

Minneapolis Honey Bee Report 2016

This report summarizes the results of a survey for 57 honey bee hive permit holders in the City of Minneapolis. The survey occurred between January and May 2016 to determine the number of honey bee colonies and extent of threats posed by the parasitic mite, *Varroa destructor*.

Understanding the issues

HONEY BEES BENEFIT MINNEAPOLIS

Honey bees are a useful tool for engaging and educating Minneapolis residents about environmental issues and food systems. Honey bees, along with our wild, native bees, provide valuable pollination services for many flowers, trees and locally-grown vegetables, herbs and fruits. Urban farms operating within the city limits sustain jobs, and numerous residential vegetable gardens increase the health and food security of Minneapolis residents. Some urban beekeepers use hive products like honey and wax in their small business ventures.



Honey bees are a useful tool for educating and engaging Minneapolis residents about environmental issues

In an effort to recognize the significance of pollinators and help provide access to good nutrition, the City of Minneapolis passed the Pollinator Resolution in August 2015, committing the City to increase pollinator forage and decrease its use of pesticides. The City manages two honey bee colonies on the roof of City Hall, in addition to administering permits for residents, organizations and businesses to keep bees. As of April 26, 2016 there were 69 bee permit locations in the city. This report aligns with the City's commitment to protect pollinators.

VARROA MITES POSE CHALLENGES FOR HONEY BEE COLONIES

Four major factors contributing to a national trend of honey bee colony loss include lack of forage, pesticides, parasitic mites and diseases. Honey bee colonies have an especially difficult time surviving when they are affected by more than one of these factors. This report focuses on the threat that *Varroa* pose to colonies, as well as how beekeepers can address this issue.



*Parasitic Mite Syndrome (PMS) includes sunken brood sometimes with a mite present.
Photo: Rob Snyder*

Varroa are a pest to honey bees present in most colonies in the United States. When not properly managed, they contribute to colony losses. *Varroa* are external parasites that feed on developing and adult bees. Damage to the bees occurs because of this feeding and because the mites are vectors of many viruses. *Varroa* are visible to the naked eye and are related to ticks. Mites spread from colony to colony on drifting or robbing bees. Drifting occurs when beehives are close to each other and bees inadvertently enter a hive that is not their own, whereas robbing occurs when foragers enter a hive that is not their own to steal honey. Early detection of *Varroa* through alcohol or powder sugar roll tests is the key to healthy honey bee colonies.



This report was prepared by Siri Simons, Ana Heck and Rebecca Masterman.

July 2016



Methodology

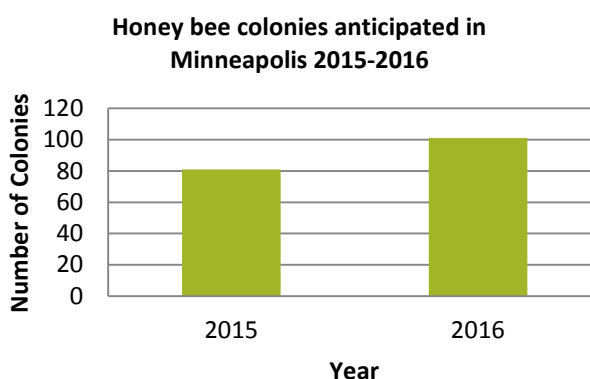
The City of Minneapolis Sustainability Office and University of Minnesota Bee Squad developed the survey for beekeeping permit holders. It included 11 questions (six open-ended and five multiple choice). The survey was mailed to honey bee permit holders in January 2016 with their permit renewal packet. In May 2016, a follow-up mailing was sent to permit holders who did not respond initially. Participants were able to submit responses via mail or electronically. We are grateful to all permit holders who responded to the survey, as their participation helps us understand current management trends and how to help beekeepers maintain healthy honey bee colonies in Minneapolis. Fifty seven Minneapolis honey bee permit holders responded to the survey, which is 82.6 percent of the 69 individuals, organizations and businesses with permits for honey bees, according to data provided by Minneapolis Animal Care and Control in April 2016.

Findings

MINNEAPOLIS PERMIT HOLDERS PLAN TO MANAGE A GROWING NUMBER OF COLONIES

Survey participants plan to manage 101 colonies in the City of Minneapolis in 2016. This number is 25 percent more than last year, when participants reported managing 81 colonies in the city as of December 2015 (Fig. 1). It is important to note that this is not the aggregate number of bee colonies in the City of Minneapolis, as it does not include the number of colonies kept by the 12 permit holders who did not respond to the survey, or any feral colonies. Further, many permit holders responded to the survey before knowing whether their colonies survived the winter. For a map of colonies by neighborhood, see page 4.

