

## **SIZING UP THE MARKET WINDS**

*by Russell Tronstad<sup>1</sup>*

*"Knowing what's happening in the marketplace is the difference between the farmer who makes it and the farmer who doesn't make it"*

— specialty vegetable grower  
Don Anderson, Santa Cruz, CA.

**F**arming in the 90s could be compared to hang gliding. The best hang glider skills in the world may not be enough to keep from crashing in a down draft. Also, strapping an individual into a top-of-the-line hang gliding harness that has had no instruction or training would likely bring tragedy, even if the wind currents are perfect. A successful hang glider is one that can assess good wind conditions before "take-off" and have the technical skills to glide for an enjoyable long safe flight. Similarly, mastering the best production techniques doesn't guarantee that your direct marketing operation will be a success. Just as good hang gliding skills are a valuable asset for avoiding disaster, they are by no means a guarantee for a safe flight. Having the technical skills to grow a beautiful looking and sweet tasting crop is no guarantee that you will make a profit or even "break-even." In fact, thunderstorm winds combined with the best hang gliding skills in the world often results in disaster. Market analysis could be likened to a hang glider assessing wind currents. That is, dynamic supply and demand relation-

ships determine what the "wind currents" will be and much like the wind, these relationships are not always well understood or easy to predict. This section outlines some general considerations for better understanding some of the fundamental supply and demand relationships. First, some general consumer and industry trends are summarized.

### **Consumer and Industry Trends**

General market trends are always a consideration even for the direct marketer. Consumer's food preferences can change over time and it is important to consider what changes might be more perception than reality. Per capita consumption patterns for wholesale fruits and vegetables are given below to analyze these changes. Although the numbers shown represent wholesale shipments and don't include direct marketing figures, they give a good synopsis for what is happening with consumers. Virtually all direct marketing customers are reflected in these wholesale figures. Per Capita consumption patterns are also useful for calculating what your potential market may be. Some herb crops are consumed in such small quantities that an additional 2 acres of production could double the US supply. Be conservative on estimating how many visitors and customers you can attract when starting out.

Table 1 gives the annual fresh fruit consumption estimates of the US from 1970 through 1992. Total per capita fresh fruit consumption has increased 19.42 lbs. since 1970 with an average annual increase of 1.09%. Not all fruits have increased consumption though. Total fresh citrus has actually declined by .3% during this period. However, grapefruit was the only citrus category with a negative consumption pattern. Limes posted a 9.02% annual increase. Thus, when looking at trends commodity specific data needs to be analyzed. Consumption pat-

