

Fruit Cultivation in the Hudson Valley

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New York's Hudson River Valley is blessed with optimum soils, topography, and climate for producing world-class fruit and fruit products such as wine, cider, cassis, and grappa. Much can be done by growers, private organizations, and state and local governments to increase the profitability of fruit farming in the Hudson Valley. Increasing the profitability of farming will encourage growers to remain on the farm and support the retention of existing farmlands.

This article is the first part of a two-part series that summarizes a report issued in December, 2004 by the New York State Senate Task Force for Hudson Valley Fruit Growers, State Senator William J. Larkin, Jr. Chairman. This first article analyzes trends in fruit cultivation in the Hudson Valley. The second article outlines an action plan to improve the ability of local growers to operate more profitably and maintain a strong presence in the Hudson Valley.

Fruit production in the Hudson Valley is concentrated on a few selected sites (Figure 1). Commercial quality fruit growing requires very specific lands that have: (a) soil types and topography that maximize water drainage but retain moisture during the summer months, and (b) air drainage patterns that minimize the risk of late or premature frost in the spring and fall.

It is not by accident that the remaining fruit farms in the Valley are located on lands that are some of the best fruit-growing lands in the world. With growing suburban pressure to convert farms to residential, commercial, or industrial uses, it is very important that these world-class, fruit-producing areas remain as farmland. In the Napa Valley, in the Burgundy and Bordeaux regions of France, or in the Rheingau region of Germany new commercial expansion is not encouraged on premium vineyard lands; it is shifted instead to other lands within the region. The same should be true for the Hudson Valley.

There are many areas of the Valley that are suitable for new residential, commercial, and industrial expansion. Allowing for continued suburban and commercial expansion and retaining fruit farms are not mutually

The Hudson Valley region of NY State is an economically important and unique agricultural region. Although lands devoted to orchard crops have steadily declined in the past couple of decades and continue to be threatened, there are still many reasons to maintain the agricultural heritage of this region.

