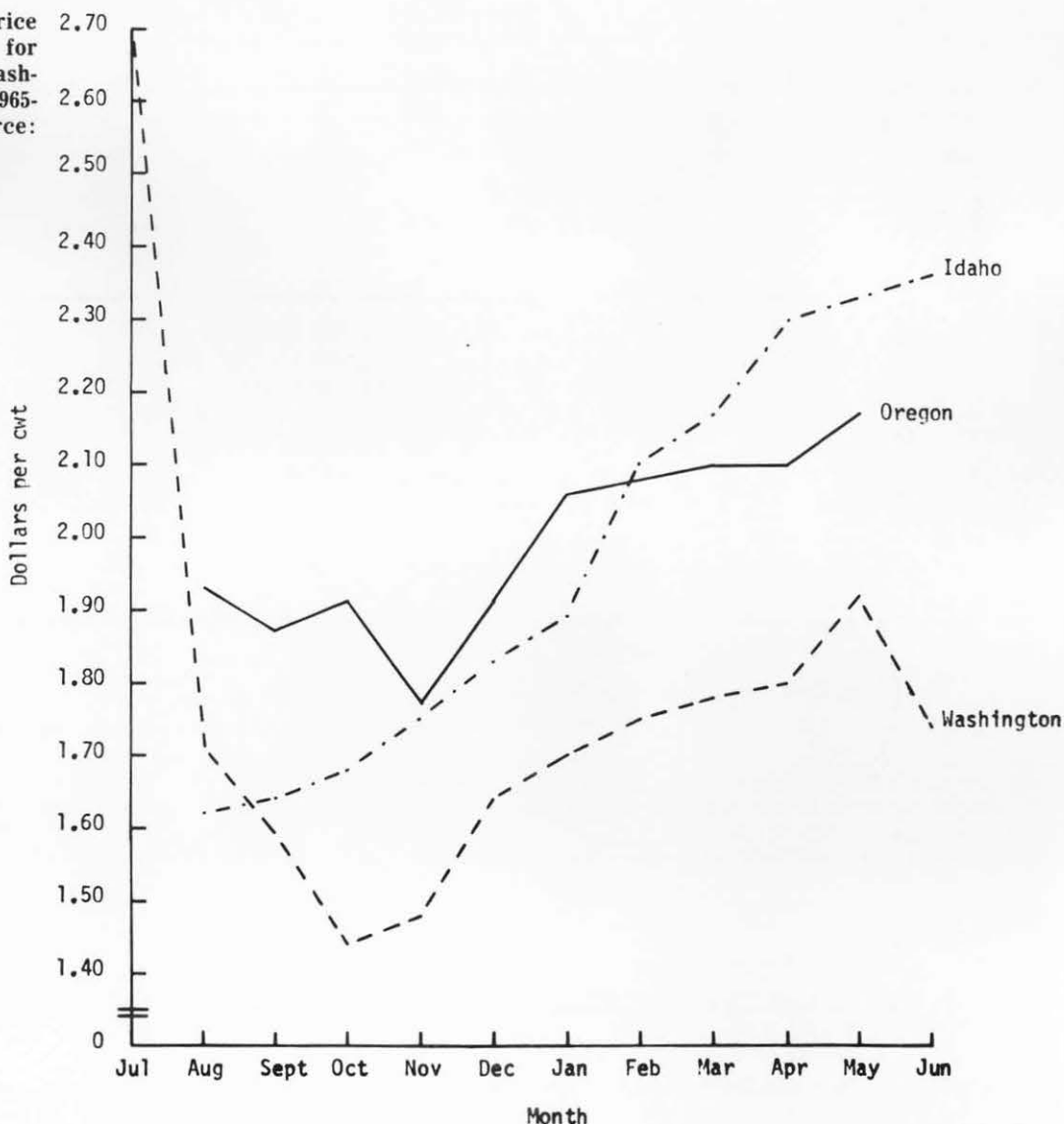
Monthly wholesale prices for potatoes from selected producing areas sold in the Chicago and New York City markets are plotted in Fig. 26. Again, a tremendous amount of variation is apparent. Significant, however, are the price differentials which have his-

torically been associated with fresh market Russet Burbank potatoes from Idaho. These price differentials probably also carry over to other Russet Burbanks and especially to other Northwest Russets.

In the Chicago market, during the fall harvest season and the ensuing storage and marketing period, Idaho potatoes sell at a consistently higher price than Round Red potatoes from the Red River Valley (Minnesota-North Dakota). California potatoes usually come onto the market during the summer months after most storage supplies are exhausted. These prices tend to be high during the early summer and decline rapidly toward late summer as the late potato harvest gets underway.

Similar price patterns exist in the New York City market. Again Idaho Russets are normally sold at substantial premiums over the Katahdins and other Round White varieties. The seasonal variations in prices, including the behavior of California Long White prices, are nearly identical to those in the Chicago market.

Fig. 25. Average monthly price received by farmers for potatoes in Idaho, Washington, and Oregon, 1965-1966 to 1969-70. (Source: Appendix Table 13.)