**Table 1. U.S. Per Capita Fresh Fruit Consumption, 1970 to 1992.**

| Year   | Citrus fruit |                             |                    |              |        |                 | Total<br>5/<br>--Pounds-- | Noncitrus fruit        |                   |                                |                                |                      |                  |              |
|--|--------------|-----------------------------|--------------------|--------------|--------|-----------------|---------------------------|------------------------|-------------------|--------------------------------|--------------------------------|----------------------|------------------|--------------|
|  | Oranges      | Tange-<br>rines             | Tan-<br>gelos      | Lemons       | Limes  | Grape-<br>fruit |                           | Apples                 | Apri-<br>cots     | Avo-<br>cados                  | Bananas                        | Cher-<br>ries        | Cran-<br>berries |              |
| 1970   | 16.16        | 1.60                        | 0.61               | 2.04         | 0.19   | 8.18            | <b>28.78</b>              | 17.02                  | 0.12              | 0.44                           | 17.38                          | 0.50                 | 0.18             |              |
| 1971   | 15.72        | 1.78                        | 0.70               | 2.24         | 0.18   | 8.52            | <b>29.14</b>              | 16.42                  | 0.13              | 0.83                           | 18.06                          | 0.67                 | 0.19             |              |
| 1972   | 14.48        | 1.63                        | 0.73               | 1.86         | 0.22   | 8.53            | <b>27.45</b>              | 15.53                  | 0.08              | 0.44                           | 17.92                          | 0.38                 | 0.15             |              |
| 1973   | 14.44        | 1.69                        | 0.61               | 1.93         | 0.22   | 8.54            | <b>27.43</b>              | 16.13                  | 0.09              | 0.83                           | 18.16                          | 0.73                 | 0.19             |              |
| 1974   | 14.42        | 1.88                        | 0.67               | 2.00         | 0.22   | 8.21            | <b>27.40</b>              | 16.40                  | 0.06              | 0.68                           | 18.49                          | 0.58                 | 0.15             |              |
| 1975   | 15.88        | 2.00                        | 0.99               | 1.95         | 0.24   | 8.32            | <b>29.38</b>              | 19.49                  | 0.08              | 1.16                           | 17.64                          | 0.69                 | 0.14             |              |
| 1976   | 14.74        | 1.98                        | 0.93               | 1.90         | 0.25   | 9.24            | <b>29.04</b>              | 17.08                  | 0.10              | 0.79                           | 19.25                          | 0.82                 | 0.19             |              |
| 1977   | 13.44        | 1.84                        | 0.94               | 2.10         | 0.25   | 7.70            | <b>26.27</b>              | 16.52                  | 0.09              | 1.27                           | 19.21                          | 0.63                 | 0.18             |              |
| 1978   | 13.45        | 1.62                        | 0.81               | 2.12         | 0.24   | 8.32            | <b>26.56</b>              | 17.95                  | 0.07              | 1.01                           | 20.19                          | 0.53                 | 0.18             |              |
| 1979   | 12.61        | 1.75                        | 0.68               | 1.90         | 0.25   | 7.26            | <b>24.45</b>              | 17.14                  | 0.08              | 1.22                           | 20.98                          | 0.68                 | 0.13             |              |
| 1980   | 14.32        | 2.10                        | 0.71               | 1.91         | 0.38   | 7.27            | <b>26.69</b>              | 19.20                  | 0.10              | 0.82                           | 20.82                          | 0.68                 | 0.14             |              |
| 1981   | 12.37        | 1.33                        | 0.81               | 2.00         | 0.39   | 6.63            | <b>23.53</b>              | 16.85                  | 0.10              | 2.13                           | 21.48                          | 0.53                 | 0.21             |              |
| 1982   | 11.70        | 1.38                        | 0.69               | 2.06         | 0.39   | 7.19            | <b>23.41</b>              | 17.54                  | 0.08              | 1.47                           | 22.54                          | 0.52                 | 0.21             |              |
| 1983   | 15.03        | 1.52                        | 0.73               | 2.31         | 0.59   | 7.80            | <b>27.98</b>              | 18.27                  | 0.08              | 1.91                           | 21.25                          | 0.73                 | 0.14             |              |
| 1984   | 11.86        | 1.46                        | 0.61               | 2.14         | 0.55   | 5.96            | <b>22.58</b>              | 18.35                  | 0.13              | 2.17                           | 22.18                          | 0.71                 | 0.13             |              |
| 1985   | 11.59        | 0.96                        | 0.55               | 2.29         | 0.65   | 5.51            | <b>21.55</b>              | 17.26                  | 0.16              | 1.84                           | 23.48                          | 0.42                 | 0.13             |              |
| 1986   | 13.43        | 1.10                        | 0.50               | 2.46         | 0.69   | 6.13            | <b>24.31</b>              | 17.84                  | 0.10              | 1.54                           | 25.82                          | 0.48                 | 0.14             |              |
| 1987   | 12.81        | 1.29                        | 0.49               | 2.47         | 0.62   | 6.31            | <b>23.99</b>              | 20.83                  | 0.08              | 2.31                           | 25.01                          | 0.71                 | 0.13             |              |
| 1988   | 13.90        | 1.26                        | 0.51               | 2.46         | 0.65   | 6.65            | <b>25.43</b>              | 19.98                  | 0.16              | 1.60                           | 24.28                          | 0.52                 | 0.11             |              |
| 1989   | 12.58        | 1.29                        | 0.49               | 2.49         | 0.78   | 7.50            | <b>25.13</b>              | 21.48                  | 0.10              | 1.41                           | 24.71                          | 0.64                 | 0.20             |              |
| 1990   | 12.41        | 0.95                        | 0.40               | 2.59         | 0.71   | 5.04            | <b>22.10</b>              | 19.91                  | 0.16              | 1.23                           | 24.36                          | 0.42                 | 0.24             |              |
| 1991   | 8.34         | 1.00                        | 0.42               | 2.64         | 0.75   | 6.77            | <b>19.92</b>              | 18.74                  | 0.13              | 1.43                           | 25.27                          | 0.41                 | 0.26             |              |
| 1992 /6  | 12.90        | 1.40                        | 0.50               | 2.50         | 1.00   | 5.90            | <b>24.20</b>              | 19.30                  | 0.20              | 2.10                           | 27.30                          | 0.50                 | 0.30             |              |
| Average Annual   |              |                             |                    |              |        |                 |                           |                        |                   |                                |                                |                      |                  |              |
| % Change   | 0.33%        | 1.00%                       | 0.15%              | 1.16%        | 9.02%  | -0.47%          | <b>-0.30%</b>             | 0.90%                  | 8.19%             | 17.17%                         | 2.16%                          | 4.81%                | 5.18%            |              |
| Noncitrus-continued  |              |                             |                    |              |        |                 |                           |                        |                   |                                |                                |                      |                  |              |
| Year   | Figs         | Kiwi-<br>Grapes<br>fruit 2/ | Nectari-<br>nes 3/ | Peach-<br>es | Pears  | Pine-<br>apples | Papayas                   | Plums<br>and<br>prunes | Straw-<br>berries | Miscel-<br>laneous<br>fruit 4/ | Total<br>non-<br>Citrus<br>5 / | Total<br>fruit<br>5/ |                  |              |
