

Bee Colony Pollination rental prices, eastern US with comparison to west coast

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A mail survey was sent to 75 beekeepers identified by MAAREC (Mid-Atlantic Apiculture Research and Extension Consortium) as involved in pollination colony rental in 4 of the 6 state region of MAAREC. A total of 19 valid responses (25% return) were tallied and compared to 7 such surveys obtained in a pilot survey the previous year (2008). The 8 Commercial (> 300 colonies) operations (11,366 colonies) responding averaged 1420 colonies & the 11 semi-commercial beekeeping operations averaged 101 colonies (all managed minimum of 50 colonies). Table 1 summarizes the responses from both the 2008 pilot survey and the 2009 survey; it provides number of beekeepers who rented colonies for each of 12 commodities, total colony rentals reported, number colonies/ac rented by crop (range), and the pollinating fee (weighted average and range) for each crop.

Table 1: Crop Pollination in MAAREC Region (PA, DE, NJ, MD, VA, WV), 2008-9

SUMMARY of 2008-09: Number Indiv, Num Col, rented, #Col/ac (range) & pollinating fees (ave & range) + % change by crop

CROP	2008 3 commercial (1692 col ave) & 4 semi-commercial (132 col ave) beekeepers					2009 8 commercial (1420 col ave) & 11 semi-commercial (101 col ave) beekeeping operations					% chg
	# Indiv	# Col	#col/ac	Ave Fee	range	# indiv	# Col	# col/ac	Ave fee	fee range	
Apple	10	2041	.2-1.6/ac	\$37.90	\$35-60	14	1812	.33-2/ac	\$38.90	\$35-65 (2 \$0)*	+2.6%
Blackberry						2	36	n/a	\$48.30	\$45-50	
Blueberry	2	350	1/ac	\$59.70	\$58-70	12	5794	.8-1.3/ac	\$67.80	\$56-90 **	+12%
Cranberry						2	4295	1.2/ac	\$73.40	\$73-74	
Cherries	1	60	½/ac	\$45.00		3	95	.25-1/ac	\$50.90	\$40-70 (1 \$0)*	+11.5%
Cucumber	9	4113	.67-1/ac	\$50.40	\$26-65	12	4777	.4-1/ac	\$58.90	\$28-70	+14.5%
Melons	4	556	1-1.9/ac	\$67.40	\$30-70	8	846	.6-1/ac	\$69.90	\$50-70	+3.6%
Pumpkin	3	66	.5-1.7/ac	\$52.90	\$50-55	12	471	.1.8-8/ac	\$62.70	\$40-70 (1 \$0)*	+15.7%
Squash						3	36	.16-.5/ac	\$58.30	\$55-65	
Strawberry	2	40	1col/ac	\$64.30	\$50-70	8	206	.3-.5/ac	\$67.80	\$50-70 (1 \$0)*	+5.4%
Watermelon	2	690	1-1.75/ac	\$55.40	\$55-70	9	1248	.8-1.2/ac	\$61.90	\$50-70	+10.5%
Almond (CA)						3	2129	n/a	\$75.80	\$45-100	
	7tot	7916		\$49.30		19tot	21745		\$64.40		ave +9.5%

*If \$0 fee charged =not computed into ave fee **\$90 fee in Maine - in MAAREC region range = \$56-70

The average pollinating fee (a weighted average of number of rentals at each rental fee) was \$64.40 for the 2009 season. This was an increase of \$15.10 from the more limited pilot study of the previous season. In the 19 returns, responding beekeepers indicated they were managing 12,477 colonies (pre-winter losses) for which they reported 21,745 rentals (1.7 rentals/col). These rentals generated approximately \$1,413,674 gross pollination income. Winter losses were significant, averaging 31.7% with a range of 6 to 70%. These numbers are slightly higher than the national average of winter losses for 2008-2009 (29%) (VanEngelsdorp, et al 2010) but presumably spring splitting will enable the 19 beekeepers to recover colony numbers as was being done by pollinators in the west (Caron, et al, 2010).

