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Overview of Commercial Horticulture Farms in Vermont

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Horticultural farming in Vermont is diverse. Vermont farms produce many different categories of horticultural crops, at a range of scales, and they utilize a variety of market channels.

Many horticultural farms sell both vegetables and ornamentals, grown in the field and in greenhouses.

The U.S. Census of Agriculture, conducted every 5 years, provides a wealth of data that can help identify trends in farming when looked at over long periods of time. However, that data has some limitations. For example, the Census provides data about production and sales of individual crops, not about the extent to which farms grow and sell a diverse combination of crops such as berries, greenhouse crops, tree fruits, and/or field vegetables, which is typical in Vermont. Further, there is no data provided about the use of different market channels or the revenues they generate. Vermont's horticultural producers typically use some combination of Community Supported Agriculture (CSA), farmers' markets, on-farm markets, restaurant sales, direct-to-store or institution sales, and wholesale markets through distributors or brokers. The Census only collects data about total direct-to-consumer sales and direct-to-retailer sales for all farm products, including horticultural crops.

Categories of data have also changed over time in the Census. For example, data on berry acreage and the area of greenhouse vegetables were only added to the Census in 2002. Greenhouse tomato production was not reported until 2007.

The way data is presented in different parts of the Census can be inconsistent. For example, in 2022 Table 2, *Market Value of Agricultural Products Sold*, lists 359 farms selling "fruits and tree nuts" in Vermont. But in Table 48, *Selected Characteristics of Farms by North American Industry Classification System*, 448 farms are listed under "fruit and tree nut farming."

Despite some challenges with the data, the Census is our best tool for describing trends in farm production over time.

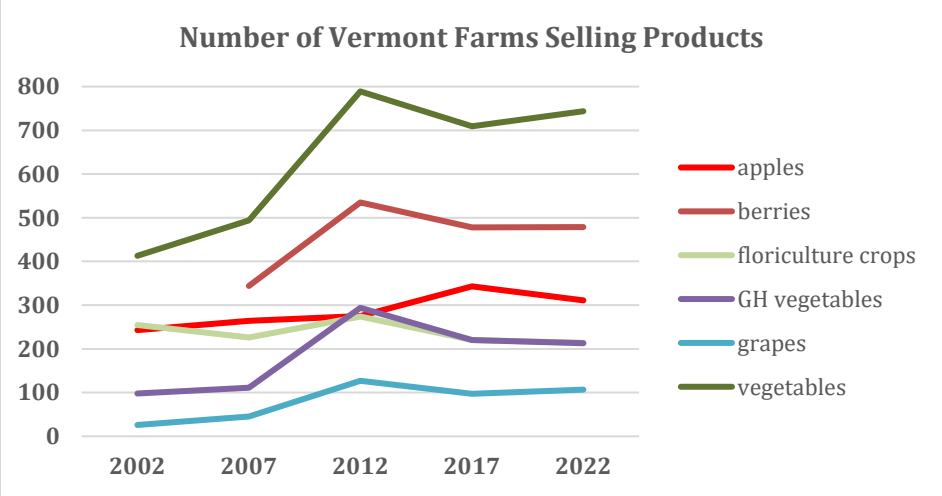
In the decade from 2002 to 2012, the number of farms selling horticultural products in Vermont increased in all categories except Christmas trees; the increases were significant for grapes (+388%), greenhouse vegetables (200%) blueberries (+189%), raspberries (+185%), field vegetables (+91%). strawberries (+61%) and apples (+53%). Then, in the decade from 2012-2022, the number of farms declined in all categories, though all except farms selling floriculture crops remained above 2002 levels (Table 1).

Table 1. Number of horticultural farms in Vermont.

Number of farms selling	2022	2017	2012	2007	2002
apples	311	343	275	264	243
berries	479	478	535	344	--
Christmas trees	266	260	232	255	252
GH, nursery, flowers, sod	507	541	661	437	418
floriculture crops	214	220	274	226	255
greenhouse vegetables	213	220	294	111	98
grapes	107	97	127	45	26
highbush blueberries	286	289	330	213	114
raspberries	140	158	228	142	80
strawberries	125	136	145	122	90
vegetables	744	709	789	494	413

Figure 1 shows that vegetable production takes place on the largest number of horticultural farms, followed by berry production and apple production.

Figure 1. Number of selected horticultural farms in Vermont.