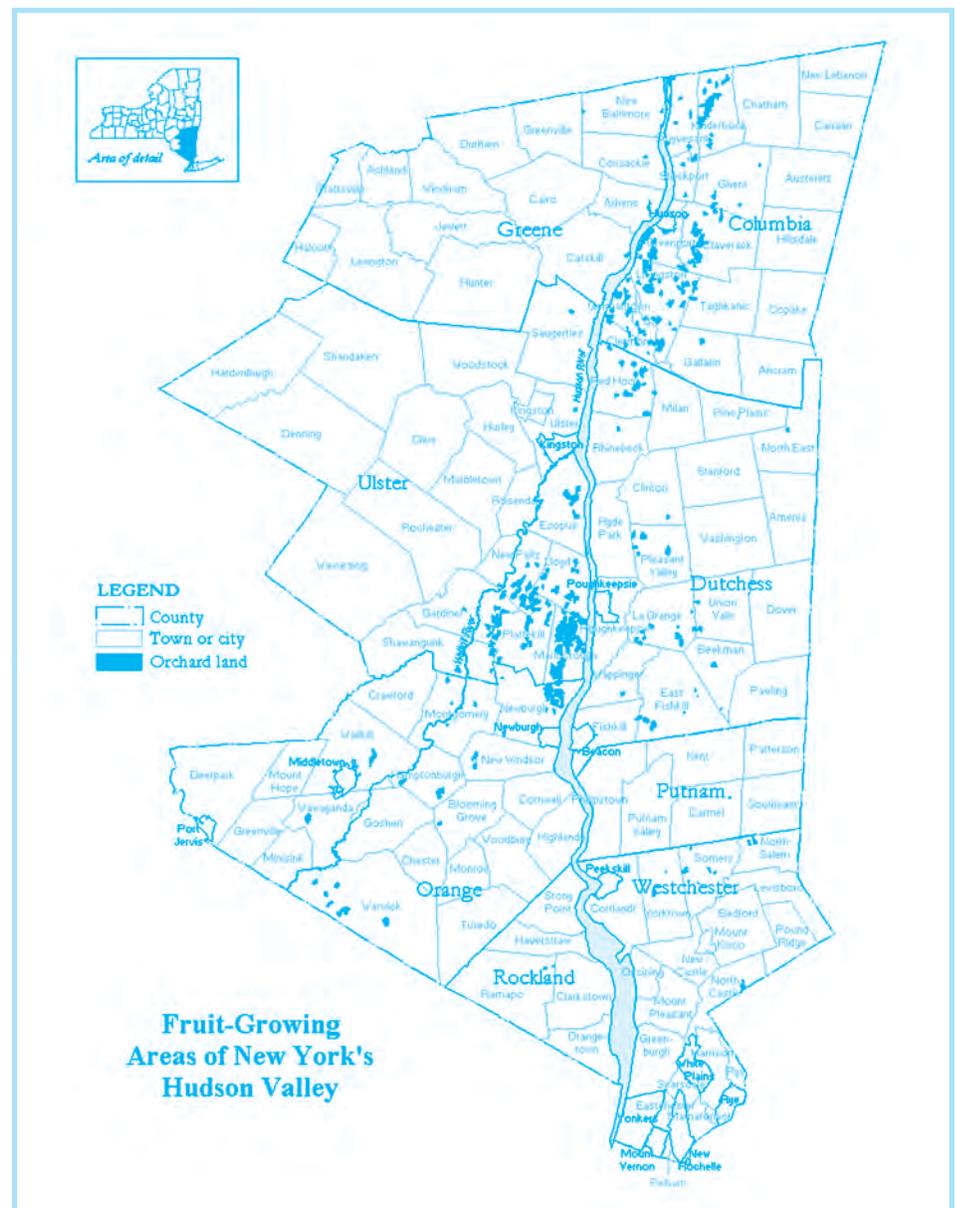


Figure 1. Fruit-growing regions of the Hudson Valley.

exclusive goals. The needs of both the fruit-growing industry and other commercial interests can be accommodated. Fruit-producing lands or lands that have exceptional qualities to produce world-class fruit, should not be utilized for new construction. Municipalities that have very unique lands with the potential for growing quality fruit should be zoned in such a manner as to preserve the ability to operate fruit farms.

Fruit Production in the Hudson Valley

Fruit cultivation has been a major economic activity in the Hudson Valley since Europeans first settled the land during the 17th Century. According to the 2002 Census of Agriculture, the Hudson Valley, from Columbia and Greene counties south, had 13,738 acres of land devoted to orchards in 2001 (see Table 1). This represents 310 farms, most of them under 100 acres in size. The primary crops are apples, cherries, grapes, peaches, and pears.

The industry is concentrated primarily in Columbia and Ulster counties, with farms that occupy 3,985 acres and 7,323 acres, respectively. Dutchess and Orange counties are also home to significant amounts of orchard lands — 1,116 acres and 824 acres, respectively. In addition, Greene, Rockland, and Westchester counties, counties not commonly associated with fruit cultivation, have, in aggregate, over 490 acres devoted to orchards.

As Figure 1 indicates, quality fruit is grown on very specific sites. This is because orchard and vineyard crops require lands that maximize water drainage and minimize the risk of late or premature frost in the spring and fall. The well-being of the Valley's industry will be played out in 18 towns of the approximately 120 in the Valley. Policy makers, when developing policies to promote fruit cultivation, must understand that such farms can only be located in certain parts of the Valley. Furthermore, these limited number of sites are coming under increasing suburban development pressure to be converted for other uses.

The overwhelming percentage (85.5%) of orchards are devoted to apples (Figure 2). However, with the increasing commercial value of land due to development pressure coming from the New York City metropolitan area, growers are beginning to diversify to other fruit crops that provide a higher economic return per acre. Crops that are expected to increase in both acreage and production include grapes, peaches, pears, raspberries, strawberries and currants.

