



**NATIONAL
AGRICULTURAL
STATISTICS
SERVICE**

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Cornell University

APPLE POLLINATION SURVEY 2009

1. How many total acres do you have in apple cultivation? _____ Acres
2. How many apple varieties do you grow? _____ Varieties

For Questions 3-16, please circle your answer

3. What is the primary habitat surrounding your orchard?
Orchard Suburban Forest Meadow Agricultural Other
4. Do you rent honey bees for apple pollination?
Never Sometimes Always
5. Do you view honey bee colonies as a major or minor expense?
Major Minor
6. What would you estimate to be the number of native bee species that visit apple blossoms in New York State?
1 10 30 40 100
7. Do you view native bees (*honey bees are not native*) as valuable pollinators in your apple orchard?
Yes No Maybe
8. Would you be surprised if native bees were important pollinators of apple trees in New York State?
Yes No Maybe

9. Are you familiar with alternative managed apple pollinators such as orchard mason bees (*genus Osmia*)?
Yes No Maybe
10. Have you ever used commercially available orchard mason bees, such as the blue orchard mason bee (*Osmia lignaria*), for apple pollination?
Yes No Maybe
11. Have you ever considered relying entirely on the natural occurring native bees for pollination of apples?
Yes No Maybe
12. How would you describe your management practices regarding pesticides, herbicides, fungicides, etc.?
Conventional Integrated pest management (IPM) Organic Other: (*please indicate*)
13. If/when you use chemical treatments, do you take into consideration the impact on pollinators?
Yes No Sometimes
14. Would you consider adopting (*low-cost*) land management practices that would increase the diversity and abundance of native bees in and around your farm?
Yes No Maybe (*please elaborate*) _____
15. Do you view recent declines in honey bee populations due to colony collapse disorder (CCD) a threat to successful apple production?
Yes No Maybe
16. In your experience, is successful apple pollination limited by the availability and/or abundance of bees (*e.g., have you ever experienced poor fruit set because of a shortage of native or managed bees*)?
Yes No Maybe

Mid-Atlantic Apple Pollination Survey 2010

D. Biddinger & E. Rajotte, Penn State University

Adapted from a Cornell University Survey by Mia Park

1. If you use honey bees for apple pollination, what is the average number of hives used on a per acre basis or indicate if less than 1/acre?...../Acre or 1 per acres
2. If you rented honey bees for pollination in 2010, how much did you pay per hive?.....\$
3. What percentage of apple pollination on your farm do you consider is being provided by bees other than honey bees?%
4. What would you estimate to be the number of native bee species that visit apple blossoms in Pennsylvania? (circle one answer)
 1 10 50 100 200 300

For Questions 5-25, please circle one answer

5. What is the primary habitat surrounding your orchards?
 Orchards Suburban Forest Meadow Agricultural Other
6. Do you rent honey bees for apple pollination?
 Never Sometimes Frequently Always Don't Know
7. Do you consider honey bee colonies as a major expense on your farm?
 Never Sometimes Frequently Always Don't Know
8. Native bees (*honey bees are not native*) are valuable pollinators in your apple orchard?
 Never Sometimes Frequently Always Don't Know
9. Alternative managed apple pollinators such as orchard mason bees (*genus Osmia*) can be important in PA apple orchards.
 Never Sometimes Frequently Always Don't Know

10. Have you ever used commercially available bumble bees for apple pollination?

Never Sometimes Frequently Always Don't Know

11. Have you ever used commercially available orchard mason bees, such as the blue orchard mason bee (*Osmia lignaria*) or the Japanese Orchard bee (*Osmia cornifrons*) for apple pollination?

Never Sometimes Frequently Always Don't Know

12. Have you ever considered relying entirely on the natural occurring native bees for pollination of apples?

Never Sometimes Frequently Always Don't Know

13. If/when you use insecticide treatments, do you take into consideration the impact on pollinators?

Never Sometimes Frequently Always Don't Know

14. Would you consider adopting (*low-cost*) land management practices that would increase the diversity and abundance of native bees in and around your farm?

Never Sometimes Frequently Always Don't Know

15. Do you consider recent declines in honey bee populations due to colony collapse disorder (CCD) a threat to successful apple production in your orchards?

Never Sometimes Frequently Always Don't Know

16. In your experience, is successful apple pollination limited by the availability and/or abundance of bees (*e.g., have you ever experienced poor fruit set because of a shortage of native or managed bees*)?

Never Sometimes Frequently Always Don't Know

17. How would you describe your management practices regarding pesticides, herbicides, fungicides, etc.?

Conventional Integrated Pest Management (IPM) Organic Other: (*please indicate*)

18. Are you aware that USDA Natural Resources Conservation Service will cost share pollinator habitat creation and maintenance?

Yes No

19. Is any part of your apple crop enrolled in this NRCS pollinator habitat program?

Yes No

20. What state is your farm in?

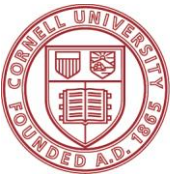
21. How many total acres do you have in apple cultivation?