|  |              |                             |                    |              |        |                 |                           |                        |                   |                                |                                |                      | --Pounds--       |              |
| 1970   | 0.01         | 2.50                        | N.A.               | 0.05         | 0.58   | 5.82            | 1.90                      | 0.70                   | 0.12              | 1.47                           | 1.73                           | 0.09                 | <b>50.61</b>     | <b>79.39</b> |
| 1971   | 0.01         | 2.23                        | N.A.               | 0.07         | 0.61   | 5.66            | 2.54                      | 0.64                   | 0.10              | 1.28                           | 1.83                           | 0.09                 | <b>51.36</b>     | <b>80.50</b> |
| 1972   | 0.03         | 2.22                        | N.A.               | 0.07         | 0.82   | 3.88            | 2.28                      | 0.78                   | 0.11              | 1.08                           | 1.67                           | 0.08                 | <b>47.52</b>     | <b>74.97</b> |
| 1973   | 0.04         | 2.68                        | N.A.               | 0.10         | 0.72   | 4.26            | 2.57                      | 0.92                   | 0.14              | 1.14                           | 1.58                           | 0.08                 | <b>50.36</b>     | <b>77.79</b> |
| 1974   | 0.05         | 2.85                        | N.A.               | 0.11         | 0.95   | 4.34            | 2.48                      | 0.90                   | 0.16              | 1.50                           | 1.83                           | 0.09                 | <b>51.62</b>     | <b>79.02</b> |
| 1975   | 0.03         | 3.20                        | N.A.               | 0.15         | 0.89   | 4.98            | 2.74                      | 1.03                   | 0.16              | 1.33                           | 1.80                           | 0.09                 | <b>55.60</b>     | <b>84.98</b> |
| 1976   | 0.02         | 3.23                        | N.A.               | 0.16         | 1.00   | 5.14            | 2.84                      | 1.15                   | 0.20              | 1.25                           | 1.66                           | 0.07                 | <b>54.95</b>     | <b>83.99</b> |
| 1977   | 0.03         | 3.17                        | N.A.               | 0.13         | 1.25   | 5.09            | 2.38                      | 1.36                   | 0.25              | 1.55                           | 1.91                           | 0.04                 | <b>55.06</b>     | <b>81.33</b> |
| 1978   | 0.03         | 2.79                        | N.A.               | 0.14         | -      | 6.10            | 2.30                      | 1.44                   | 0.25              | 1.54                           | 2.12                           | 0.02                 | <b>56.66</b>     | <b>83.22</b> |
| 1979   | 0.03         | 3.13                        | N.A.               | 0.19         | -      | 6.67            | 2.30                      | 1.46                   | 0.17              | 1.63                           | 1.90                           | 0.01                 | <b>57.72</b>     | <b>82.17</b> |
| 1980   | 0.02         | 3.47                        | N.A.               | 0.23         | -      | 7.10            | 2.61                      | 1.50                   | 0.21              | 1.54                           | 1.97                           | 0.07                 | <b>60.48</b>     | <b>87.17</b> |
| 1981   | 0.01         | 3.74                        | N.A.               | 0.22         | -      | 6.87            | 2.82                      | 1.56                   | 0.26              | 1.71                           | 2.17                           | 0.10                 | <b>60.76</b>     | <b>84.29</b> |
| 1982   | 0.01         | 5.72                        | N.A.               | 0.31         | -      | 5.35            | 2.85                      | 1.66                   | 0.16              | 1.07                           | 2.37                           | 0.15                 | <b>62.01</b>     | <b>85.42</b> |
| 1983   | 0.01         | 5.59                        | 0.02               | 0.44         | -      | 5.43            | 2.99                      | 1.68                   | 0.18              | 1.41                           | 2.32                           | 0.10                 | <b>62.55</b>     | <b>90.53</b> |
| 1984   | 0.02         | 6.09                        | 0.15               | 0.39         | -      | 6.70            | 2.54                      | 1.51                   | 0.26              | 1.84                           | 2.96                           | 0.18                 | <b>66.31</b>     | <b>88.89</b> |
| 1985   | 0.01         | 6.84                        | 0.18               | 0.40         | -      | 5.49            | 2.79                      | 1.48                   | 0.18              | 1.43                           | 2.99                           | 0.18                 | <b>65.26</b>     | <b>86.81</b> |
| 1986   | 0.01         | 7.10                        | 0.21               | 0.48         | -      | 5.84            | 2.97                      | 1.73                   | 0.18              | 1.29                           | 2.89                           | 0.14                 | <b>68.76</b>     | <b>93.07</b> |
| 1987   | 0.01         | 7.05                        | 0.28               | 0.55         | -      | 6.05            | 3.51                      | 1.63                   | 0.19              | 1.91                           | 3.11                           | 0.14                 | <b>73.50</b>     | <b>97.49</b> |
| 1988   | 0.01         | 7.78                        | 0.27               | 0.37         | -      | 6.58            | 3.26                      | 1.76                   | 0.16              | 1.72                           | 3.33                           | 0.07                 | <b>71.96</b>     | <b>97.39</b> |
| 1989   | 0.01         | 7.96                        | 0.39               | 0.40         | -      | 5.68            | 3.29                      | 1.96                   | 0.15              | 1.77                           | 3.28                           | 0.21                 | <b>73.64</b>     | <b>98.77</b> |
| 1990   | 0.01         | 7.96                        | 0.48               | N.A.         | -      | 5.52            | 3.20                      | 2.05                   | 0.18              | 1.50                           | 3.25                           | N.A.                 | <b>70.47</b>     | <b>92.57</b> |
| 1991   | 0.01         | 7.28                        | 0.41               | N.A.         | -      | 6.26            | 3.30                      | 1.92                   | 0.17              | 1.48                           | 3.60                           | N.A.                 | <b>70.67</b>     | <b>90.59</b> |
| 1992 /6  | 0.01         | 7.20                        | 0.50               | 0.70         | -      | 5.90            | 3.10                      | 2.00                   | 0.20              | 1.80                           | 3.50                           | N.A.                 | <b>74.61</b>     | <b>98.81</b> |
| Average Annual   |              |                             |                    |              |        |                 |                           |                        |                   |                                |                                |                      |                  |              |
| % Change   | 9.17%        | 5.64%                       | 17.66%             | 13.75%       | 12.91% | 0.97%           | 2.83%                     | 5.26%                  | 4.71%             | 2.94%                          | 3.65%                          | 37.03%               | <b>1.85%</b>     | <b>1.09%</b> |
| N.A.= Not available.   |              |                             |                    |              |        |                 |                           |                        |                   |                                |                                |                      |                  |              |
| 1/ All data are on calendar-year basis except for citrus fruits, October or November; apples, August; grapes and pears, July; prior to years indicated. 2/ Reported separately beginning 1983. 3/ Included in peaches beginning 1978. 4/ Includes olives, persimmons, pomegranates (until 1990), kiwifruit (until 1983), and other fruit. 5/ Some figures may not add due to rounding. 6/ Preliminary. |              |                             |                    |              |        |                 |                           |                        |                   |                                |                                |                      |                  |              |
| Source: Commodity Economics Division, ERS, USDA.   |              |                             |                    |              |        |                 |                           |                        |                   |                                |                                |                      |                  |              |