Farm acreage of horticultural crops (Table 2) does not always follow the same trend as farm numbers. Over the past 20 years apple acreage decreased by 25% while the number of producers increased by 28%, indicating a decrease in average orchard size. Christmas tree acreage also decreased by 25% while the number of producers held relatively steady.

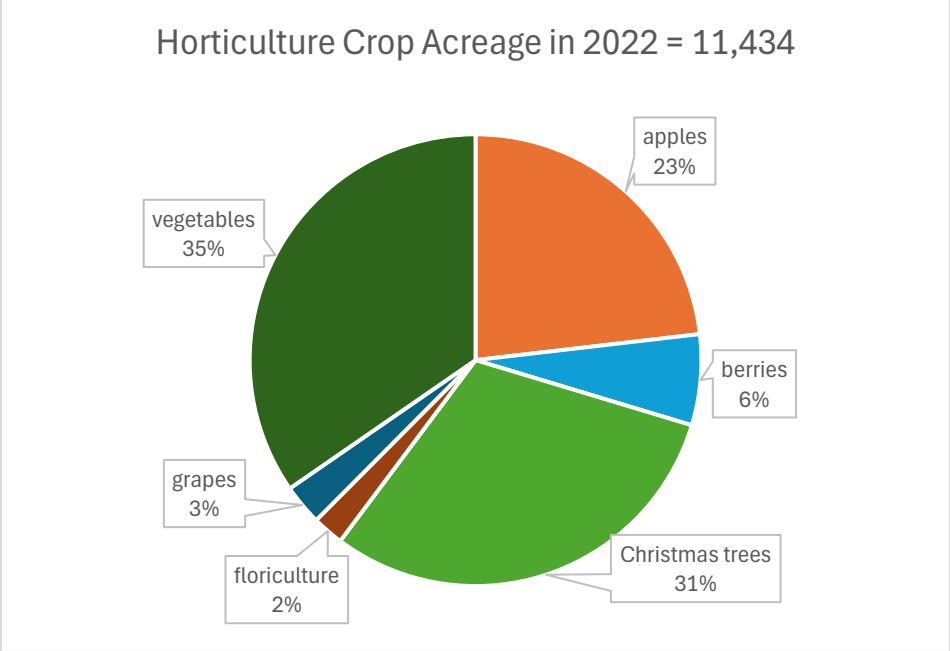
Blueberry, raspberry, and strawberry crop acreage held relatively steady over the past 20 years, while the number of producers increased by 151%, 75%, and 39%, respectively. Vegetable acreage increased by 37% while the number of producers increased by 80%. These data point to a trend in horticultural farms getting smaller, and more numerous.

Table 2. Acreage of horticultural farms in Vermont.

Number of acres	2022	2017	2012	2007	2002
apples	2,648	2,483	2,316	3,480	3,550
berries (all)	743	662	749	705	--
floriculture crops - field greenhouse acres	256 36.9	230 40.6	270 33.6	305 34.3	217 39.3
Christmas trees	3,495	3,650	3,607	3,600	4,658
greenhouse vegetables	22.3	22.1	--	9.8	10.9
grapes	333	97	127	167	33
highbush blueberries	404	317	327	362	--
raspberries	88	81	135	--	88
strawberries	168	172	192	185	188
vegetables	3,959	3,453	3,897	2,927	2,893

Crop acreage does not correlate well with the number of farms, or revenue. Figure 2 shows vegetables, Christmas trees, and apples account for 35%, 31%, and 23% of the horticultural acreage, reported by 744, 266, and 311 farms, respectively. These farms reported $40.6m, $19.6m, and $4.5m in sales, respectively.

Figure 2. Acreage of selected horticultural crops in Vermont in 2022.