County	Farms	Acres	Farms by acreage (bearing and nonbearing)					
			0.1 to 4.9 acres	5.0 to 24.9 acres	25.0 to 99.9 acres	100.0 to 249.9 acres	250.0 to 499.9 acres	500.0 acres or more
Columbia	82	3,985	19	24	28	8	2	1
Dutchess	47	824	20	19	5	3	0	0
Greene	8	95	5	1	2	0	0	0
Orange	30	1,116	11	10	4	5	0	0
Putnam	2	0	1	0	1	0	0	0
Rockland	13	154	5	6	2	0	0	0
Ulster	103	7,323	27	27	26	15	5	3
Westchester	25	241	21	1	3	0	0	0
TOTAL	310	13,738	109	88	71	31	7	4

Source: 2002 Census of Agriculture – County Data. U.S. Department of Agriculture, National Agricultural Statistics Service. June 2004.

There is some variation in the diversity of fruits grown in different parts of the Valley (Table 2). For example, apples make up almost 90% of the fruit acreage in Orange and Ulster counties. However, Dutchess and Columbia counties are more diversified since apples make up no more than 74% and 82%, respectively, of the total fruit acreage.

In outlining the diversity of fruit cultivation, it is important to note Ulster County's commanding presence in this industry. By acreage, Ulster County orchards represent about 53% of all the land in orchards in the Valley. This means, for example, that while only 5.4% of Ulster County's orchard land is planted in pears, the county still has 396 acres of pears, which is significantly more than the 328 acres in Columbia County, the next highest county in terms of pear acreage. And yet, Columbia County's 328 acres of pears account for 8.2% of its total land in orchards. This is because Columbia County has just over one half of Ulster County's fruit acreage (see Table 2).

In terms of acreage committed to orchards — and, by extension, fruit produc-

tion — large commercial growers dominate the field. In Columbia and Ulster counties, there are four farms that each have 500 or more acres of land. Furthermore, in these counties, there are an additional seven farms that have between 250 and 500 acres (Table 1). It is only when one gets to the third-sized tier of farms, those between 100 and 250 acres in size, that other Hudson Valley counties enter the picture; there are three of such farms in Dutchess County and five in Orange County.

Overall, of the 310 farms that have orchards, 42 of these farms account for, at a minimum, 6,850 of the 13,738 acres committed to orchard crops in the Valley. This means that approximately 14% of the Valley's growers control at least 50% of the land under fruit cultivation.

Small farms are also an important segment of the Valley's fruit-growing industry. In fact, nearly two out of three growers (63.5%) operate orchards that are under 25 acres (Figure 3). This includes 109 farms with under 5 acres of orchard land and another 88 farms in the 5.0 to 24.9 acre range.

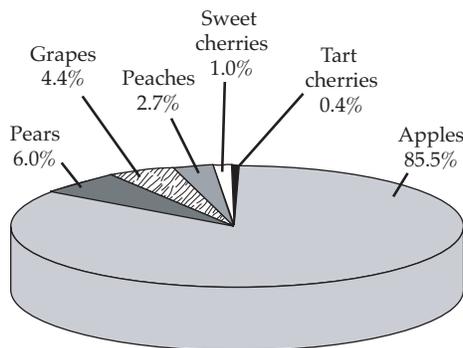


Figure 2. Percentage of Hudson Valley farms, by fruit acreage (2002). Source: 2002 Census of Agriculture – County Data. USDA, NASS. June 2004.

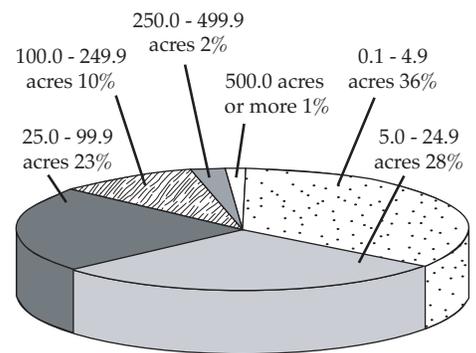


Figure 3. Distribution of Hudson Valley farms with land in orchards, by acreage (2002). Source: 2002 Census of Agriculture – County Data. USDA, NASS. June 2004.