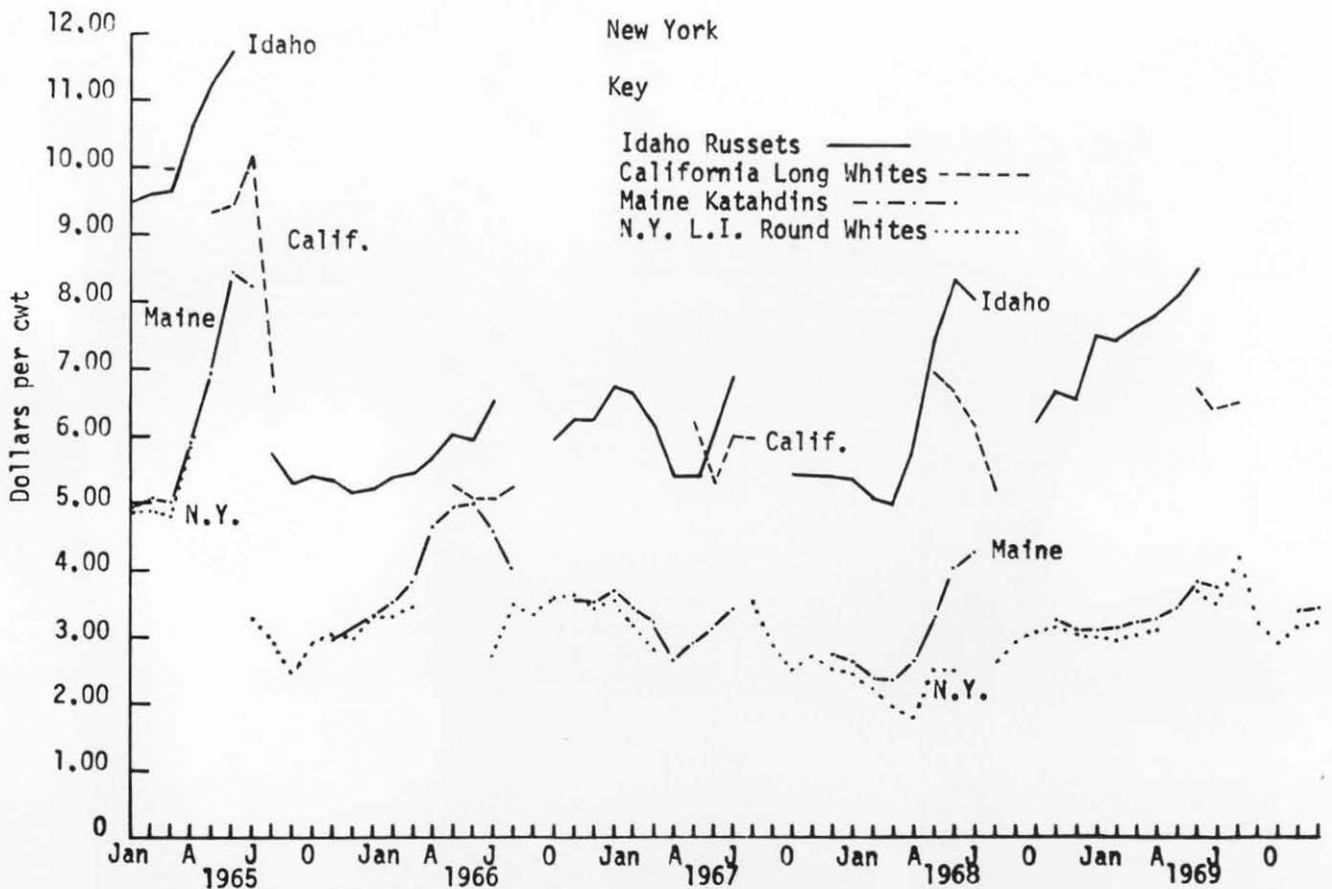