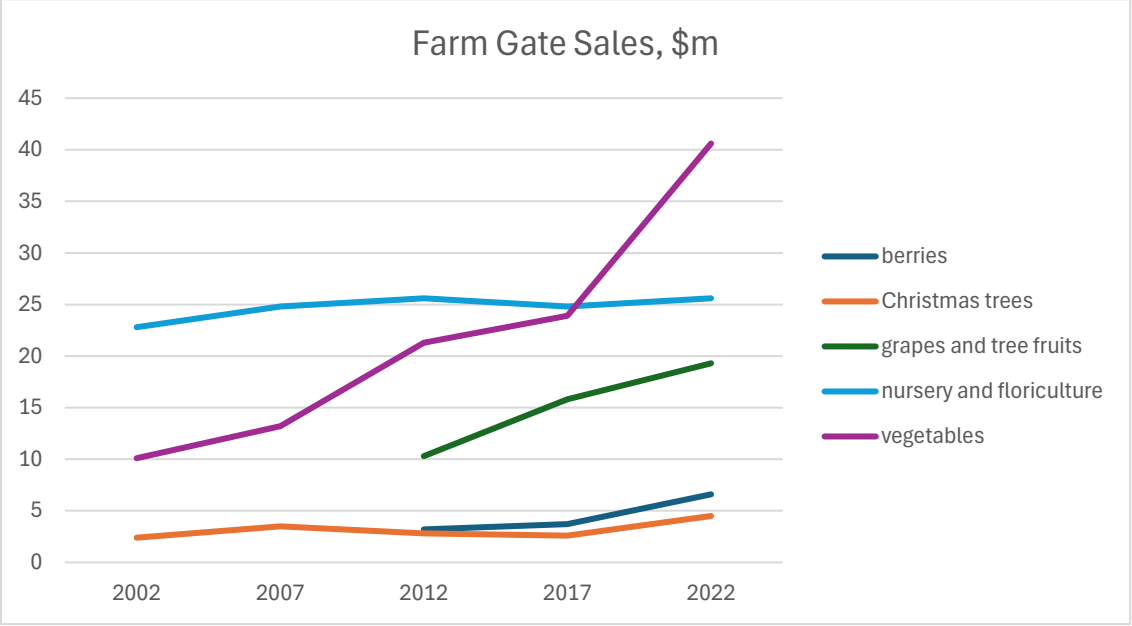
Data on crop sales is less complete than for other categories over the past 20 years, because some data collection started more recently (Table 3), and interpretation is challenged by the inconsistent use of categories by the Census. For example, no sales data were provided for tree fruits or berries until 2012, and acreage is reported for apples, but sales are reported for "fruits and tree nuts" which does not include berries but presumably includes all tree fruits and grapes.

Table 3. Sales of horticultural farm products in Vermont.

Farm sales (millions)	**2022**	**2017**	**2012**	**2007**	**2002**
Fruits, nuts (not berries)	$19.3	$15.8	$10.3	--	--
berries (all)	$6.6	$3.7	$3.2	--	--
Christmas trees	$4.5	$2.6	$2.8	$3.5	$2.4
nursery, GH, flowers, sod	$25.6	$24.8	$25.6	$24.8	$22.8
floriculture crops	$15.8	$15.4	$15.4	$14.9	--
greenhouse vegetables	$5.4	$5.3	$5.8	$4.0	--
vegetables	$40.6	$23.9	$21.3	$13.2	$10.1

Over the past 20 years, sales of field vegetables have increased by a factor of four. Over the past 10 years (the period for which data is available) sales of berries and sales of grapes and tree fruits have doubled. Sales of Christmas trees also just about doubled over the past 20 years while sales of nursery and floriculture crops remained flat (Table 3 and Figure 3).

Figure 3. Sales of selected horticultural farm products in Vermont.



The Census of Agriculture Table 72, *Summary by Market Value of Agricultural Products Sold*, provides the number of farms within different ranges of annual sales, by crops. The data for these crop categories are presented side-by-side in Table 4.

A total of 2,075 farms sold vegetables, berries, tree fruits and/or floricultural products. Clearly the total number of horticultural farms is lower because farms report sales in more than one category of crop. These crops are grown on 8,131 acres and have aggregate annual sales of $92.3 million (or 11,626 acres and $96.8 million in aggregate annual sales if Christmas tree farms are included). That acreage is slightly different than the sum of horticultural crop acres (11,434) shown in Figure 2, above, as that was taken from other, crop-specific acreage tables in the 2022 Census.