terns for many fresh fruits also coincide with seasonal production. For example, fresh strawberries have a limited shelf life and more than 50 percent of their annual consumption is during the two months of April and June (Brown and Suarez). Strawberry prices are at their low point of the year during these two months as well. Seasonal factors are often present in produce and tourism data and great care should be taken at analyzing seasonal impacts for your location. Market window analysis focuses on taking advantage of seasonal price opportunities.

those between 18 and 29 years of age, have increased their fruit and vegetable consumption more than other age groups. Seniors, those in the 60+ age group, appear to be stable purchasers of fruits and vegetables.

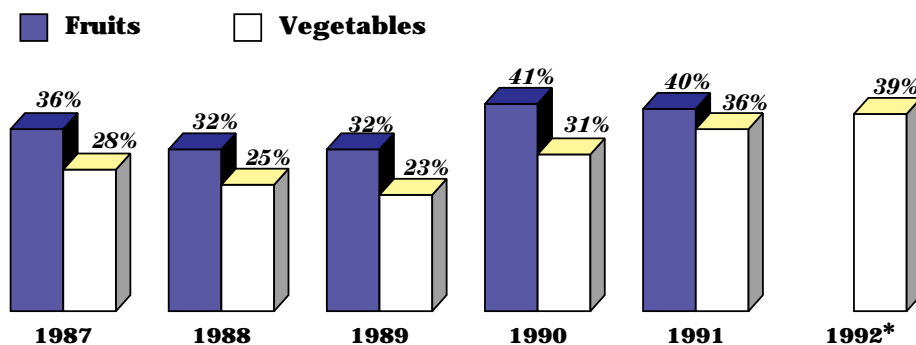
For those that reported they have increased consumption, popular answers for why they are eating more produce are; use more fresh fruit and vegetables for snacks, eat more fresh salads and desserts, and diet/nutrition/health concerns. You may

Non citrus fruits have increased per capita consumption by an annual average of 1.85% since 1970, or a whopping 24 lbs. per person. Some strong percentage gainers have been fruits relatively new to the US like mangos (13.75%), kiwi (17.66%), and avocados (17.17%). Apricots, cranberries, figs, grapes, and pineapples all increased on average over 5% annually. Apples (.90%) and peaches (.97%) posted the smallest increases for non-citrus fruits, and no non citrus fruits had a negative consumption trend.

More recent history, from 1987, indicates that citrus and non citrus fruit consumption has been rather flat. Could it be that consumers have plateaued in their fruit consumption? Figure 1 shows the results of consumers surveyed by the Packer's 1992 Fresh Trends Survey. About 30% to 40% of all consumers indicate that they have increased their fresh fruit consumption since 1987. But aggregate measures don't show much of an increase, if any. Demographic results show that young consumers,