TABLE 2

Number of farms and acres, by fruit, for Hudson Valley counties (2002)

County	Apples		Cherries, sweet		Cherries, tart		Grapes	
	Farms	Acres	Farms	Acres	Farms	Acres	Farms	Acres
Columbia	66	3,214	20	92	11	44	23	137
Dutchess	28	595	10	11	4	4	14	103
Greene	7	88	2	0	0	0	2	(D)
Orange	22	935	7	6	7	1	11	35
Putnam	2	(D)	—	—	—	—	—	—
Rockland	13	141	3	1	3	1	1	(D)
Ulster	83	6,365	15	31	4	2	34	319
Westchester	24	200	—	—	10	2	1	(D)
TOTAL	245	11,538	57	141	39	54	86	594

County	Peaches		Pears		Other		Total	
	Farms	Acres	Farms	Acres	Farms	Acres	Farms	Acres
Columbia	27	105	39	328	35	68	82	3,988
Dutchess	16	58	15	39	13	11	47	821
Greene	3	4	2	(D)	5	(D)	8	92
Orange	11	50	10	41	13	48	30	1,116
Putnam	1	(D)	1	(D)	1	(D)	2	(D)
Rockland	3	(D)	4	(D)	—	—	13	143
Ulster	38	153	49	396	38	60	103	7,326
Westchester	5	(D)	4	(D)	—	—	25	202
TOTAL	104	370	124	804	105	187	310	13,688

* The figure presented is the true total number of farms, and not the sum of the preceding columns, given that farms that grow more than one kind of fruit would be counted multiple times. Key to abbreviations and symbols: — Represents zero. (D) Not published to avoid disclosure of individual operations. Source: 2002 Census of Agriculture – County Data. U.S. Department of Agriculture, National Agricultural Statistics Service. June 2004.

In a highly suburbanized county such as Westchester County, 25 growers cultivate in aggregate only 241 acres of orchards, with 21 of these growers having farm sizes under 5 acres. In Rockland County, 13 growers cultivate 154 acres of orchards, with 11 of such growers having farm sizes under 25 acres (see Table 1). It is important to retain these small farms in highly suburbanized counties to give local residents access to locally produced farm products and to expose residents to the rural lifestyles that historically were once so commonplace in these communities.

Fruit Growing is Big Business in the Hudson Valley

Fruit cultivation in the Hudson Valley is big business, generating sales of approximately \$51 million each year (see Table 3). This figure does not include the value of small fruit crops such as currants, raspberries, and strawberries. Orchard crops comprise a sizable proportion of the almost \$300 million of agricultural production in the Hudson Valley, accounting for about 17% of the area's farm output.

This estimated output of \$51 million does not include economic multiplier effects from fruit processing and manufacturing activities that occur locally because of a presence of a fruit-growing industry

in the Valley. In addition, it does not include output multipliers for goods and services purchased by growers who obtain their income from farming. These output multipliers for farm commodities vary by agricultural sector (i.e., dairy, greenhouse/nursery, vegetables, etc.) and by local economies. For orchard crops, every \$1 increase in total farm output led to an additional 37¢ in economic activity in other sectors of the local economy in Columbia County, 43¢ in Dutchess County, 66¢ in Orange County, and 53¢ in Ulster County. (Source: *Agricultural Economic Development for the Hudson Valley: Technical Report and Recommendations*, American Farmland Trust 2004). If this economic multiplier is accurate, then the fruit-growing industry

TABLE 3

Percentage of total agricultural commodity output value attributed to orchard crops (2000)

County	Pct. orchard crops	Value (\$ million)	
		Total	Orchard*
Columbia	12%	\$ 76.1	\$ 9.1
Dutchess	6%	38.9	2.3
Greene	1%	9.7	0.1
Orange	6%	108.0	6.5
Putnam	—	(NA)	(NA)
Rockland	—	(NA)	(NA)
Ulster	64%	50.6	32.4
Westchester	3%	15.6	0.5
TOTAL	17%	298.9	50.9

*Estimated value calculated by multiplying total value by percent orchard crops. (NA) = Not available. Source: Derived from information in *Agricultural Economic Development for the Hudson Valley: Technical Report and Recommendations*, prepared by ACDS, LLC, for American Farmland Trust. 2004.

pumps an additional \$76 million into the local economy every year for a total benefit of \$127 million annually.