Table 4. Number of Vermont horticultural farms in different sales classes, by crop category.

	vegetables	**berries**	**orchards**	**nursery + floriculture**	**total**
$ value of sales	**number of farms reporting sales**				
0 to 999	30	16	1	1	48
1000 to 2,500	20	35	13	33	101
2,500 to 4,999	80	37	40	35	192
5,000 to 9,999	111	40	27	72	250
10,000 to 24,999	135	107	70	116	428
25,000 to 49,999	124	92	79	95	390
50,000-99,999	82	45	37	48	212
100,000-249,000	85	46	65	52	248
250,000-499,000	43	24	14	30	111
500,000 - 999,999	25	10	4	18	57
over 1,000,000	17	5	9	7	38
total farms	752	457	359	507	2,075
aggregate sales	$40.6 m	$6.6 m	$19.5 m	$25.6 m	**$92.3 m**
aggregate acres	3,959	743	3,136	293	**8,131**
average sales/acre	$ 10,255	$ 8,883	$ 6,218	$ 87,372	

Direct sales data in the Census are presented for all farm products, not by individual category. From 2002 to 2017, direct sales to consumers increased steadily, and then both the number of farms and the value of direct sales declined slightly in 2022. Direct sales to stores and institutions were first reported in 2017 and both the number of farms and value of sales increased significantly by 2022. This aligns with anecdotal observation that in many areas, retail food marketing opportunities (CSAs, farmers market, etc.) have become saturated, but demand for local food by local stores is growing.

Table 5. Direct sales of Vermont farm products to consumers and to stores and institutions.

Direct sales all farm products	**2022**	**2017**	**2012**	**2007**	**2002**
To consumers	$43.0 m	$50.0 m	$27.4 m	$22.9 m	$9.6 m
number of farms	1,639	1,883	2,071	1,474	1,163
sales per farm	$26,222	$27,262	$13,245	$15,511	$8,226
To stores, institutions	$101.7 m	$54.1 m	--	--	--
number of farms	1,066	737	--	--	--
sales per farm	$94,490	$73,451	--	--	--

Grower Associations. *The Vermont Vegetable and Berry Growers Association* (VVBGA) was founded in 1978 and farm membership has increased over time. Data from the board of director meeting minutes and annual reports shows 97 member farms in 1988, dropping to low of 80 farms in 1991, then increasing steadily to a high of 427 farms in 2021. There were 406 member farms in 2023.

VVBGA member farms	1998	2002	2007	2012	2017	2022
	97	138	131	235	358	404

The Vermont Tree Fruit Growers Association was formed in 1896 as the Vermont State Horticultural Society. Forty orchards are listed on their web site. *The Vermont Nursery and Landscape Association* was founded as The Vermont Plantsmen's Association in 1964. There are 146 members listed on their web site. *The New Hampshire-Vermont Christmas Tree Association* was founded in 1956. It has 110 members; 45 are Vermont farms. The Vermont Grape and Wine Council lists 30 members on its website.

Vineyard acreage has increased ten-fold over the past 20 years, to 333 acres. Grape sales are not reported separately in the Census. Their farm gate value is greatly amplified by their use to make local wines, often by the same farm that grew them. Christmas tree farm acreage is significant at 3,495 acres, though it has declined by 25% over the past 20 years. Christmas tree sales have doubled over that time.

Organic vegetable and fruit production is not reported separately in the Census of Agriculture; only data from all types of farms is shown. A different USDA document, the 2021 USDA Survey of Organic Agriculture (2), found 109 farms growing 1,003 acres of certified organic vegetables in Vermont with farm gate sales of $14.7 million. That is 36% of the value of vegetable sales reported in the 2022 Census of Agriculture (Table 3). The 2020-2021 Organic Food Guide published by NOFA-Vermont is somewhat consistent with the USDA data, listing 158 certified organic vegetable/fruit farms, with 1,249 acres of organic vegetables/herbs, 556 acres of organic fruit, and 34 acres of organic greenhouse area (3).

High tunnels a.k.a. greenhouses are found on most vegetable farms, but the data collected on greenhouse production raises questions. The 2022 Census of Agriculture found 213 farms selling greenhouse vegetables and herbs under 973,149 square feet of cover, with aggregate sales of $5.4 million. Of these, 170 farms sold $4.2 million worth of greenhouse tomatoes. That's a decline from 220 farms selling greenhouse vegetables and herbs in 2017, of which 199 sold greenhouse tomatoes. Total area under cover and value of sales did increase slightly from 2017 to 2022, but this data does not make a lot of sense given the number and area of high tunnels funded in Vermont by the EQUIP program of USDA-NRCS.

The USDA Natural Resources Conservation Service (NRCS) reports that 237 tunnels covering 669,772 square feet were funded in Vermont from 2012 and 2022, and that 175 (74%) of these tunnels covering 466,277 square feet were funded from 2018 to 2021 (4). The 2012 Census reported 659,911 square feet of greenhouse tomatoes (all greenhouse vegetables were not reported in 2012), which is before the NRCS high tunnel program had started.

