



Cost of Pollination

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Cost per Colony to Pollinate Almonds down 3 Percent from 2022

In Regions 6 & 7, the average cost per colony for almonds decreased 3 percent from 194 dollars per colony in 2022 to 188 dollars per colony in 2023. The average price per acre decreased from 336 dollars per acre to 310 dollars per acre during that period. The total value of pollination for almonds decreased 8 percent. Almonds were the highest valued crop in that region. The total value of all pollination in Regions 6 & 7 for 2023 was 356 million dollars, down 8 percent from 2022.

Cranberries had the highest total value of pollination of crops reported in Region 1 in 2023. The price per colony for cranberries increased 1 percent to 82.8 dollars per colony in 2023. The price per acre increased 8 percent to 200 dollars per acre. The total value of pollination for cranberries in Region 1 for 2023 was 6.46 million dollars. The total value for pollination of all crops in Region 1 for 2023 was 19.8 million dollars, down 10 percent from 2022.

Blueberries had the highest total value of pollination of crops reported in Region 2 in 2023. The price per colony for blueberries decreased 15 percent to 66.4 dollars per colony in 2023. The price per acre unchanged at 139 dollars per acre. The total value of pollination for blueberries in Region 2 for 2023 was 3.25 million dollars. The total value of pollination of all crops in Region 2 for 2023 was 6.75 million dollars, up 2 percent from 2022.

Watermelons had the highest total value of pollination of crops reported in Region 3 in 2023. The price per colony for watermelons decreased 26 percent to 57.0 dollars per colony in 2023. The price per acre decreased 19 percent to 81.5 dollars per acre. The total value of pollination for watermelons in Region 3 for 2023 was 2.00 million dollars. The total value of pollination of all crops in Region 3 for 2023 was 5.59 million dollars, down 24 percent from 2022.

Apples had the highest total value of pollination of crops reported in Region 4 in 2023. The price per colony for apples increased 44 percent to 74.2 dollars per colony in 2023. The price per acre increased 57 percent to 64.4 dollars per acre. The total value of pollination for apples in Region 4 for 2023 was 141 thousand dollars. The total value of pollination of all crops in Region 4 for 2023 was 1.28 million dollars, up 104 percent from 2022.

Apples had the highest total value of pollination of crops reported in Region 5 in 2023. The price per colony for apples increased 2 percent to 59.5 dollars per colony in 2023. The price per acre increased 8 percent to 68.0 dollars per acre. The total value of pollination for apples in Region 5 for 2023 was 9.76 million dollars. The total value of pollination of all crops in Region 5 for 2023 was 24.6 million dollars, up 41 percent from 2022.

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Paid Pollinated Acres, Price per Acre, Colonies Used, Price per Colony, and Total Value of Pollination – Region 1: 2022

[See regional listing on page 10]

Crop	Region 1				
	Paid pollinated acres	Price per acre	Colonies used	Price per colony ²	Total value of pollination
	(acres)	(dollars)	(colonies)	(dollars)	(1,000 dollars)
Tree fruit					
Apple	68,400	43.8	39,000	91.2	3,557
Cherry	28,000	34.5	16,500	78.9	1,302
Melons					
Watermelon	3,100	59.6	3,000	80.8	242
Berries					
Blueberry	45,900	179.0	87,000	98.4	8,561
Cranberry	27,700	185.0	65,000	81.6	5,304
Vegetables					
Cucumber	9,300	20.7	10,500	69.7	732
Pumpkin	7,100	40.6	7,500	78.6	590
Squash	5,400	31.2	4,600	63.2	291
All other ¹	8,500	47.2	17,000	77.4	1,316
Total	203,400	91.0	250,100	87.5	21,895

¹ Includes crops not categorized above.

² Regional total price per colony is total value of pollination divided by colonies used.