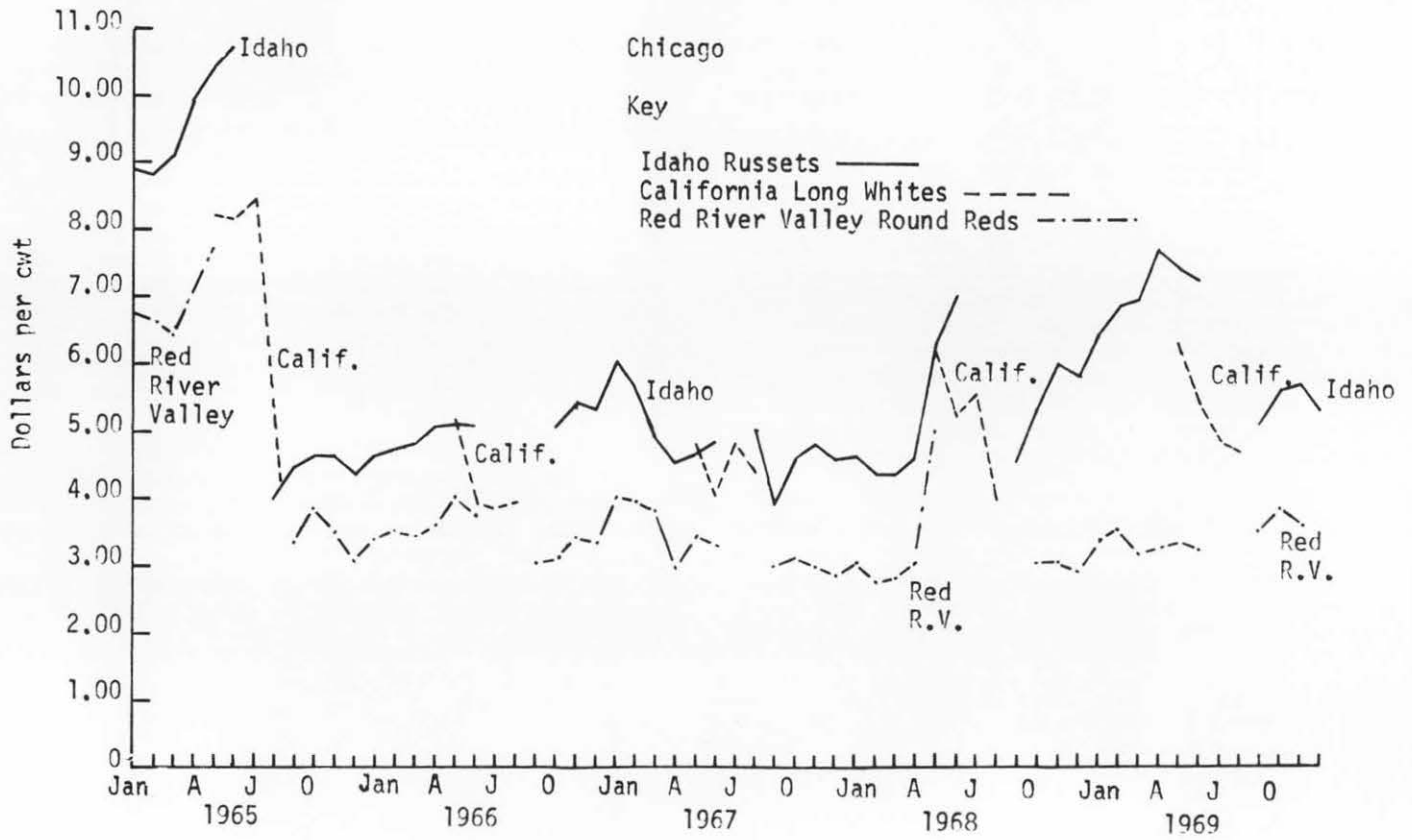