22. Do you also grow stones fruits (i.e. cherry, peach/nectarines and plums? Yes or No

23. Do you also grow vegetable crops? Yes or No

24. How many apple varieties do you grow?.....

25. What county is the majority of your orchard in?



Apple Pollination Survey 2012

1. How many total acres do you have in apple cultivation? _____ Acres
2. How many apple varieties do you grow? _____ Varieties

For the following questions please check one response only.

3. What percent of your **total** income is derived from apple production?

0-25% 25-50% 50-75% 75-100%

4. Do you also grow stone fruits (i.e., cherry, peach/nectarines and plums)? Yes No

5. Do you also grow vegetable crops? Yes No

6. What is the primary habitat surrounding your orchard?

Orchard Suburban Forest Meadow Agricultural Other: _____

7. Do you rely on (e.g., rent, borrow, use neighbor's) honey bees for apple pollination?

Always Frequently Sometimes Never Don't Know

If you rely on honey bees, what is the average number of hives used on a per acre basis? _____/ acre

8. Do you RENT honey bee colonies? Yes No

IF YES, how much did you pay per hive in 2012? \$ _____

IF YES, how do you view this expense for your apple production?

Major Moderate Minor No opinion

9. What would you estimate to be the number of native bee species that visit apple blossoms in New York State?

1 10 30 40 100 Don't know

10. How **valuable** do you view native bees (honey bees are not native) as pollinators in your apple orchard?

Very Moderately Slightly Not at all Don't know

11. What proportion of apple pollination on your farm do you believe is provided by bees other than honey bees?

0-25% 25-50% 50-75% 75-100% Don't Know

12. Have you ever considered relying entirely on natural occurring native bees for pollination of apples?

Always Frequently Sometimes Never Don't Know

13. Have you ever used commercially available bumble bees for apple pollination?

Always Frequently Sometimes Never Don't Know

14. Besides bumble bees, are you familiar with other alternative managed apple pollinators, such as orchard mason bees (genus *Osmia*)? Yes No

15. Have you ever used commercially available orchard mason bees, such as the Blue Orchard bee (*Osmia lignaria*) or the Hornfaced bee (*O. cornifrons*), for apple pollination? Yes No

16. How would you describe your management practices regarding pesticides, herbicides, and fungicides?

Conventional Integrated pest management (IPM) Organic Other: _____

17. If/when you use chemical treatments, do you take into consideration the impact on pollinators?

Always Frequently Sometimes Never Don't Know

18. Do you view recent declines in honey bee populations due to colony collapse disorder (CCD) a threat to successful apple production? Yes No Maybe/Don't Know

19. In your experience, is successful apple pollination limited by the availability and/or abundance of bees (e.g., have you ever experienced poor fruit set because of a shortage of native or managed bees)?

Always Frequently Sometimes Never Don't Know

20. Would you consider adopting (low-cost) land management practices that would increase the diversity and abundance of native bees in and around your farm? Yes No Maybe

21. Before receiving the booklet, "Wild pollinators of eastern apple orchards and how to conserve them," were you aware that USDA Natural Resources Conservation Service provides cost share programs to create and maintain pollinator habitat on your farm? Yes No

IF YES, is any part of your apple crop enrolled in this NRCS pollinator habitat program? Yes No

22. How **important** are each of the following factors in your decision to adopt new land management practices to protect or enhance wild pollinators? (Check one reply per factor)

	Very	Somewhat	Slightly	Not at all	No opinion
a. Financial commitment.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Time commitment.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Space requirements.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Availability of cost share programs.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Demonstrated success of management practices.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Environmental stewardship.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Encouragement of friend or neighbor.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Proven effectiveness of wild bees as pollinators.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Clear guidelines to implement management practices...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Other:_____					

The next questions refer to the accompanying booklet, “Wild pollinators of eastern apple orchards and how to conserve them”. Please answer them only after you have had a chance to review the booklet.

23. Have you read the accompanying booklet? Yes No

IF NO, then your survey is complete.

24. After reading the booklet, do you **agree** with the following statements? (Check one reply per statement)

	Agree	Neutral	Disagree	No opinion
a. I learned something new about wild bees and their conservation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. I have a better sense of the kinds of wild bees in my orchard.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. I have greater appreciation for the contribution of wild bees to fruit pollination.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. The toxicity table makes it easier for me to evaluate my pesticide options based on their effects on bees.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. I have new ideas of how to protect wild pollinators on my farm....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

25. After reading the booklet, do you **agree** with the following statements? (Check one reply per statement)

	Agree	Neutral	Disagree	No opinion
a. I plan to change the way I manage pests in my orchard to protect wild pollinators (e.g., timing of sprays).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. I plan to protect or provide nesting and foraging resources for wild pollinators.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. I plan to seek additional information about wild pollinators and their conservation.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>