Combining the 2012 greenhouse tomato area with the tunnel area funded by NRCS totals 1.33 million square feet, which is 37% greater than the 2022 greenhouse vegetable area reported in the Census. (Although not all NRCS high tunnels are used to grow vegetables, most are.) In addition, many farms construct high tunnels each year without USDA funding. Thus, it appears that the 2022 Census may have under-reported greenhouse vegetable production in Vermont by at least half.

Data on horticultural markets is not readily available for Vermont. An Agency of Agriculture, Food and Markets web page states there are about 60 summer farmers' markets and 15 winter farmers' markets (5). The searchable DigIn Vermont web site lists 73 farmers' markets and 159 "farm stands or U-pick" locations (6). NOFA-Vermont's searchable producers directory lists over 100 CSA farms, mostly horticultural, with a few dairy and meat CSAs (7). Many farms sell to restaurants, but a search of using the term "vegetable" on the Vermont Fresh Network producers' site (8) listed only 15 farms.

Roadside farm stands and pick-your-own markets are common on Vermont horticulture farms, but data on their abundance and volume of sales is lacking.

Although unsaturated niches exist, the potential for a lot more growth among direct markets seems low. Smaller farms could sell to wholesale markets, but in general those prices are not high enough to sustain farms that are used to getting retail prices from direct sales.

A relatively small number of farms are selling to out-of-state retail customers through value-driven aggregators (e.g. Farmers to You), and specialty distributors (e.g. Meyers Produce). Those markets have potential for growth given larger urban populations in nearby states, and the capacity of Vermont growers to deliver high-quality, organic or sustainably grown products for much of the year given the widespread adoption of improved food safety practices, efficient cold storage, and winter greenhouse production techniques.

Supermarkets buy and sell a lot of fresh produce, but data on their volume of sales is not readily available. This market channel is not widely used by Vermont growers due to barriers to entry (labeling, packaging, quality, and delivery expectations) and because prices paid are typically lower than those offered by other wholesale markets such as health food stores, food co-ops and some independent markets, those these tend to buy a lot less produce. According to grower testimonials, institutions (e.g. schools and hospitals) do not consistently buy enough volume of produce at fair prices to make that market viable. Those that do have a unique organizational commitment to local food (9).

A survey of the VVBGA membership in 2023 had 223 responses of which 193 were farmers or farm employees. Among the respondents:

- 88% said the future of vegetable and berry farming in the region was positive or very positive,
- Top issues affecting the industry's future are climate change/extreme weather, and labor availability.
- 32% of farms rent some crop land; 17% rent most or all their crop land.
- 84% irrigate some crop land; 47% irrigate most or all their crop land.
- 34% sell most or all crops directly to consumers, 75% sell half or more of their crops directly to consumers, 12% sell little or no crops directly to consumers.
- 34% have no full-time farm employees; 56% have 6 to 10 full-time employees, 10% have 11 or more.
- 3% have annual vegetable and berry sales >$1 million, about 1/6 have annual sales >$500,000 and 1/2 have annual sales >$100,000.
- 93% grow vegetables, on an average of 11.4 acres per farm.
- 62% grow berries on an average of 2.2 acres per farm.
- 63% grow ornamentals on an average of .88 acres per farm.
- 88% have high tunnels/greenhouses with an average of 14,029 square feet per farm.

References (all accessed 3/23/24).

(1) USDA. National Agricultural Statistics Service. Census of Agriculture State Level Data – Vermont.
(2) USDA. National Agricultural Statistics Service. 2022. Certified Organic Survey 2021 Summary.
(3) Northeast Organic Farming Association of Vermont. 2021. Vermont Organic Farm & Food Guide 2020-2021
(4) Freedom of Information Act request 2024-NRCS-02927-F. 3/1/24.
(5) Vermont Agency of Agriculture, Food and Markets. Farm Stands, CSA & Farmers Markets.
(6) Dig In Vermont. FIND YOUR OWN Vermont Food Experience.
(7) Northeast Organic Farming Association of Vermont. Searchable Farms and Producers Directory.
(8) Vermont Fresh Network. Searchable producer member listing.
(9) Boutelle, Chloe. 2018. Direct Farm-to-Institution Marketing: The Common Challenges and Keys to Success of Northeast Producers. UVM Food Systems Masters project report.

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