Fig. 26. Monthly wholesale prices of potatoes, Chicago and New York markets, January 1965 to December 1969. (Source: Appendix Tables 14, 15.)



# Economic Value Of Northwest Potato Industries

The preceding sections have been concerned with recent changes in potato production, marketing, and prices, with special reference to Northwest producing areas. Perhaps these changes can best be summarized in terms of their impact on the economies of the individual areas within the region.

Trends in the value of Northwest potato production at the farm level are shown in Fig. 27. The farm value of the crop in Southeast-Southcentral Idaho has exceeded \$120 million per year during the past two seasons with an average rate of growth of \$5.7 million since 1954. The Washington crop was valued at over

\$47 million in 1969 with an average rate of increase of \$2.2 million per year.

Southwest Idaho-Eastern Oregon added an additional \$25 million for the 1969 crop with an average growth rate of \$1.3 million per year. Other Oregon counties accounted for nearly \$19 million last year although the rate of growth in that area has averaged only \$0.4 million per year since 1954.

Thus, the total value of all Northwest potatoes for the 1969 crop year was estimated at about \$215 million. This compares with about \$82 million for the 1954 crop and represents an increase of more than 250%.

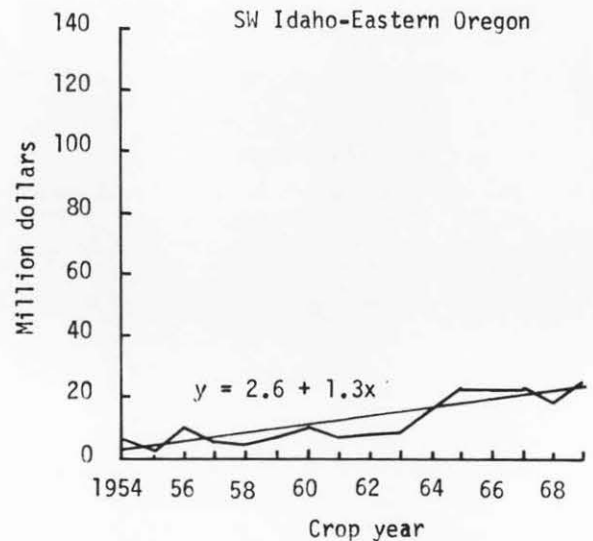
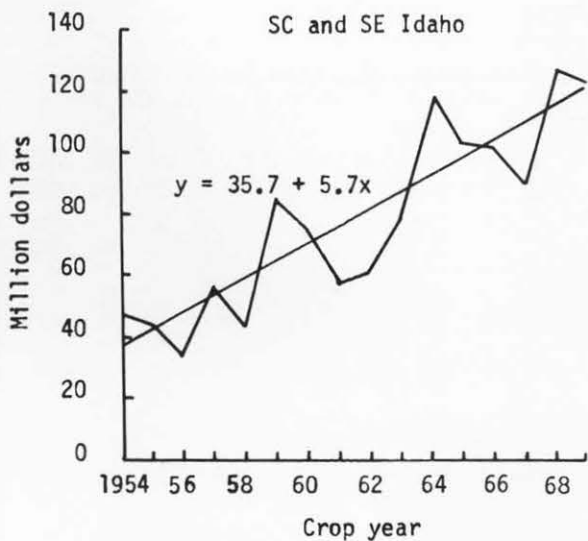
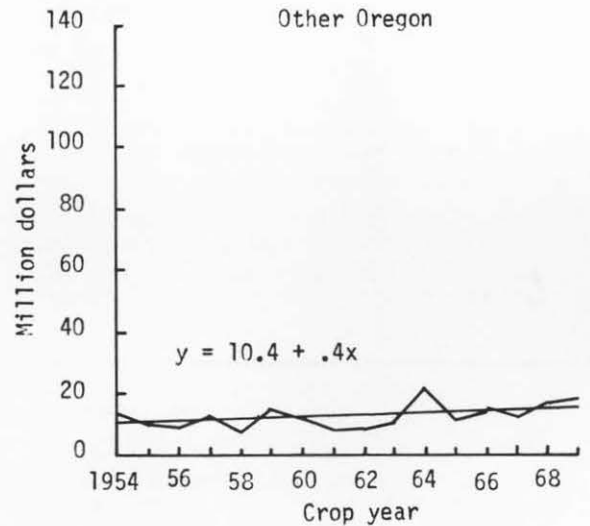
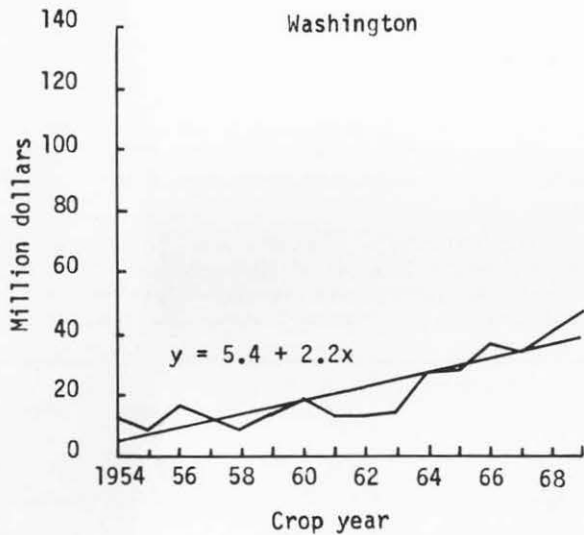


Fig. 27. Value of potato production in the Northwest, 1954-1969. (Source: Appendix Table 16.)

These figures refer only to the value of the potato crop at the farm level. No official estimates are available for the value added to the potato crop beyond the farm level. It is apparent, however, that large amounts of additional state and regional income are generated through processing and marketing activities carried out within the producing areas.

A large share of this income accrues in the form of wages and salaries paid to processing and packing plant employees. Plant construction, equipment purchase and installation, purchases of packaging materials and supplies, payments of state and local taxes, and other expenditures by processing and marketing

firms contribute further to the growth and development of the state and regional economies.

There is no question that the potato industry is extremely important in the three Northwest States. This implies that future developments in this industry will be an important determinant of the general economic conditions in the region, and particularly in those local areas where potato production and marketing activities are centered. By the same token, many individuals and firms, including potato producing and marketing firms, should share in the common interest of maintaining favorable economic conditions in the potato industry.

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Appendix Table 1: Harvested acreage, yield, and production of Northwest potatoes, 1954-70.