There were "rentals" in 5 commodities reported by semi-commercial beekeepers (2 for apple, 1 for cherries and 1 each in strawberry and pumpkin) for which no rental fee was paid – survey forms indicated colonies were placed in the crop for convenience or sales outlet availability. These 5 instances were not computed in the weighted average rental fee for these 4 commodities. Rentals in 4 additional commodities were tallied in 2009 for which no rental information was received in the previous season (blackberry, cranberry, squash and almond). In the case of the later, almonds, 3 eastern beekeepers reported renting colonies but the fee reported (range \$45 to \$100) and lack of information on col/acre would indicate other beekeepers with transportation were subsequently renting these colonies (2129 total) to the growers (presumably for a higher fee). Still almond rental income represented 11% of total rental income for the 19 beekeepers.

The per cent increase in average rental price for 8 commodities for which numbers were gathered in both survey years is shown in the last column of Table 1. There were only 7 individuals participating in the initial (pilot) season and the 2009 pollination fee should be considered more representative of the pollination industry in the mid-Atlantic region. Increase in average rental prices were noted for all 8 commodities ranging from 2.6 to 14.5% (simple ave =9.5%) but this may not be an actual reflection of an increase, merely a larger pool of respondents. It is however similar to the increase (10.9%) reported by Burgett (2009) in his survey of pollination prices in the PNW (see below).

There is a wide range in the number of colonies rented per growing area (expressed in col/ac). Some returned surveys did not indicate the acreage pollinated, just numbers of colonies. Not knowing the acreage might indicate a lack of communication between beekeeper and grower or it may simply reflect inadequate records at the time of completing the survey. The range of prices for pollination was quite broad both years and was consistent, whether commercial or semi-commercial beekeeper. Rental price differences per crop (in the major rental crops nearly 2 fold) may reflect past practices, level of competition, regional differences or uneven business skills of the beekeepers.

Comparison to west coast

This survey represents the first comprehensive survey of pollination prices in the eastern US. Two west coast surveys of pollination prices are the annual survey conducted by Mike Burgett in the PNW, which he has been conducted continuously since 1987 (see Burgett 2009 for the most recent report and Burgett, et al 2010 for a summary of the total survey years) and a similar survey patterned after the PNW survey of California beekeepers conducted since 1994 (also reported in Burgett, et al 2010). The two surveys on different coasts with different beekeepers show a number of similarities. The number of colonies represented in the two surveys are highly disparate; this survey of eastern commercial/semi-commercial beekeepers includes management of only approximately 1/4th the average number of colonies by commercial beekeepers (ave 1420col) and only 1/10th of total pollination rentals compared to those of the PNW survey.

Burgett reported that the average colony rental fee in 2009 for PNW pollinators was \$89.90 (up 10.9% from the previous year) and that 71% of the annual gross income of the 13 commercial beekeepers (semi-commercial beekeepers are NOT included in his surveys) filling the survey was obtained from pollination rentals. The 13 PNW individuals owned on average 5140 colonies and reported 1.8 rentals/colony on average in 2009; for the 17 past years it averaged 2.4. For California pollinators, all who rented to almonds, the average was 1.6 average number of colony rentals since 1996 (Burgett et al 2010). In this first report of eastern pollination rental prices, the average rental fee was \$64.40. (see Table 2).

For PNW beekeepers (Burgett 2009), CA almond rentals were the most common crop rental (40.3% of all rentals) and they accounted for 67.4% of all rental income in the 2009 survey. PNW tree fruit rentals (apples predominantly but also pears and sweet cherries) was the next most common rental crop (37% of total) but these rentals accounted for only 21% of income; taken together California almonds and PNW tree fruit accounted for 77.4% of all rentals and 88.2% of all pollination income, which illustrates the dominance and importance of these crops for a commercial PNW beekeeper. Interestingly if the almond crop was NOT available, the average

colony rental fee would have been \$49.20. PNW respondents reported a gross pollination income of \$10,998,747; this was extrapolated to estimate the regions pollination value in rental income alone was \$15 million.