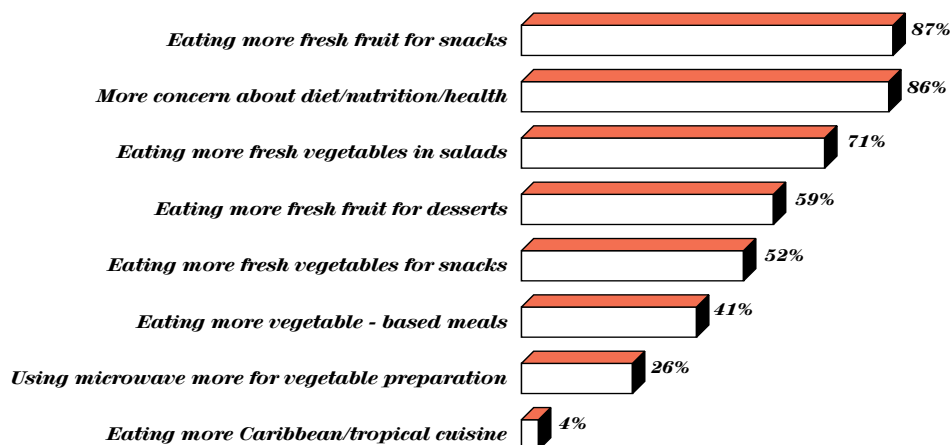
**Figure 1**

**Consumers eating more fresh fruits and vegetables compared to 12 months ago.**



\* Question combined in 1992.

**Reasons for increasing consumption.\***

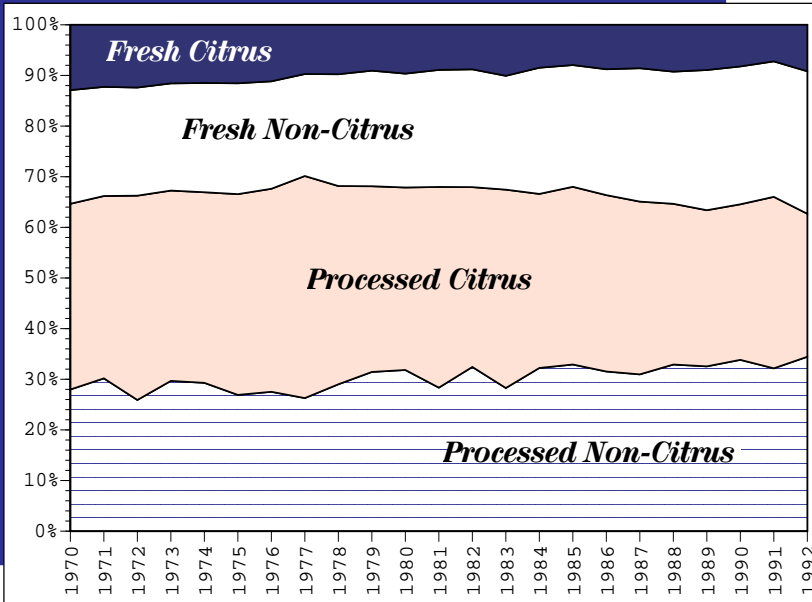


\* Of those reporting increased consumption; Can give more than one response.

Source: The Packer's 1992 Fresh Trends Consumer Profile Study.

be able to find ways to exploit these concerns and ideas in your direct marketing of produce. If a bed and breakfast is your business, you might include fresh produce in snacks for your customers.

**Figure 2. U.S. Shares of Processed and Fresh Fruit for Citrus and Non-Citrus Consumed from 1970 to 1992.**



**Figure 3. US Per Capita Consumption of Fruits and Vegetables with Average Annual Percentage Change from 1970 to 1992.**

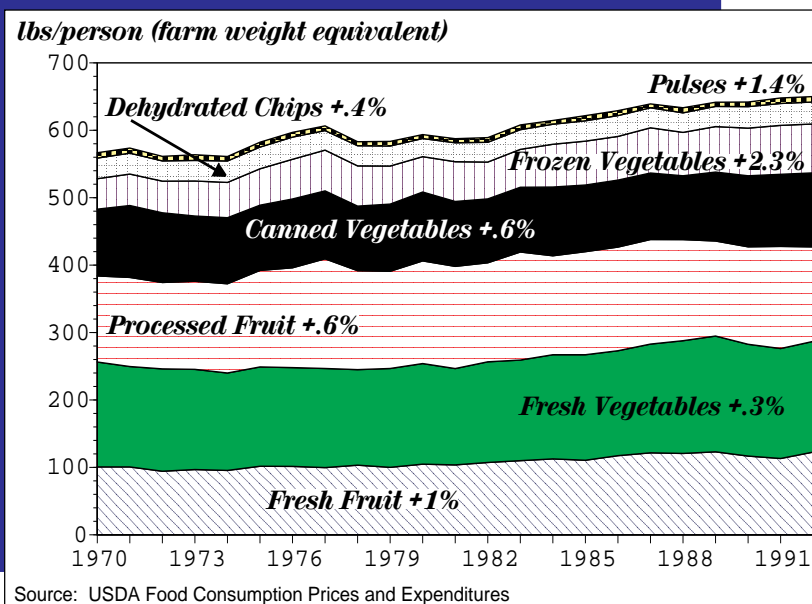


Figure 2 graphs the shares of processed and fresh fruit for citrus and non-citrus between 1970 and 1992. The graph portrays how the share of fresh citrus consumed has declined relative to non-citrus fruit. Processed citrus products have also declined relative to non-citrus products as well. Even though processed products have lost some “market share,” they can be very important for increasing the value added of your produce and extending your marketing season. As shown in Figure 3, per capita consumption of processed fruits and vegetables has increased in the last two decades and some categories have done relatively well. Refer to the section of “Opportunities for Adding Additional Value to Your Products,” for ideas on how processed products might fit into your operation.