Crop year	Harvested acreage				Yield per harvested acre				Production			
	Wash- ington	Other Oregon	SE, SC Idaho	SW Idaho- E. Ore.	Wash- ing- ton	Other Oregon	SE, SC Ida.	SW Idaho- E. Ore.	Wash- ington	Other Oregon	SE, SC Idaho	SW Idaho- E. Ore.
	(acres)				(cwt)				(1,000 cwt)			
1954	30,000	27,000	144,000	20,900	264	220	170	215	7,926	5,940	24,480	4,493
1955	36,000	25,000	160,000	20,700	268	220	195	205	9,630	5,500	31,200	4,243
1956	39,000	27,000	170,000	20,200	262	240	185	227	10,200	6,480	31,450	4,590
1957	36,000	27,000	177,000	19,500	277	250	209	238	9,960	6,750	36,993	4,650
1958	42,000	27,000	202,000	23,800	260	260	213	233	10,920	7,020	43,026	5,542
1959	35,000	19,600	200,000	23,800	276	250	198	246	9,660	5,390	39,600	5,863
1960	35,000	22,500	224,000	23,000	288	215	182	231	10,075	4,838	40,768	5,310
1961	43,000	27,000	262,000	24,800	300	245	210	240	12,890	6,615	55,020	5,964
1962	39,000	26,700	241,000	21,600	301	230	175	253	11,737	6,141	42,175	5,474
1963	35,000	25,000	229,000	21,500	335	270	220	252	11,720	6,750	50,380	5,426
1964	39,000	24,000	222,000	30,100	300	225	154	284	11,685	5,400	34,188	8,535
1965	51,500	25,500	249,000	46,000	351	230	210	276	18,088	5,865	52,290	12,720
1966	58,000	27,000	285,000	49,500	376	245	215	295	21,830	6,615	59,340	14,620
1967	64,000	28,500	273,000	51,500	345	260	200	294	22,090	7,410	54,600	15,142
1968	64,000	30,000	265,000	45,500	378	260	195	265	24,173	7,800	51,675	12,038
1969	71,700	34,000	287,000	45,500	416	260	210	311	29,796	8,840	60,270	14,172
1970	87,000	33,800	293,000	55,000	386	285	220	294	33,590	9,633	64,460	15,975

Source: U.S. Department of Agriculture [11].

Appendix Table 2: U.S. potato production by seasonal groups, 1954-70.

Crop Year	Winter	Early Spring	Late Spring	Early Summer	Late Summer	Fall	Total
1954	3,723	3,829	22,087	11,167	32,646	146,095	219,547
1955	5,175	3,800	23,992	14,001	31,896	148,832	227,696
1956	5,260	4,022	21,840	11,622	35,067	167,981	245,792
1957	6,790	4,408	27,084	11,348	33,108	159,784	242,522
1958	4,971	4,703	23,671	14,007	35,378	184,167	266,897
1959	4,005	3,140	22,124	13,807	34,761	167,435	245,272
1960	3,264	3,489	25,995	14,937	34,348	175,071	257,104
1961	4,967	4,645	26,920	15,908	36,491	204,235	293,166
1962	4,160	3,422	21,150	12,939	28,264	194,875	264,810
1963	3,866	5,152	22,809	12,954	28,182	198,195	271,158
1964	3,691	4,186	19,725	11,716	27,267	174,491	241,076
1965	3,659	4,940	24,224	11,959	29,578	216,809	291,169
1966	5,084	4,924	25,937	13,740	29,430	227,787	306,902
1967	4,894	2,940	23,656	13,980	28,640	231,224	305,334
1968	3,885	5,019	20,450	13,992	29,852	220,786	293,984
1969	3,828	5,687	21,308	13,487	29,118	238,475	311,903
1970	3,582	4,757	21,104	12,972	30,399	252,774	325,588

Source: U.S. Department of Agriculture [11].

Appendix Table 4: Per capita consumption of potatoes, 1960-69.<sup>1</sup>

Year	Per capita consumption						
	Total Fresh and Processed	Fresh	Processed <sup>2</sup>				
			Total	Canned	Frozen	Chips and shoe-strings	Dehy-drated
	(pounds)						
1960	108.4	84.7	23.7	.5	6.6	11.6	5.0
1961	109.4	84.5	24.7	.5	6.8	12.3	5.1
1962	107.2	79.5	27.7	.4	9.4	13.1	4.8
1963	111.2	80.8	30.4	.4	11.0	13.9	5.1
1964	110.8	75.5	35.3	.4	14.6	14.8	5.5
1965	107.5	69.0	38.5	.5	14.2	15.7	8.1
1966	113.3	68.5	44.8	.6	17.3	16.6	10.3
1967	111.1	65.0	46.1	.5	18.9	16.8	9.9
1968 <sup>3</sup>	115.4	66.0	49.4	.6	21.2	17.0	10.6
1969 <sup>3</sup>	118.3	63.4	54.9	.6	24.5	17.7	12.1

<sup>1</sup> U.S. Department of Agriculture

<sup>2</sup> Fresh-weight basis.

<sup>3</sup> Preliminary.





Appendix Table 5: Disposition of Northwest potato crops, 1961-69.