Future Trends in Fruit Production

Over the past 24 years, the Hudson Valley has experienced a substantial reduction in acreage devoted to orchards and vineyards. In 1980, approximately 26,500 acres of orchards and vineyards were cultivated (Table 4). However, by the early 2000s, only between 9,650 and 13,730 acres were under cultivation (i.e., between 36% and 52% of the acreage that was under cultivation in 1980). The reason for the wide disparity in the range of acreage estimates is due to the difficulty in ascertaining the true amount of acreage from available grower surveys.

The value of Table 4 is that it shows the progression in the loss of orchards and vineyards over the past 24 years along with the counties in which the reduction has been most pronounced. High fruit-production counties such as Columbia and Ulster counties lost 69% and 59%, respectively, of their orchard and vineyard acreage. During the same period, smaller, but still significant,

TABLE 4

Acres of land in orchards and vineyards, 1980-2001 (by survey year)

County	1980	1985	1990	1996	2001	Pct. change, 1980 to 2001
Columbia	5,772	6,156	3,947	3,069	1,818	-69%
Dutchess	2,789	2,153	1,289	1,302	792	-72%
Greene	(NA)	(NA)	(NA)	(NA)	(NA)	—
Orange	2,014	1,918	1,651	1,347	754	-63%
Putnam	(NA)	(NA)	(NA)	(NA)	(NA)	—
Rockland	154	207	165	113	(NA)	—
Ulster	15,367	12,403	10,997	9,255	6,293	-59%
Westchester	396	386	322	167	(NA)	—
TOTAL	26,492	23,223	18,371	15,253	9,657	-64%

(NA) = Not available. Source: New York Orchard and Vineyard Survey, various years. New York State Agricultural Statistics Service. November 1986-December 2002.

producing counties such as Dutchess and Orange counties lost even higher percentages of their orchard acreages — 72% and 63%, respectively, between 1980 and 2001. From these numbers, it appears that fruit cultivation acreage decreases are facing slightly higher pressures on the east side of the river than on the west bank.

It is interesting that in relatively low-production counties such as Greene and Rockland counties, the loss of acreage has been much less pronounced. In Rockland County, the decline in orchard and vineyard land between 1980 and 1996 (the latest year for which survey figures were available for the county) was 26%.

Since 1980, statewide fruit acreage has decreased by approximately 35%, while the decrease in the Valley has been much more pronounced at approximately 65%. Most of the Valley's reduction in acreage occurred between 1980 and 1996. Since 1996, overall acreage has continued to decline at the same rate for apples, while acreage devoted to peaches and pears has increased slightly, and

grape acreage has remained stable (see Tables 5-A, 5-B, and 5-C).

The substantial reduction in orchard and vineyard acreage is of great concern; however, this trend is being mitigated to some extent by increases in production per acre. This means that overall production levels and crop values have remained relatively constant. Furthermore, it seems that since 1996, the continued reduction in apple acreage may be mitigated, at least to some extent, by the addition of new orchards devoted to the cultivation of other fruits such as peaches, pears, grapes, strawberries and currants. This trend demonstrates that growers are beginning to diversify their crops to minimize future potential losses due to adverse weather or market conditions.

In surveying annual statewide production figures for apples, grapes, peaches, sweet cherries and pears since 1998, it appears that even as the total acreage devoted to cultivating fruit continues to decline, overall production levels have remained constant, except for pears and peaches, which

have increased. This trend of continued acreage reductions, but relatively constant production levels, holds true for growers in the Valley.