Fresh vegetable consumption trends are given in Table 2. US consumers have increased their consumption of fresh vegetables at an annual rate of .39% between 1970 and 1994. This rate appears lower than that for fresh fruit, but if one excludes potatoes the average annual percentage change is .99%, comparable to the 1.09% rate for all fresh fruit. Similar to fresh fruit, vegetable consumption has been rather flat since 1988. Some exceptions are onions, bell peppers, and leaf/romaine lettuce which have shown a fairly steady increase in recent years. In looking at annual trends since 1970, broccoli has been the largest percentage gainer at 8.80%. Garlic is not far behind with a 8.51% average. Honeydews have increased more than watermelons or cantaloupes. Honeydews have increased 3.80%, whereas cantaloupes and watermelons have averaged an annual increase of 1.30% and .54%, respectively. Escarole and Endive have shown the largest percentage decline at -3.61%. Their annual per capita consumption has dropped from .6 lbs. in 1970 to only .2 lbs. in 1993. Other percentage decliners have been cabbage (-1.31%), fresh potatoes (-.78%), sweet corn (-.73%), and celery (-.44%).

**Table 2. U.S. Per Capita Fresh Vegetable Consumption, 1970-94.**

|                             | Asparagus                 | Broccoli      | Carrots        | Cauli-<br>flower    | Celery<br>1 / | Sweet<br>corn       | Lettuce          | Onions            | Tomatoes        | Cabbage         | Spinach        | Cucumbers        |              |
|-----------------------------|---------------------------|---------------|----------------|---------------------|---------------|---------------------|------------------|-------------------|-----------------|-----------------|----------------|------------------|--------------|
|                             | -- Pounds, farm weight -- |               |                |                     |               |                     |                  |                   |                 |                 |                |                  |              |
| <b>Year</b>                 |                           |               |                |                     |               |                     |                  |                   |                 |                 |                |                  |              |
| 1970                        | 0.4                       | 0.5           | 6.0            | 0.7                 | 7.3           | 7.8                 | 22.4             | 10.1              | 12.1            | 11.4            | 0.3            | 2.8              |              |
| 1971                        | 0.4                       | 0.7           | 6.1            | 0.7                 | 7.3           | 7.5                 | 22.4             | 10.7              | 11.3            | 11.2            | 0.3            | 2.8              |              |
| 1972                        | 0.4                       | 0.7           | 6.5            | 0.8                 | 7.1           | 7.8                 | 22.4             | 10.7              | 12.1            | 10.4            | 0.3            | 3.0              |              |
| 1973                        | 0.4                       | 0.8           | 6.7            | 0.8                 | 7.6           | 7.9                 | 23.1             | 10.2              | 12.5            | 11.0            | 0.3            | 2.7              |              |
| 1974                        | 0.4                       | 0.8           | 6.9            | 0.8                 | 7.4           | 7.7                 | 23.5             | 11.2              | 11.8            | 9.0             | 0.3            | 3.0              |              |
| 1975                        | 0.4                       | 1.0           | 6.4            | 0.9                 | 6.9           | 7.8                 | 23.5             | 10.5              | 12.0            | 9.1             | 0.3            | 2.8              |              |
| 1976                        | 0.4                       | 1.1           | 6.4            | 1.0                 | 7.4           | 8.0                 | 24.2             | 11.0              | 12.6            | 8.5             | 0.3            | 3.1              |              |
| 1977                        | 0.3                       | 1.2           | 5.3            | 1.1                 | 7.0           | 7.6                 | 25.8             | 11.1              | 12.4            | 8.6             | 0.4            | 3.5              |              |
| 1978                        | 0.3                       | 1.0           | 5.3            | 0.8                 | 7.2           | 6.6                 | 25.1             | 10.9              | 12.9            | 8.7             | 0.3            | 3.8              |              |
| 1979                        | 0.3                       | 1.2           | 5.9            | 1.1                 | 7.2           | 6.5                 | 25.1             | 11.4              | 12.4            | 8.2             | 0.4            | 3.8              |              |
| 1980                        | 0.3                       | 1.4           | 6.2            | 1.1                 | 7.5           | 6.5                 | 25.6             | 11.4              | 12.8            | 8.1             | 0.4            | 3.9              |              |
| 1981                        | 0.3                       | 1.7           | 6.1            | 1.4                 | 7.4           | 6.2                 | 24.9             | 10.7              | 12.3            | 8.2             | 0.5            | 4.0              |              |
| 1982                        | 0.4                       | 2.0           | 6.6            | 1.3                 | 7.6           | 6.0                 | 24.9             | 12.2              | 12.5            | 9.2             | 0.5            | 4.2              |              |
| 1983                        | 0.4                       | 2.0           | 6.5            | 1.4                 | 7.2           | 6.1                 | 22.4             | 12.2              | 13.5            | 8.5             | 0.5            | 4.5              |              |
| 1984                        | 0.4                       | 2.5           | 6.7            | 1.8                 | 7.3           | 6.4                 | 24.9             | 13.1              | 14.3            | 9.0             | 0.5            | 4.7              |              |
| 1985                        | 0.5                       | 2.6           | 6.5            | 1.8                 | 7.0           | 6.4                 | 23.7             | 13.6              | 15.0            | 9.2             | 0.7            | 4.4              |              |
| 1986                        | 0.6                       | 3.0           | 6.5            | 2.2                 | 6.6           | 6.1                 | 21.9             | 13.7              | 15.9            | 8.2             | 0.6            | 4.6              |              |
| 1987                        | 0.6                       | 3.1           | 8.3            | 2.1                 | 6.7           | 6.3                 | 25.7             | 13.4              | 15.8            | 8.0             | 0.6            | 5.1              |              |
| 1988                        | 0.6                       | 3.8           | 7.2            | 2.2                 | 7.2           | 5.7                 | 27.0             | 14.5              | 16.8            | 8.0             | 0.6            | 4.8              |              |
| 1989                        | 0.6                       | 3.8           | 7.9            | 2.3                 | 7.5           | 6.4                 | 28.8             | 14.8              | 16.8            | 7.9             | 0.6            | 4.8              |              |
| 1990                        | 0.6                       | 3.4           | 8.0            | 2.2                 | 7.2           | 6.5                 | 27.8             | 15.1              | 15.5            | 7.8             | 0.8            | 4.7              |              |
| 1991                        | 0.6                       | 3.1           | 7.5            | 2.0                 | 6.8           | 5.7                 | 26.1             | 15.7              | 15.4            | 7.5             | 0.8            | 4.6              |              |
| 1992                        | 0.6                       | 3.4           | 8.6            | 1.9                 | 6.7           | 6.7                 | 25.9             | 16.1              | 15.2            | 7.7             | 0.8            | 5.2              |              |
