e-GRO Edible Alert

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CEA is Growing: Trends from the U.S. 2022 Census of Agriculture

Every five years the United States Department of Agriculture collects comprehensive farm level data across all agricultural commodities. Data is summarized both statewide and nationally on land use, operators, employees, crops produced, and wholesale farmgate value. The most recent Census of Agriculture was conducted from all farms (urban and rural) with at least $1,000 in production value based on 2022 data.

The census was released in February, 2024 and shows some interesting trends for controlled environment agriculture (CEA).The full report (757 pages with 57 tables of data) can be accessed at https://www.nass.usda.gov/AgCensus/ where individual tables can also be downloaded. CEA is represented by the category “Food Crops Grown Under Glass or Other Protection” which refers to all types of protected growing structures from high tunnels to high tech greenhouses. National data is reported in Chapter 1, table 39 on page 47 and statewide data is in Chapter 2, table 34 on page 586.

One caveat before we get started is that the data rely on self-reporting from farms and some farms may not report or underreport. (Thus, I suspect the true value of CEA in the U.S. is larger than what we'll see below).

National trends

Production value (wholesale farmgate value) including total greenhouse vegetables and fresh cut herbs for 2022 was reported at $982 million which is a 31% increase from 2017 (Table 1). During this time period the number of farms increased by 5% and the amount of production area increased by 18%. Thus, farms are getting larger. In 2007, the production value was $553 million, thus the value of CEA has nearly doubled in 15 years. In that same time, production area has doubled, and number of farms has nearly tripled. We won't go into details here, but by far the largest number of CEA producers are small. More than 7,000 producers are less than 3,000 square feet in size. This makes me believe we have a vibrant high tunnel community growing under protection for perhaps diversified farm stands, markets and community support agriculture (CSA). Another interesting fact I gleaned was that only 1,401 farms had a production area greater than 10,000 square feet and these produced $850 million in production value (87% of total value). Thus, our industry has an interesting dichotomy whereby a relatively small number of operations that are very large producers encompass the majority of sales. But, small family and urban farms make up the vast number of operations.

Table 1. U.S. Food crops grown under glass or other protection, cumulative data for fifty U.S. states over time. Source: USDA NASS Census of Agriculture.

Year	Acres under glass or other protection	Number of farms	Value sales ($ million)
2007	1,418	4,075	553
2012	2,250	8,750	634
2017	2,584	10,849	748
2022	3,062	11,465	982

Ranking	State	Acres under glass or other protection	Number of farms	Value of sales ($ million)	% increase in sales (5 years)
1	California	876	476	255	+23%
2	Ohio	214	486	87	+99%
3	New York	157	556	67	+74%
4	Virginia	64	322	49	+56%
5	Texas	173	323	44	-29%
6	Maine	68	307	40	+6%
7	Minnesota	85	275	39	+46%
8	Massachusetts	54	262	36	+104%
9	Kentucky	153	439	26	+505%
10	Illinois	74	262	23	-8%

Table 2. Top 10 states (by sales value) for food crops grown under glass or other protection in 2022. Source: USDA NASS Census of Agriculture.

Statewide trends

Table 2 lists the top ten states by sales value. The list is dominated by California, blessed with a coastal mediterranean climate where much of the state's greenhouse production takes place. California sales were $255 million which dwarfs the next largest state of Ohio ($87 million). Ohio has seen a 99% increase in production value over the past five years, largely due to establishment and growth of operations from Ontario Canada. Third is my beloved New York state ($74 million) which is close to population centers but has a challenging climate and relatively expensive energy and labor. New York saw a 74% increase in value over the last 5 years. Massachusetts (ranked #8) and Kentucky (ranked #9), saw 104% and 505%! increases in production. A little internet sleuthing may show you that expansion of a couple specific operations are behind those data. Table 3 lists the information available for all 50 states.

Crop specific data

Unfortunately, not much crop specific data is collected in the Census of Agriculture. Production values are separated only into tomatoes and all other crops. Luckily, in two years we'll get the Census of Horticultural Specialties which has more crop level data (e.g. tomatoes, cucumbers, peppers, lettuce, herbs, berries, etc.). As you suspected, tomatoes dominate sales value at $470 million (or almost half of total sales) with everything else falling into the category of "other greenhouse vegetables and fresh cut herbs". There is another important crop tracked separately and not represented in the numbers above and that is greenhouse fruits and berries. Their production value increased from $25 million in 2017 to $36 million in 2022.

It's always interesting to see how our industry is evolving and growing (pun intended)!

State	Acres under glass or other protection	Number of farms	Value of sales ($)
Alabama	1,141,504	124	4,727,878
Alaska	485,708	181	3,199,277
Arizona	1,068,125	93	6,035,715
Arkansas	251,151	88	1,044,314
California	38,172,395	476	254,595,896
Colorado	1,751,594	303	14,397,145
Connecticut	945,727	188	3,418,009
Delaware	159,512	13	(D)
Florida	4,062,031	250	11,765,021
Georgia	1,026,496	200	7,239,853
Hawaii	2,017,632	146	19,577,893
Idaho	548,966	196	2,172,371
Illinois	3,237,869	262	23,234,697
Indiana	1,579,001	298	6,596,655
Iowa	2,046,728	216	20,708,741
Kansas	555,936	111	1,907,594
Kentucky	6,647,045	439	26,566,144
Louisiana	262,185	74	1,528,595
Maine	2,954,626	307	40,245,996
Maryland	688,607	138	(D)
Massachusetts	2,336,274	262	36,349,384
Michigan	4,982,351	577	22,890,462
Minnesota	3,709,397	275	39,093,358
Mississippi	354,328	109	2,296,963
Missouri	2,463,726	396	13,113,918
Montana	570,597	138	5,126,132
Nebraska	1,297,780	55	7,063,951
Nevada	71,299	23	314,066
New Hampshire	516,416	151	6,153,778
New Jersey	999,772	105	17,809,837
New Mexico	605,880	157	3,839,100
New York	6,826,244	556	66,946,259
North Carolina	2,170,409	397	13,436,346
North Dakota	28,884	18	143,403
Ohio	9,320,415	486	87,002,237
Oklahoma	435,685	104	(D)
Oregon	1,905,428	364	9,199,682
Pennsylvania	4,628,602	602	22,290,475
Rhode Island	328,520	70	4,683,676
South Carolina	704,387	90	8,869,855
South Dakota	256,543	60	1,233,717
Tennessee	1,474,194	227	20,878,268
Texas	7,531,701	323	43,989,086
Utah	1,418,232	93	9,032,408
Vermont	973,149	213	5,357,559
Virginia	2,788,622	323	49,491,243
Washington	1,412,704	468	7,793,663
West Virginia	664,095	221	3,687,502
Wisconsin	2,923,724	447	16,123,381
Wyoming	77,105	52	449,063

Table 3. Statewide data for food crops grown under glass or other protection in 2022. Source: USDA NASS Census of Agriculture. Source: USDA NASS Census of Agriculture. A (D) indicates data withheld due to disclosure sensitivity (for example, if there was a risk of disclosing individual respondent's data, ex. 1 dominating operation in a county).

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