Paid Pollinated Acres, Price per Acre, Colonies Used, Price per Colony, and Total Value of Pollination – Region 1: 2023

[See regional listing on page 10]

Crop	Region 1				
	Paid pollinated acres	Price per acre	Colonies used	Price per colony ²	Total value of pollination
	(acres)	(dollars)	(colonies)	(dollars)	(1,000 dollars)
Tree fruit					
Apple	76,400	38.5	44,000	81.0	3,564
Cherry	29,400	27.0	12,500	66.7	834
Melons					
Watermelon	1,950	74.6	2,400	69.9	168
Berries					
Blueberry	40,800	142.0	81,000	76.8	6,221
Cranberry	32,100	200.0	78,000	82.8	6,458
Vegetables					
Cucumber	8,100	41.3	4,600	79.6	366
Pumpkin	8,700	36.5	6,000	77.2	463
Squash	4,800	52.3	4,400	83.9	369
All other ¹	5,600	46.8	17,500	77.8	1,362
Total	207,850	83.0	250,400	79.1	19,805

¹ Includes crops not categorized above.

² Regional total price per colony is total value of pollination divided by colonies used.

Paid Pollinated Acres, Price per Acre, Colonies Used, Price per Colony, and Total Value of Pollination – Region 2: 2022

[See regional listing on page 10]

Crop	Region 2				
	Paid pollinated acres	Price per acre	Colonies used	Price per colony ²	Total value of pollination
	(acres)	(dollars)	(colonies)	(dollars)	(1,000 dollars)
Tree fruit					
Apple	11,900	17.6	5,500	52.6	289
Melons					
Cantaloupe	1,850	84.9	3,300	52.3	173
Watermelon	16,900	77.5	19,500	70.6	1,377
Berries					
Blueberry	22,400	139.0	46,000	78.3	3,602
Vegetables					
Pumpkin	1,850	38.5	1,300	88.9	116
Squash	3,150	89.7	5,500	53.3	293
All other ¹	8,800	52.3	13,000	57.8	751
Total	66,850	84.0	94,100	70.2	6,601

¹ Includes crops not categorized above.

² Regional total price per colony is total value of pollination divided by colonies used.

Paid Pollinated Acres, Price per Acre, Colonies Used, Price per Colony, and Total Value of Pollination – Region 2: 2023

[See regional listing on page 10]

Crop	Region 2				
	Paid pollinated acres	Price per acre	Colonies used	Price per colony ²	Total value of pollination
	(acres)	(dollars)	(colonies)	(dollars)	(1,000 dollars)
Tree fruit					
Apple	11,800	26.3	5,000	69.3	347
Melons					
Cantaloupe	2,600	74.4	3,800	57.5	219
Watermelon	18,000	88.8	25,000	66.1	1,653
Berries					
Blueberry	21,100	139.0	49,000	66.4	3,254
Vegetables					
Pumpkin	1,160	36.9	1,000	74.6	75
Squash	2,750	73.1	4,100	60.3	247
All other ¹	13,400	54.4	14,500	65.9	956
Total	70,810	84.8	102,400	65.9	6,751

¹ Includes crops not categorized above.

² Regional total price per colony is total value of pollination divided by colonies used.

Paid Pollinated Acres, Price per Acre, Colonies Used, Price per Colony, and Total Value of Pollination – Region 3: 2022

[See regional listing on page 10]

Crop	Region 3				
	Paid pollinated acres	Price per acre	Colonies used	Price per colony ²	Total value of pollination
	(acres)	(dollars)	(colonies)	(dollars)	(1,000 dollars)
Melons					
Watermelon	18,200	100.0	24,000	76.9	1,846
Berries					
Blueberry	4,200	134.0	16,500	54.8	904
All other ¹	32,700	46.9	89,000	52.1	4,637
Total	55,100	71.2	129,500	57.0	7,387

¹ Includes crops not categorized above.

² Regional total price per colony is total value of pollination divided by colonies used.

Paid Pollinated Acres, Price per Acre, Colonies Used, Price per Colony, and Total Value of Pollination – Region 3: 2023

[See regional listing on page 10]

Crop	Region 3				
	Paid pollinated acres	Price per acre	Colonies used	Price per colony ²	Total value of pollination
	(acres)	(dollars)	(colonies)	(dollars)	(1,000 dollars)
Melons					
Watermelon	22,100	81.5	35,000	57.0	1,995
Berries					
Blueberry	2,350	230.0	18,000	59.3	1,067
All other ¹	26,700	58.7	37,000	68.3	2,527
Total	51,150	76.5	90,000	62.1	5,589

¹ Includes crops not categorized above.