Table 2. 2009 Average pollination fees, east & west coasts

PNW 13 commercial beekeeping operations				EAST 19 semi & commercial Beekeeping Operations		
Crop	No. Rentals	Avg. Fee	Fee +/-1	No rentals	ave fee	Fee +/-1
Pears	5,862	\$51.40	+21.4%	none		
Cherries	15,605	\$51.50	+21.6%	95	\$50.90	+11.5%
Apples	23,858	\$49.70	+ 9.5%	1812	\$38.90	+2.6%
Berries ²	2,844	\$38.40	+26.9%	36	\$48.30	--
Blueberries	7,100	\$42.50	+15.2%	5794	\$67.80	+12%
Cranberry				4295	\$73.40	--
Cucumber				4777	\$58.90	+14.5%
Melon & Watermelon				2094	\$65.70	+ 7.9%
Veg. seed	6,652	\$53.75	+13.6%	none		
Clover seeds ³	3,435	\$46.20	+48.3%	none	61.80	na
Squash & Pumpkin	2,636	\$47.30	+ 2.3%	507	\$60	+11.5%
Meadowfoam	1,336	\$47.30	+ 4.3%	none		
Strawberry				206	\$67.80	+5.2%
Almonds	49,318	\$150.30	+1.5%	2129	\$75.80	
	122,310	\$89.80	+10.9%	21,745	\$64.40	9.5%

Table 3 compares by crop category, the importance of west and east coast pollination rental opportunities. On the west coast, almond and tree fruits each account for about 40% of the rentals but tree fruit rentals accounts for only 21% of rental income; almonds provide 67% of pollination income. On the east coast, 3 crops, cucurbits, blueberry and cranberry each account for 20% or more of rentals and each provide a similar rental income; as in the west, tree fruits (apple and cherries) don't provide adequate income for the beekeeper in the east, providing only 5.3% of total income despite accounting for 8.8% of rentals.

Table 3. 2009 Pollination rentals and income by crop type - 13 PNW commercial beekeepers (top) and 18 Commercial and Semi-commercial beekeepers in east.

<u>PNW</u>				
Crop	# Rentals	% of total rentals	Rental Income	% of total rental income
Tree Fruit	45,325	37.1%	\$2,290,447	20.8%
Almonds	49,318	40.3%	\$7,410,980	67.4%
All other	27,667	22.6%	\$1,297,320	11.8%
Total	122,310		\$10,998,747	
<u>EAST</u>				
Tree Fruit	1907	8.8%	\$ 75,584	5.3%
Blueberry	5794	26.6%	\$393,985	27.9%
Cranberry	4295	19.8%	\$315,990	22.4%
Cucurbits	7378	33.9%	\$450,506	31.9%
Almond	2129	9.8%	\$161,451	11.4%
All other fruit	242	1.1%	\$ 15,706	0.1%
Total	21,745		\$1,413,674	

Among the eastern beekeepers, the percentage of estimated income was 42% honey, 54% pollination and 4% other for the 8 commercials responding to the survey while among semi-commercials it was 32.4% honey, 57.3% pollination and 10.3% other. In the western states it was 60-40% pollination vs honey for commercials and the opposite, 40-60% income from pollination vs honey.

Burgett et al 2010 examine the information gathered over several seasons regarding rental income. They report that almonds have increased dramatically since 2004 and examining the data does not reveal an effect of CCD or recent heavy colony losses. Continuing this eastern survey is planned for the current year and perhaps a look at several season will help demonstrate how heavy losses and changing agricultural practices might be affecting the eastern beekeepers involved in pollination rental.

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MAAREC (Mid-Atlantic Apiculture Research and Extension Consortium) includes 6 State (DE, MD, NJ, PA, VA, WV) state beekeeper association, State regulatory officials, Research/extension professionals and USDA Beltsville). This data base lacks participation from VA and WV, although a few rentals in both states are included.