Crop Year	Washington				Oregon - California				Idaho - Eastern Oregon			
	Fresh	Food Processing	Other	Total	Fresh	Food Processing	Other	Total	Fresh	Food Processing	Other	Total
	(1,000 cwt)											
1961	5,147	1,984	5,056	12,187	5,138	485	3,885	9,508	17,731	17,351	11,060	46,142
1962	5,944	2,344	2,180	10,468	5,342	389	2,066	7,797	15,778	17,182	4,436	37,396
1963	5,278	2,305	3,163	10,746	5,670	576	3,597	9,843	16,632	19,792	8,296	44,720
1964	6,291	2,728	1,830	10,849	4,622	648	1,350	6,620	10,148	20,764	2,617	33,529
1965	5,524	9,707	1,702	16,933	5,207	694	2,008	7,909	17,260	31,387	4,900	53,547
1966	6,307	11,601	908	18,816	6,431	605	2,402	9,438	14,812	30,636	8,810	54,258
1967	5,980	11,207	2,348	19,535	6,932	596	2,870	10,398	15,868	32,124	6,790	54,782
1968	7,068	14,273	537	21,878	6,880	580	3,026	10,486	11,440	36,044	5,530	53,014
1969	6,951	19,400	999	27,350	7,118	790	3,276	11,184	12,921	40,089	7,652	60,662

Source: Oregon - California Potato Committee [1].

88 Appendix Table 6: Idaho potato utilization, 1960-69.<sup>1</sup>

Crop Year	Sales					Non-sales			
	Production	Total	Table Stock <sup>2</sup>	Pro-cessed <sup>3</sup>	Other <sup>2,4</sup>	Total	Seed	Feed, Shrink & Loss	Household Use
	(1,000 cwt)								
1960	43,078	38,899	17,168	18,619	3,112	4,179	1,736	2,393	50
1961	57,734	51,379	19,876	24,523	6,980	6,355	1,387	4,907	61
1962	44,919	41,277	17,907	18,765	4,605	3,642	1,008	2,581	53
1963	53,466	49,353	19,784	25,149	4,420	4,113	939	3,125	49
1964	39,698	36,112	11,996	20,800	3,316	3,586	1,621	1,930	35
1965	61,695	55,349	17,406	33,657	4,286	6,346	1,330	4,975	41
1966	70,190	53,668	14,426	35,744	3,498	16,522	1,971	14,512	39
1967	63,900	56,284	15,880	33,176	7,228	7,616	1,332	6,244	40
1968	59,505	52,514	10,995	35,049	6,470	6,991	1,449	5,504	38
1969	69,870	60,919	12,877	41,063	6,979	8,951	1,256	7,661	34

<sup>1</sup>Source: U.S. Department of Agriculture [10].<sup>2</sup>Unofficial estimate.<sup>3</sup>Idaho potatoes processed in Idaho and Malheur County, Oregon.<sup>4</sup>Potatoes sold for seed and livestock feed.

Appendix Table 7: Production and stocks on hand of U.S. fall potatoes and Northwest potatoes, 1954-69.

Crop Year	United States Fall Crop			Washington			Oregon			Idaho		
	Production	Stocks		Production	Stocks		Production	Stocks		Production	Stocks	
		Dec. 1	Mar. 1		Dec. 1	Mar. 1		Dec. 1	Mar. 1		Dec. 1	Mar. 1
(1,000 cwt)												
1954	146,095	103,290	52,230	7,926	1,400	510	8,305	4,100	1,930	26,608	17,700	9,200
1955	148,832	104,050	47,630	9,630	1,650	590	7,755	4,050	1,580	33,188	22,800	11,200
1956	167,981	118,650	58,880	10,200	2,090	700	8,790	4,800	2,300	33,730	22,500	12,400
1957	159,784	110,615	53,150	9,960	2,350	860	9,375	4,700	1,950	39,018	27,200	14,300
1958	184,167	129,630	61,480	10,920	2,050	980	10,020	4,950	2,200	45,568	31,200	16,400
1959	167,435	118,560	58,175	9,660	1,710	775	8,680	3,900	2,000	42,408	28,800	14,700
1960	175,071	122,740	62,645	10,838	2,150	930	7,838	2,950	1,450	43,078	30,000	16,200
1961	204,235	145,020	72,960	12,890	3,100	950	9,865	4,400	1,900	57,734	41,200	23,900
1962	194,875	135,745	70,250	11,737	3,600	1,250	8,871	5,700	2,900	44,919	31,000	16,900
1963	198,185	136,995	67,280	11,720	3,300	1,050	9,090	6,100	2,650	53,466	37,300	18,700
1964	174,491	114,550	54,535	11,685	2,450	700	8,425	4,700	2,150	39,698	25,800	12,800
1965	216,809	147,070	74,605	18,088	7,050	2,950	9,180	5,400	2,650	61,695	42,500	24,700
1966	227,787	152,640	79,517	21,830	8,300	3,950	10,385	5,600	2,650	70,190	45,700	23,900
1967	231,224	161,710	86,465	22,090	10,660	4,400	13,252	6,800	3,250	63,900	45,500	26,600
1968	220,786	152,900	81,905	24,173	10,430	5,100	12,008	6,200	3,000	59,505	41,100	22,700
1969	238,475	162,505	87,350	29,796	15,300	7,800	13,412	7,000	3,500	69,870	48,700	29,500

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Source: U.S. Department of Agriculture [11].

Appendix Table 8: Monthly average fresh potatoes shipments - marketing years 1965-66 - 1969-70.