| 1993                        | 0.6                       | 2.8           | 8.4            | 1.7                 | 6.2           | 6.3                 | 24.6             | 15.7              | 15.9            | 8.4             | 1.0            | 5.5              |              |
| 1994f                       | 0.6                       | 3.1           | 8.0            | 1.8                 | 6.4           | 6.2                 | 24.9             | 16.2              | 16.0            | 7.9             | 0.9            | 5.4              |              |
| <b>Average %<br/>Change</b> | 2.22%                     | 8.80%         | 1.59%          | 4.94%               | -0.44%        | -0.73%              | 0.61%            | 2.10%             | 1.27%           | -1.31%          | 5.86%          | 2.98%            |              |
|                             | Arti-<br>chokes 1/        | Snap<br>beans | Eggplant<br>1/ | Escarole/<br>Endive | Garlic<br>1 / | Bell pep-<br>pers1/ | Leaf/<br>romaine | Fresh<br>Potatoes | Water-<br>melon | Canta-<br>loupe | Honey-<br>dews | All<br>others 2/ | <b>Total</b> |
|                             | -- Pounds, farm weight -- |               |                |                     |               |                     |                  |                   |                 |                 |                |                  |              |
| <b>Year</b>                 |                           |               |                |                     |               |                     |                  |                   |                 |                 |                |                  |              |
| 1970                        | 0.4                       | 1.5           | 0.3            | 0.6                 | 0.4           | 2.2                 | --               | 61.8              | 13.5            | 7.2             | 0.9            | 0.8              | <b>171.4</b> |
| 1971                        | 0.4                       | 1.5           | 0.3            | 0.6                 | 0.3           | 2.3                 | --               | 56.1              | 13.0            | 6.8             | 0.9            | 0.9              | <b>164.5</b> |
| 1972                        | 0.4                       | 1.5           | 0.4            | 0.6                 | 0.4           | 2.4                 | --               | 57.9              | 12.3            | 7.0             | 1.0            | 0.8              | <b>166.9</b> |
| 1973                        | 0.4                       | 1.4           | 0.4            | 0.6                 | 0.5           | 2.5                 | --               | 52.4              | 12.7            | 6.1             | 1.1            | 0.9              | <b>163.0</b> |
| 1974                        | 0.4                       | 1.4           | 0.4            | 0.5                 | 0.7           | 2.7                 | --               | 49.4              | 11.3            | 5.3             | 1.0            | 0.8              | <b>156.7</b> |
| 1975                        | 0.4                       | 1.4           | 0.4            | 0.5                 | 0.7           | 2.5                 | --               | 52.6              | 11.4            | 5.2             | 1.1            | 0.9              | <b>158.7</b> |
| 1976                        | 0.4                       | 1.4           | 0.5            | 0.5                 | 0.5           | 2.7                 | --               | 49.4              | 12.6            | 5.3             | 1.0            | 0.9              | <b>159.2</b> |
| 1977                        | 0.4                       | 1.3           | 0.4            | 0.5                 | 0.6           | 2.8                 | --               | 50.1              | 12.6            | 5.8             | 1.1            | 1.0              | <b>160.9</b> |
| 1978                        | 0.3                       | 1.3           | 0.5            | 0.5                 | 0.7           | 2.8                 | --               | 46.0              | 11.9            | 6.6             | 1.6            | 0.9              | <b>156.0</b> |
| 1979                        | 0.5                       | 1.3           | 0.5            | 0.5                 | 1.0           | 2.9                 | --               | 49.3              | 11.4            | 6.1             | 1.6            | 1.0              | <b>159.6</b> |
| 1980                        | 0.4                       | 1.3           | 0.5            | 0.5                 | 0.9           | 2.9                 | --               | 51.1              | 10.7            | 5.8             | 1.4            | 0.9              | <b>161.6</b> |
| 1981                        | 0.6                       | 1.3           | 0.5            | 0.4                 | 0.7           | 2.8                 | --               | 45.8              | 11.7            | 6.1             | 1.5            | 1.0              | <b>156.1</b> |
| 1982                        | 0.6                       | 1.3           | 0.5            | 0.4                 | 0.8           | 3.0                 | --               | 47.1              | 12.5            | 7.7             | 1.8            | 0.8              | <b>163.9</b> |
| 1983                        | 0.5                       | 1.2           | 0.5            | 0.4                 | 1.1           | 3.3                 | --               | 49.8              | 11.3            | 6.5             | 1.8            | 0.8              | <b>162.4</b> |
| 1984                        | 0.6                       | 1.3           | 0.5            | 0.4                 | 0.8           | 3.6                 | --               | 48.3              | 14.4            | 7.7             | 1.8            | 0.8              | <b>171.8</b> |
| 1985                        | 0.7                       | 1.3           | 0.5            | 0.4                 | 1.1           | 3.8                 | 3.3              | 46.3              | 13.5            | 8.5             | 2.1            | 0.8              | <b>173.7</b> |
| 1986                        | 0.6                       | 1.3           | 0.5            | 0.4                 | 0.8           | 4.0                 | 2.4              | 48.8              | 12.8            | 9.4             | 2.4            | 0.8              | <b>174.1</b> |
| 1987                        | 0.7                       | 1.2           | 0.5            | 0.3                 | 1.2           | 4.2                 | 2.5              | 47.9              | 13.0            | 9.1             | 2.2            | 0.7              | <b>179.2</b> |
| 1988                        | 0.6                       | 1.2           | 0.4            | 0.4                 | 1.2           | 4.5                 | 3.2              | 49.6              | 13.5            | 7.9             | 2.3            | 0.8              | <b>184.0</b> |
| 1989                        | 0.7                       | 1.2           | 0.4            | 0.3                 | 1.1           | 4.7                 | 3.6              | 50.0              | 13.6            | 10.4            | 2.5            | 0.9              | <b>191.6</b> |
| 1990                        | 0.6                       | 1.1           | 0.4            | 0.2                 | 1.4           | 4.5                 | 3.8              | 45.8              | 13.3            | 9.2             | 2.1            | 0.9              | <b>182.9</b> |
| 1991                        | 0.6                       | 1.1           | 0.4            | 0.2                 | 1.6           | 5.1                 | 4.0              | 46.4              | 12.8            | 8.7             | 1.9            | 0.8              | <b>179.4</b> |
| 1992                        | 0.6                       | 1.4           | 0.4            | 0.2                 | 1.7           | 5.6                 | 4.7              | 48.9              | 14.2            | 8.3             | 2.0            | 0.8              | <b>187.6</b> |
| 1993                        | 0.5                       | 1.6           | 0.4            | 0.2                 | 1.6           | 5.9                 | 4.9              | 51.9              | 14.2            | 8.5             | 1.6            | 0.8              | <b>189.2</b> |
| 1994f                       | 0.6                       | 1.4           | 0.4            | 0.2                 | 1.5           | 5.6                 | 5.0              | 49.1              | 14.3            | 8.3             | 1.8            | 0.8              | <b>186.4</b> |
| <b>Average %<br/>Change</b> | 3.56%                     | -0.01%        | 1.81%          | -3.61%              | 8.51%         | 4.09%               | 5.78%            | -0.78%            | 0.54%           | 1.30%           | 3.80%          | 0.49%            | <b>0.39%</b> |