² Regional total price per colony is total value of pollination divided by colonies used.

Paid Pollinated Acres, Price per Acre, Colonies Used, Price per Colony, and Total Value of Pollination – Region 4: 2022

[See regional listing on page 10]

Crop	Region 4				
	Paid pollinated acres	Price per acre	Colonies used	Price per colony ²	Total value of pollination
	(acres)	(dollars)	(colonies)	(dollars)	(1,000 dollars)
Tree fruit					
Apple	1,750	41.0	2,200	51.7	114
Cherry	1,210	36.1	2,300	32.1	74
All other ¹	1,650	52.6	8,000	55.0	440
Total	4,610	44.2	12,500	50.2	628

¹ Includes crops not categorized above.

² Regional total price per colony is total value of pollination divided by colonies used.

Paid Pollinated Acres, Price per Acre, Colonies Used, Price per Colony, and Total Value of Pollination – Region 4: 2023

[See regional listing on page 10]

Crop	Region 4				
	Paid pollinated acres	Price per acre	Colonies used	Price per colony ²	Total value of pollination
	(acres)	(dollars)	(colonies)	(dollars)	(1,000 dollars)
Tree fruit					
Apple	1,150	64.4	1,900	74.2	141
Cherry	1,040	41.6	2,600	43.3	113
All other ¹	1,160	62.4	19,000	53.9	1,024
Total	3,350	56.7	23,500	54.4	1,278

¹ Includes crops not categorized above.

² Regional total price per colony is total value of pollination divided by colonies used.

Paid Pollinated Acres, Price per Acre, Colonies Used, Price per Colony, and Total Value of Pollination – Region 5: 2022

[See regional listing on page 10]

Crop	Region 5				
	Paid pollinated acres	Price per acre	Colonies used	Price per colony ²	Total value of pollination
	(acres)	(dollars)	(colonies)	(dollars)	(1,000 dollars)
Tree fruit					
Apple	104,000	62.8	113,000	58.3	6,588
Cherry	40,700	115.0	79,000	60.2	4,756
Peach	1,060	37.3	1,100	47.7	52
Pear	20,000	61.3	23,000	55.8	1,283
Berries					
Blueberry	13,300	136.0	39,000	50.9	1,985
Cranberry	4,100	118.0	6,500	73.9	480
Raspberry	4,100	58.4	6,500	40.2	261
All other ¹	33,400	44.8	45,000	45.5	2,048
Total	220,660	74.7	313,100	55.7	17,453

¹ Includes crops not categorized above.

² Regional total price per colony is total value of pollination divided by colonies used.

Paid Pollinated Acres, Price per Acre, Colonies Used, Price per Colony, and Total Value of Pollination – Region 5: 2023

[See regional listing on page 10]

Crop	Region 5				
	Paid pollinated acres	Price per acre	Colonies used	Price per colony ²	Total value of pollination
	(acres)	(dollars)	(colonies)	(dollars)	(1,000 dollars)
Tree fruit					
Apple	139,500	68.0	164,000	59.5	9,758
Cherry	36,100	104.0	62,000	61.2	3,794
Pear	23,800	56.7	23,000	59.1	1,359
Berries					
Blueberry	23,500	150.0	64,000	56.5	3,616
Cranberry	6,000	121.0	9,000	81.9	737
Raspberry	2,600	72.6	4,700	40.7	191
All other ¹	53,900	84.5	73,000	71.3	5,205
Total	285,400	82.6	399,700	61.7	24,660

¹ Includes crops not categorized above.

² Regional total price per colony is total value of pollination divided by colonies used.