Producing area	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
	(carlot equivalents)											
Washington	872	3,938	3,565	1,981	821	620	597	476	424	296	198	39
Oregon	88	804	640	1,030	1,151	1,100	1,103	914	1,112	1,165	840	151
Idaho	49	264	895	2,149	3,158	3,218	3,769	3,164	3,807	4,046	3,099	842
Colorado	274	1,114	1,672	2,108	1,503	1,588	1,741	1,579	1,620	1,641	951	111
California	9,358	2,750	1,672	1,320	1,534	1,781	1,710	1,557	1,935	2,105	6,929	13,210
North Dakota - Minnesota	2	129	812	1,752	2,334	2,717	3,084	3,362	3,889	2,357	801	55
Maine	177	17	114	390	1,639	2,235	3,209	3,594	6,155	6,592	4,225	1,153
Virginia	3,554	535	32	-	-	-	-	-	-	-	-	156
North Carolina	892	-	-	-	-	-	-	-	-	-	-	1,538
New York - Long Island	234	1,402	2,455	2,746	2,523	2,179	-	-	-	-	-	188
Other areas	3,902	3,620	11,857	2,736	1,992	1,666	3,928	3,278	3,711	4,044	8,751	7,194
Total U.S.	19,402	14,573	15,024	16,212	16,655	17,104	19,141	17,924	22,653	22,246	25,794	24,637

Source: U.S. Department of Agriculture [5].





Appendix Table 12: Season average price of western Russet potatoes, Chicago, 1957-58 to 1966-67.<sup>1</sup>

Year	Retail Price	Wholesale Price	F.O.B. <sup>2</sup> Price
1957-58	7.79	4.66	2.84
1958-59	6.88	3.92	2.09
1959-60	9.05	5.51	3.54
1960-61	9.37	5.37	3.47
1961-62	8.00	3.96	2.07
1962-63	8.19	4.31	2.54
1963-64	8.52	4.34	2.39
1964-65	10.59	7.24	5.41
1965-66	9.22	4.68	2.93
1966-67	9.70	5.09	3.34

<sup>1</sup>U.S. Department of Agriculture [7] and [8].

<sup>2</sup>Primarily Idaho.

Appendix Table 13: Monthly potato prices received by Northwest farmers, July 1965 - June 1970.

State and Marketing year	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
	(dollars per cwt)											
<b>Washington</b>												
1965 - 66	4.35	1.65	1.40	1.30	1.35	1.50	1.70	1.75	1.80	1.80	1.80	-
1966 - 67	1.60	1.70	1.75	1.55	1.70	1.85	1.80	1.80	1.80	1.75	1.75	1.60
1967 - 68	2.75	1.85	1.55	1.40	1.35	1.55	1.55	1.45	1.45	1.50	1.85	-
1968 - 69	2.60	1.50	1.55	1.45	1.50	1.80	1.80	1.95	2.05	2.05	2.20	-
1969 - 70	2.10	1.85	1.70	1.50	1.50	1.50	1.65	1.80	1.80	1.90	2.00	1.90
<b>Oregon</b>												
1965 - 66	4.50	2.41	1.75	1.75	1.84	1.90	1.85	1.95	2.00	2.05	2.15	-
1966 - 67	-	1.85	2.03	1.87	1.84	2.25	2.80	2.65	2.40	2.00	1.90	-
1967 - 68	-	2.09	1.90	1.80	1.62	1.60	1.50	1.40	1.50	1.75	2.25	-
1968 - 69	-	1.51	1.62	1.89	1.78	2.10	2.10	2.30	2.45	2.60	2.45	-
1969 - 70	-	1.80	2.06	2.23	1.76	1.68	2.05	2.10	2.15	2.10	2.10	-
<b>Idaho</b>												
1965 - 66	-	2.00	1.65	1.66	1.92	1.95	1.92	2.11	2.18	2.14	2.15	1.75
1966 - 67	-	1.35	1.53	1.55	1.54	1.77	1.67	1.95	1.90	1.62	1.37	1.80
1967 - 68	-	1.45	1.52	1.53	1.56	1.51	1.52	1.39	1.30	1.88	2.30	2.55
1968 - 69	-	1.50	1.64	1.74	1.93	2.12	2.31	2.80	3.13	3.52	3.55	3.50
1969 - 70	-	1.80	1.84	1.90	1.79	1.81	2.05	2.26	2.35	2.33	2.30	2.20

Source: U.S. Department of Agriculture [9].

Appendix Table 14: Monthly wholesale prices of potatoes, Chicago, January 1965 - December 1969.