The Valley Continues to Have a Dynamic Fruit Growing Industry

Growers believe that the Hudson Valley continues to have a dynamic fruit-growing industry. The four points below illustrate that the Valley retains a dynamic and diverse industry that is constantly adjusting to market conditions. Furthermore, it is beginning to substitute certain unprofitable fruit cultivars with other higher profit-margin crops.

1. While orchard acreage has substantially decreased, overall production has either remained stable or declined at a much slower rate. This means that grower incomes, after taking into account certain unique annual adverse weather conditions, have remained relatively stable.

TABLE 5-A

Apples: Number of acres, number of trees, and planting density for major producing counties, by survey year (1980-2001)

	1980			1985			1990			1996			2001		
	Acres	Trees	Density	Acres	Trees	Density									
			(trees per acre)			(trees per acre)									
Columbia	4,492	263,442	59	5,117	405,931	79	3,237	299,443	93	2,657	375,003	141	1,349	268,812	199
Dutchess	2,523	128,664	51	1,940	142,459	73	1,111	100,750	91	1,088	154,490	142	608	99,050	163
Orange	1,832	110,178	60	1,720	135,995	79	1,524	181,649	119	1,209	166,806	138	695	78,411	113
Ulster	14,211	744,239	52	11,629	734,045	63	9,996	815,329	82	8,632	1,184,580	137	5,669	968,581	171
TOTAL	23,058	1,246,523	54	20,406	1,418,430	70	15,868	1,397,171	88	13,586	1,880,879	138	8,321	1,414,854	170

TABLE 5-B

Peaches, pears, and sweet cherries: Number of farms, acres, and trees, for major producing counties, by survey year (1980-2001)

	1980			1985			1990			1996			2001		
	Farms	Acres	Trees	Farms	Acres	Trees	Farms	Acres	Trees	Farms	Acres	Trees	Farms	Acres	Trees
Peaches															
Columbia	29	183	10,699	23	153	16,054	25	83	8,497	15	58	4,666	21	88	7,603
Dutchess	13	53	2,921	9	38	3,120	11	30	1,475	8	44	6,398	9	33	4,224
Orange	9	67	6,229	11	47	4,932	10	74	9,036	9	99	8,821	6	33	7,403
Ulster	28	105	7,259	26	78	6,817	32	154	13,227	18	136	13,317	23	106	12,700
TOTAL	79	408	27,108	69	316	30,923	78	341	32,235	50	337	33,202	59	260	31,930
Pears															
Columbia	53	474	34,766	54	391	39,649	40	298	32,079	18	159	19,655	22	187	13,498
Dutchess	14	63	5,532	10	54	5,494	11	32	2,181	7	35	6,594	12	46	6,260
Orange	11	89	9,121	11	85	9,582	8	20	2,182	6	39	3,058	(D)	(D)	(D)
Ulster	59	648	54,265	58	324	36,336	58	622	3,546	33	288	40,275	35	309	41,087
TOTAL	137	1,274	103,684	133	854	91,061	117	972	119,978	64	521	69,582	69	542	60,845
Sweet Cherries															
Columbia	22	66	3,238	19	47	4,043	17	42	1,1927	10	30	1,845	12	28	1,645
Ulster	20	44	1,921	14	35	1,625	17	48	3,510	12	50	3,128	10	48	5,588
TOTAL	42	110	5,159	33	82	5,668	34	90	5,437	22	80	4,973	22	76	7,233

TABLE 5-C

Grapes: Number of vineyards, acreage, and weight of fruit produced for major producing counties, by survey year (1985-2001)

	1980			1985			1990			1996			2001		
	Vine-yards	Acres	Pro-duction (tons)												
Columbia	34	390	1,505	27	334	912	19	226	803	16	153	256	16	152	375
Dutchess	9	129	248	8	87	234	7	101	228	8	135	488	7	105	324
Ulster	23	286	823	26	282	669	11	99	106	21	149	511	20	161	300
TOTAL	66	805	2,576	61	703	1,815	37	426	1,137	45	437	1,255	43	418	999

(D) Not published to avoid disclosure of individual operations. Source for Tables 5-A thru 5-C: 2001 New York Orchard and Vineyard Survey. New York State Agricultural Statistics Service. December 2002.