-- = Not available. f = ERS forecast.

1/ Includes fresh and processing. 2/ Includes radishes and brussels sprouts.

Source: Economic Research Service, USDA.

Total US per capita consumption (farm weight equivalent) of all fruits and vegetables from 1970 through 1992 are described in Figure 3. Total consumption has increased at an average annual rate of .64% from 1970 to 1992. All categories have shown growth in the last two decades. Frozen vegetables have been the biggest gainer, increasing from 45.2 lbs. in 1970 to 72.6 lbs. in 1992. Much of this increase is undoubtedly due to the increase in demand for prepackaged and frozen convenience foods as more women are working outside the home. Convenience should be a major consideration of any on-farm processing efforts. Pulses include dried peas, lentils, and edible beans. Although this market is relatively small with only 8 lbs./person consumed in 1992, a steady increase in Hispanic and ethnic populations has kept this market strong. Mexico's annual consumption of edible beans is around 50 to

60 lbs. per person, almost 10 times US per capita consumption.

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7950 College Blvd.  
Overland Park, KS 66210-1855  
phone: 913-451-2200

<sup>1</sup> Russell Tronstad, Assistant Specialist, Department of Agriculture and Resource Economics, Cooperative Extension, The University of Arizona, Tucson, Az.

**FROM:**

Direct Farm Marketing and Tourism Handbook.

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