Paid Pollinated Acres, Price per Acre, Colonies Used, Price per Colony, and Total Value of Pollination – Region 6 & 7: 2022

[See regional listing on page 10]

Crop	Region 6 & 7				
	Paid pollinated acres	Price per acre	Colonies used	Price per colony ²	Total value of pollination
	(acres)	(dollars)	(colonies)	(dollars)	(1,000 dollars)
Tree nuts					
Almond	1,032,700	336.0	1,880,000	194.0	364,720
Tree fruit					
Cherry	27,000	163.0	53,000	84.0	4,452
All other ¹	96,100	120.0	300,000	58.6	17,580
Total	1,155,800	313.8	2,233,000	173.2	386,752

¹ Includes crops not categorized above.

² Regional total price per colony is total value of pollination divided by colonies used.

Paid Pollinated Acres, Price per Acre, Colonies Used, Price per Colony, and Total Value of Pollination – Region 6 & 7: 2023

[See regional listing on page 10]

Crop	Region 6 & 7				
	Paid pollinated acres	Price per acre	Colonies used	Price per colony ²	Total value of pollination
	(acres)	(dollars)	(colonies)	(dollars)	(1,000 dollars)
Tree nuts					
Almond	1,075,400	310.0	1,780,000	188.0	334,640
Tree fruit					
Apples	3,350	84.9	6,500	56.2	365
Cherry	26,500	124.0	44,000	77.9	3,428
Melons					
Cantaloupe	36,100	62.4	28,000	81.6	2,285
Watermelon	8,900	150.0	9,500	142.0	1,349
Other Crops					
Alfalfa	11,200	139.0	19,500	92.0	1,794
Sunflower	18,300	88.1	27,000	60.5	1,634
All other ¹	64,100	101.0	165,000	66.3	10,940
Total	1,243,850	281.3	2,079,500	171.4	356,435

¹ Includes crops not categorized above.

² Regional total price per colony is total value of pollination divided by colonies used.

Statistical Methodology

Survey Procedures: The *Cost of Pollination* survey, conducted annually in all 50 states, collects information on acreage pollinated, colonies used, and dollars spent for a variety of different crops. The target population for *Cost of Pollination* estimate program is all farms and ranches with at least one acre of a crop determined to be potentially pollinated by honey bees. There were 33 specific crops targeted in the *Cost of Pollination* sampling scheme, 19 of these crops were listed individually on the questionnaire. Additional crops were allowed to be reported under the “All Other Crops” category (see “Sampled Crops”). Any other reported commodity not included in these lists were grouped as miscellaneous and summarized together. The *Cost of Pollination* samples were selected using a Multivariate Probability Proportional to Size (MPPS) sampling scheme. Each record was assigned a measure of size based on the record’s data for multiple specified commodities. The 2023 sample size was 15,548 and the 2022 sample size was 15,590. All sampled operations were mailed a questionnaire and given adequate time to respond by mail or electronic data reporting (EDR). Those that did not respond by mail or EDR were telephoned or enumerated in person.

Sampled Crops: The 19 sampled crops listed on the questionnaire were: alfalfa, almonds, apples, blueberries, cantaloupes, cherries, clover, cranberries, cucumber, nectarines, oranges, peaches, pears, pumpkins, raspberries, squash, strawberries, sunflowers, and watermelons. The 14 remaining crops that were sampled, but not listed individually on the questionnaire were: apricots, avocados, boysenberries, buckwheat, canola, grapes, honeydew melons, kiwifruit, plums, prunes, macadamia nuts, mangos, tomatoes, and turnips.

Estimation Procedures: Estimates were prepared by the Agricultural Statistics Board after reviewing recommendations and analysis submitted by each Regional Field Office. All data were analyzed for unusual values. Data from each operation were compared to their own past operating profile and to trends from similar operations. Data for missing operations were covered by weighting positive data of similar operations based on location and strata. National and State survey data were reviewed for reasonableness with each other, estimates from the previous year, and other USDA, NASS reports.

In order to be published individually, a crop must have an appropriate threshold of paid pollinated acres in a region and meet USDA, NASS’s confidentiality policy. If a crop did not meet either of these requirements, it was combined with all other unpublished crops under the “All Other” heading. Due to the differences in regions and years, the aggregate and other published estimates may include different crops.