State and variety	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
(Dollars per cwt)												
<b>Idaho Russet Burbanks</b>												
1965	8.91	8.84	9.11	9.96	10.45	10.75	-	4.00	4.47	4.66	4.64	4.39
1966	4.62	4.75	4.83	5.08	5.12	5.08	-	-	-	5.07	5.45	5.35
1967	6.01	5.62	4.98	4.52	4.66	4.84	-	5.00	3.92	4.64	4.82	4.60
1968	4.62	4.38	4.38	4.62	6.25	7.25	-	-	4.55	5.35	6.00	5.38
1969	6.46	6.68	6.92	7.70	7.42	7.28	-	-	5.10	5.62	5.70	5.31
<b>California Long Whites</b>												
1965	-	-	-	-	8.21	8.16	8.49	4.25	-	-	-	-
1966	-	-	-	-	5.13	3.94	3.85	3.94	-	-	-	-
1967	-	-	-	-	4.82	4.06	4.80	4.41	-	-	-	-
1968	-	-	-	-	6.20	5.24	5.59	4.00	-	-	-	-
1969	-	-	-	-	6.30	5.48	4.84	4.70	-	-	-	-
<b>Red River Valley Round Reds</b>												
1965	6.78	6.65	6.42	7.10	7.71	-	-	-	3.35	3.84	3.50	3.06
1966	3.40	3.51	3.44	3.60	4.05	3.75	-	-	3.05	3.11	3.44	3.38
1967	4.02	3.95	3.84	2.94	3.48	3.30	-	-	3.00	3.11	3.00	2.88
1968	3.01	2.76	2.86	3.04	5.08	-	-	-	-	3.08	3.05	2.93
1969	3.40	3.59	3.20	3.25	3.35	3.25	-	-	3.52	3.92	3.98	3.61

Source: U.S. Department of Agriculture [4].

Appendix Table 15: Monthly wholesale prices of potatoes, New York, January 1965 - December 1969.

State and variety	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
(\$/100 lb. sack)												
<b>Idaho Russet Burbanks</b>												
1965	9.50	9.60	9.64	10.62	11.30	11.70	-	5.78	5.30	5.40	5.32	5.16
1966	5.20	5.40	5.46	5.70	6.00	5.96	6.50	-	-	5.96	6.28	6.24
1967	6.74	6.64	6.10	5.40	5.40	6.04	6.84	-	-	5.42	5.40	5.40
1968	5.34	5.04	4.98	5.72	7.40	8.36	8.00	-	-	6.20	6.64	6.52
1969	7.50	7.42	7.64	7.80	8.10	8.50	-	-	-	6.30	6.50	6.32
<b>California Long Whites</b>												
1965	-	-	10.00	-	9.36	9.44	10.20	6.68	-	-	-	-
1966	-	-	-	-	5.24	5.02	5.02	5.24	-	-	-	-
1967	-	-	-	-	6.22	5.24	6.00	5.96	-	-	-	-
1968	-	-	-	-	6.96	6.64	6.12	5.16	-	-	-	-
1969	-	-	-	-	-	6.70	6.40	6.50	-	-	-	-
<b>Maine Katahdins</b>												
1965	4.92	5.08	5.04	5.92	6.94	8.44	8.76	-	-	-	3.00	3.02
1966	3.34	3.52	3.86	4.62	4.92	5.00	4.58	4.00	-	-	3.58	3.52
1967	3.70	3.42	3.22	2.68	2.96	3.16	3.48	-	-	-	-	2.76
1968	2.68	2.40	2.38	2.68	3.28	4.04	4.28	-	-	-	3.18	3.10
1969	3.10	3.16	3.22	3.28	3.42	3.84	3.78	-	-	-	3.40	3.44
<b>New York L.I. Round Whites</b>												
1965	4.82	4.90	4.80	6.00	-	-	3.30	2.94	2.42	2.92	3.08	3.00
1966	3.32	3.36	3.48	-	-	-	2.70	3.50	3.36	3.60	3.64	3.48
1967	3.56	3.20	2.84	-	-	-	-	3.56	2.82	2.50	2.72	2.50
1968	2.48	2.24	1.98	1.80	2.50	2.50	-	2.60	2.98	3.02	3.16	3.06
1969	3.00	2.96	3.08	3.10	-	3.70	3.50	4.20	3.20	2.90	3.18	3.24

Source: U.S. Department of Agriculture [4].

Appendix Table 16: Value of potato production in the Northwest, 1954-69.

Crop Year	Wash- ington	Other Oregon	SE, SC Idaho	SW Idaho- E. Oregon
	(1,000 dollars)			
1954	13,361	14,256	47,002	7,392
1955	9,630	11,220	44,304	3,530
1956	16,038	9,850	34,910	10,517
1957	13,398	12,758	56,599	6,269
1958	9,887	8,915	43,456	5,253
1959	14,389	14,512	85,140	7,387
1960	18,996	12,627	75,013	10,568
1961	12,642	8,533	57,771	7,032
1962	13,691	9,273	62,419	7,965
1963	14,968	11,504	78,089	8,683
1964	27,795	21,492	119,316	14,798
1965	28,709	11,378	103,534	22,706
1966	36,878	14,421	102,658	22,159
1967	34,130	12,523	90,636	22,815
1968	40,377	17,160	127,121	18,840
1969	47,286	18,829	123,554	25,418

Source: U.S. Department of Agriculture [11].