TABLE 6

Apples: Number of farms, number of acres, and number of trees for major producing counties, by planting density (2001)

County	Farms	Acres	Number of trees by planting density			
			Total	<100 trees per acre	100-349 trees per acre	350+ trees per acre
Columbia	34	1,349	268,812	12,060	206,429	50,323
Dutchess	20	608	99,050	8,512	70,991	19,547
Orange	16	695	78,411	18,550	26,100	33,761
Ulster	56	5,669	968,581	42,890	676,439	249,253
TOTAL	126	8,321	1,414,854	82,012	979,959	338,670
New York State	695	44,563	7,544,740	727,329	4,421,820	2,395,591

Source: 2001 New York Orchard and Vineyard Survey. New York State Agricultural Statistics Service. December 2002.

- The 2001 New York Orchard and Vineyard Survey shows that Valley apple orchards have proportionately higher tree-planting densities per acre on their farms when compared to statewide tree-planting density averages (Table 6). This may indicate that growers continue to have confidence in their future prospects and are investing in their farms by replanting orchards with newer varieties of apples at much higher densities to increase production per acre.
- Most of the reduction in acreage for all fruits, except for apples, has stabilized since 1996. While apple acreage continues to decrease at about the same rate as it has since 1980, growers are replacing some of those abandoned apple orchards with other fruits such as currants, grapes, peaches, pears, strawberries, and raspberries.
- While much of New York's apple industry is based on the production of processing apples, which is currently under intense price and production competition from other state and foreign growers, the Valley has historically concentrated on the lucrative fresh fruit market. This places Valley growers in a better competitive position when it comes to the prices they can command.

Conclusion

The increasing demand to convert orchards and vineyards to residential, commercial, and industrial uses to satisfy suburban development pressure is a significant threat to the future well-being of this important industry. Valley growers, however, have several advantages that will enable them to continue to profitably operate in the future in spite of increasing suburban development pressures.

First, the industry is well positioned to take advantage of its proximity to large markets and agri-tourism possibilities to sell its products. Second, the Valley possesses optimal soils, topography, and climate to produce quality fruit and fruit products such as wine and cassis that can command superior prices in the marketplace. Third, it has many skilled growers who are ready, willing and able to react quickly to changes in the marketplace. Fourth, there is growing public interest to support local agriculture. This is evidenced by the work of municipal leaders and civic organizations, such as the Hudson Valley Greenway and Scenic Hudson, to preserve this important agricultural resource by implementing open space initiatives and smart growth concepts.

In order to continue to remain a significant part of the Valley's economy, existing

growers, those who desire to become farmers, and state and local government policy makers may wish to consider the following three issues:

First, it is critical that large commercial growers prosper because these farms control a preponderance of the acreage under cultivation and quantity of fruit produced. Without large commercial growers, there would be little left of the fruit-growing industry. This is because large farms carry the industry by providing enough demand to support local support businesses such as those that sell fertilizers, crop protectants, tractors, and packing supplies. These support services are needed by both large and small growers alike in order to prosper.

Second, more needs to be done to encourage the establishment of additional small orchard operations and to expand those that already exist. While growers who operate farms of 25 acres or less do not control a high percentage of land devoted to fruit cultivation or production, they are an important source of both new entrepreneurial talent and a pool of skilled labor that can be used to expand their own farm operations or the operations of other growers.

Third, like Long Island, the Valley should rapidly expand grape acreage and the number of its wineries. The winemaking industry is a relatively untapped business that should be encouraged to expand. The Valley is uniquely positioned to make world-class wines and to sell those wines on a local and national level. The Task Force is preparing a briefing paper specifically on the needs of the Valley's wine industry.

The second part of this series of articles will outline the Task Force's action plan to improve the ability of local growers to operate more profitably and retain a strong presence in the Valley.

A full copy of the report issued by the New York State Senate Task Force for Hudson Valley Fruit Growers is available at www.senatorbillarkin.com