Overview of Commercial Horticulture Farms in Vermont

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Horticultural farming in Vermont is diverse, making data collection and interpretation complicated. Vermont farms produce many different categories of horticultural crops, and they utilize a variety of market channels.

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

The U.S. Census of Agriculture, conducted every 5 years, collects crop production and sales data by type of product, but it does not collect data in a way that makes it easy to describe an industry in which farms typically grow and sell some combination of fruits, ornamentals, vegetables, and value-added products. A farm may be counted multiple times if it sells a variety of products, so it is not possible to get an exact count of all horticulture farms, or of how many farms sell both vegetables and berries, for example.

Further, there is no consistent data collection about the number of, and revenues generated from, different market channels used by horticultural producers, such as CSAs, farmers' markets, on-farm markets, and different types of wholesale markets. The Census collects data about direct-to-consumer sales and direct-to-retailer sales, but these data include all farm products, not just horticultural crops.

Categories of data have also changed over time in the Census, with some being added and/or combined. For example, reports of berry acreage and area of greenhouse vegetables were only added to the Census in 2002. Greenhouse tomato production was not reported until 2007. Despite challenges with the data, looking at 2022 Census of Agriculture for Vermont (1) and comparing results from the past 20 years can help us see some trends in commercial horticulture in Vermont.

From 2002 to 2012, the number of farms selling horticultural products increased in all categories except Christmas trees; the increases were significant for apples (+53%), greenhouse vegetables (200%) grape (+388%), blueberries (+189%), raspberries (+185%), strawberries (+61%) and vegetables (+91%).

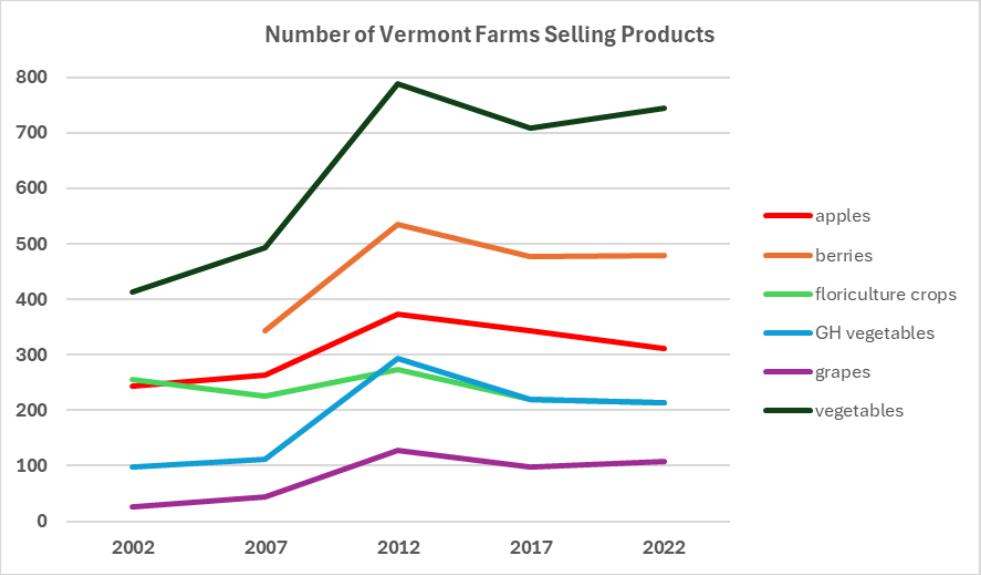
Then, from 2012-2022, the number of farms declined in all categories, though all except floriculture crops remained above 2002 levels (Table 1).

Table 1. Number of horticultural farms in Vermont.

Number of farms selling	2022	2017	2012	2007	2002
apples	311	343	373	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 depicts the increase in farm numbers across categories, except floriculture, followed by a leveling off that occurred over the past decade. It also shows that vegetable production takes place on the largest number of horticultural farms, followed by berry and apple production.

Figure 1. Number of selected horticultural farms in Vermont.