Revision Policy: The previous year’s estimates are subject to revision when current year’s estimates are made. Revisions are the result of late reports or corrected data.

Reliability: Estimates were created by reviewing rounded indications from the survey and the associated measures of error. Due to the sampled population differing from other USDA, NASS surveys, estimates on this report may differ from other published numbers. Since all operations with crops were not included in the sample, survey estimates are subject to sampling variability. The measurement of error due to sampling in the current period is evaluated by the coefficient of variation for each estimated item. For individually published crops, coefficients of variation can be found using USDA, NASS’s Quick Stats searchable database.

Survey results were also subject to non-sampling errors such as omissions, duplication, and mistakes in reporting, recording, and processing the data. While these errors cannot be measured directly, they were minimized through strict quality controls in the data collection process and a careful review of all reported data for consistency and reasonableness.

Estimation Regions

To improve the reliability and increase the number of estimates which can be published, estimates are published at regional level, based on the regions used for the 2012 Census of Agriculture. Regions 6 and 7 were combined. The states in each region are as follows:

- Region 1:** Connecticut, Illinois, Indiana, Iowa, Kansas, Massachusetts, Maine, Michigan, Nebraska, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, Wisconsin.
- Region 2:** Alabama, Delaware, Georgia, Kentucky, Maryland, North Carolina, South Carolina, Tennessee, Virginia, West Virginia.
- Region 3:** Arkansas, Florida, Louisiana, Missouri, Mississippi, New Mexico, Oklahoma, Texas.
- Region 4:** Colorado, Minnesota, Montana, Nevada, North Dakota, South Dakota, Utah, Wyoming.
- Region 5:** Alaska, Idaho, Oregon, Washington.
- Region 6 & 7:** Arizona, California, Hawaii.

Terms and Definitions of Cost of Pollination Estimates

Paid Pollinated Acres: Acreage that an operation paid money to be pollinated by honey bees.

Dollars per Acre: The average price paid by operations to pollinate an acre of crop. Acres pollinated for free or on a nonmonetary basis were not included in this calculation.

Colonies Used: The total colonies used to pollinate a crop; regardless of ownership or if on a paid basis.

Dollars per Colony: The average price paid by operations to use a colony for pollination. Colonies owned by the operation or used on a nonmonetary basis were not included.

Total Value of Pollination: The total valuation of all pollination, calculated by multiplying the price per colony by colonies used.

Information Contacts

Listed below are the commodity specialists in the Livestock Branch of the National Agricultural Statistics Service to contact for additional information. E-mail inquiries may be sent to nass@usda.gov

Travis Averill, Chief, Livestock Branch	(202) 692-0069
Jean Porter, Head, Poultry and Specialty Commodities Section	(202) 690-3223
Holly Brenize – Poultry Slaughter	(202) 720-0585
Liana Cuffman – Catfish and Trout, Mink, Census of Aquaculture	(202) 720-8784
Fatema Haque – Turkey Hatchery, Turkeys Raised	(202) 720-3244
Derron Martin – Chicken Hatchery, Egg Products	(202) 690-3237
Seth Riggins – Honey, Honey Bee Colonies	(202) 690-4870
Shulonda Shaw – Cold Storage, Capacity of Refrigerated Warehouses	(202) 720-3240
Autumn Stone – Layers, Eggs	(202) 690-3676
Takiyah Walker – Broiler Hatchery	(202) 720-6147

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- Cornell’s Mann Library has launched a new website housing NASS’s and other agency’s archived reports. The new website, <https://usda.library.cornell.edu>. All email subscriptions containing reports will be sent from the new website, <https://usda.library.cornell.edu>. To continue receiving the reports via e-mail, you will have to go to the new website, create a new account and re-subscribe to the reports. If you need instructions to set up an account or subscribe, they are located at: <https://usda.library.cornell.edu/help>. You should whitelist notifications@usda-esmis.library.cornell.edu in your email client to avoid the emails going into spam/junk folders.

For more information on NASS surveys and reports, call the NASS Agricultural Statistics Hotline at (800) 727-9540, 7:30 a.m. to 4:00 p.m. ET, or e-mail: nass@usda.gov.

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