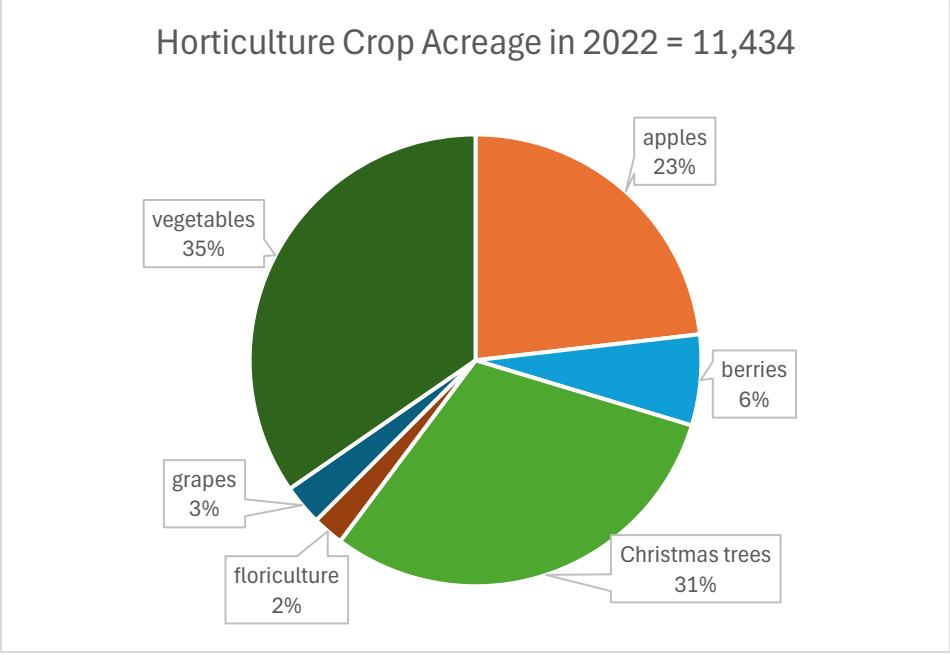
Farm acreage of horticultural crops (Table 2) does not always follow the same trend as farm numbers. Apple acreage decreased by 25% while the number of producers increased by 28% over the past 20 years, indicating a decrease in average orchard size. Christmas tree acreage also decreased by 25% while the number of producers held relatively steady. Blueberry, raspberry, and strawberry acreage held relatively steady 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 all point to horticultural farms getting smaller on average.

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

The acreage of different crops does not correlate well with either number of producers or revenue. Figure 2 shows that vegetables, Christmas trees, and apples utilize the majority of the 11,434 acres of horticultural field production in 2022 at 35%, 31%, and 23% of all acreage, reported by 744, 266, and 311 farms, respectively. These farms reported $40.6m, (less than) $19.6m, and $4.5m in sales, respectively.

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



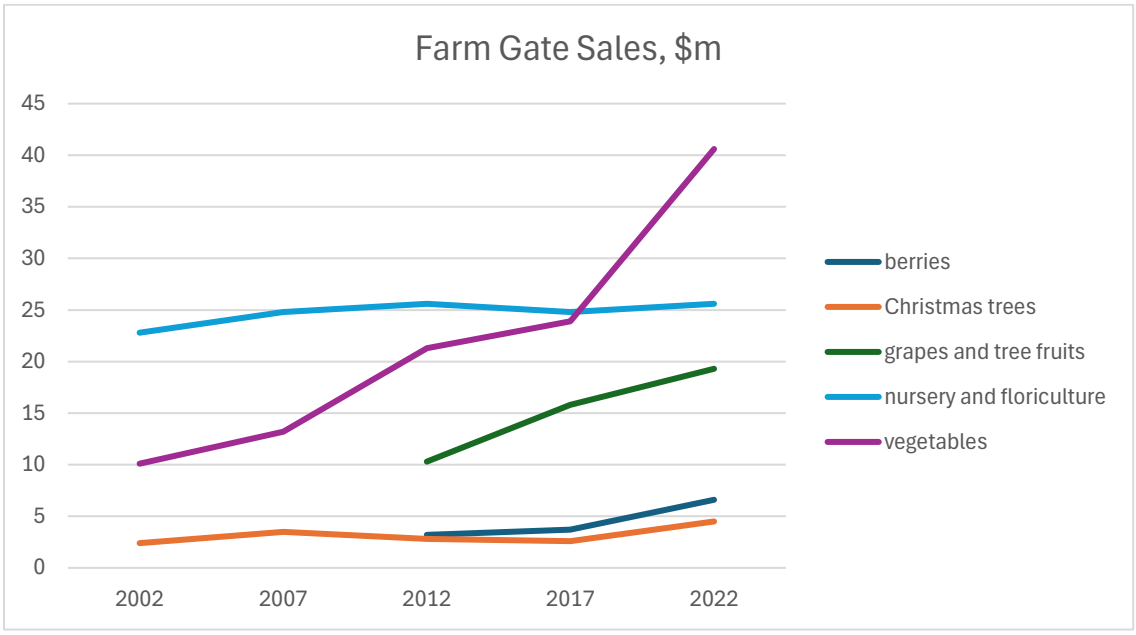
Data on crop sales is less complete than for other categories over the past 20 years, because come data collection started more recently (Table 3), and interpretation is challenged by the inconsistent use of categories by the Census. For example, no sales data were provided for tree fruits or berries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

Table 3. Sales of horticultural farm products in Vermont.

Farm sales (millions)	**2022**	**2017**	**2012**	**2007**	**2002**
tree fruits ("fruits and tree nuts")	$19.3 359 farms	$15.8 335 farms	$10.3 171? farms	--	--
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 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 which sales of nursery and floriculture crops have remained flat (Table 3 and Figure 3).

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



The 2022 Census of Agriculture classifies farms by value of annual sales, and these data are combined for different horticultural crops in Table 4, below. A total of 2,075 farms reported selling vegetables, berries, tree fruits and/or floricultural products.

The data does not allow one to determine how many farms in total sell horticultural crops, since a farm can report sales in more than one category of crop. However, one can determine that these crops are grown on 8,131 acres and have aggregate annual sales of $92.3 million, or $96.8 million if Christmas trees are included.

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 is reported only for all types of products, not by product category. One can only assume that the trends are similar for horticultural products. 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 was 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	--	--	--

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

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 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).

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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