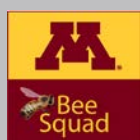
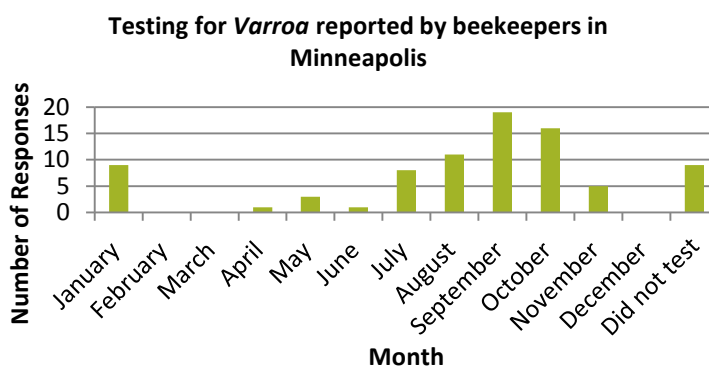
Figure 1. Reported number of managed honey bee colonies in Minneapolis 2015-2016



MAJORITY OF BEEKEEPERS TESTED FOR VARROA IN 2015

Forty one respondents, or 71.9 percent of survey participants, tested for *Varroa* in 2015. Testing was most common in the fall, with 11 respondents testing in August, 19 testing in September, and 16 testing in October (Fig. 2). While a small number of respondents tested two or three times throughout the year, it appears that most tested only once.

Figure 2. Testing for *Varroa* reported by honey bee hive owners in Minneapolis, 2016



OVER HALF OF BEEKEEPERS REPORT MANAGING VARROA POPULATIONS

Thirty five respondents, or 56.6 percent, reported utilizing a management intervention (miticide treatment) for *Varroa*. “Concern for colony survival” was the most frequently reported reason for an intervention, and was cited by nearly all respondents as a driving factor behind their decision to treat the hive with a miticide. Additional reasons respondents reported using a treatment intervention included concern about mite transmission to nearby colonies, concern about high mite levels after treating, and expert recommendations.

What beekeepers should know

The University of Minnesota Bee Squad has seen high *Varroa* infestations and *Varroa* mediated colony losses in Minneapolis. Monthly monitoring for *Varroa* and intervention when necessary can lead to increased colony survival in Minneapolis. Honey bee colonies are concentrated in South Minneapolis, with the largest concentration of reported honey bee colonies in the Cooper, Longfellow, Seward and Howe neighborhoods. Honey bees typically travel two or more miles for food, so robbing is possible throughout most parts of Minneapolis. Beekeepers can properly manage *Varroa* by following the guidelines below:

✓ KEEP A TIDY APIARY

Beekeepers can discourage robbing behavior by not leaving honey, comb, or syrups outside of beehives. Once a bee forager finds honey outside of her hive, she is likely to rob honey from other hives instead of foraging on flowers. *Varroa* transfer between colonies when bees are robbing.

✓ TEST FOR MITES DURING ACTIVE MONTHS

Beekeepers should test for *Varroa* once per month during the management season, as population spikes of *Varroa* are possible. Beekeepers can use a powder sugar roll or alcohol test to measure mite levels.

✓ REPORT MITE INFESTATIONS

Beekeepers can report and view mite counts at the county level at MiteCheck (www.mitecheck.com). MiteCheck is a citizen-science project coordinated by the University of Minnesota Bee Squad, University of Maryland, College Park, Michigan State University and the Bee Informed Partnership to track mite infestations over time at the county level and communicate them to beekeepers.

✓ INTERVENE AS SOON AS POSSIBLE

Beekeepers are encouraged to intervene when a colony is experiencing a *Varroa* infestation. Management strategies may include use of screened bottom boards, drone comb removal and organic *Varroa* treatments. MiteCheck suggests an intervention (use of a miticide) to greatly increase chances of colony survival if the mite count is over three mites per 100 bees. The University of Minnesota Bee Lab and Bee Squad suggest only using organic miticide treatments because mites are more likely to develop resistance to synthetic treatments. It is important for beekeepers to carefully follow label requirements for any miticide treatments.

Resources

- Minneapolis Animal Care and Control: <http://www.minneapolismn.gov/animals/>
- University of Minnesota Bee Lab: <http://www.beelab.umn.edu/>
- City of Minneapolis Sustainability Office: <http://www.ci.minneapolis.mn.us/sustainability/>
- Minnesota Hobby Beekeepers Association: <https://www.mnbeekeepers.com/>

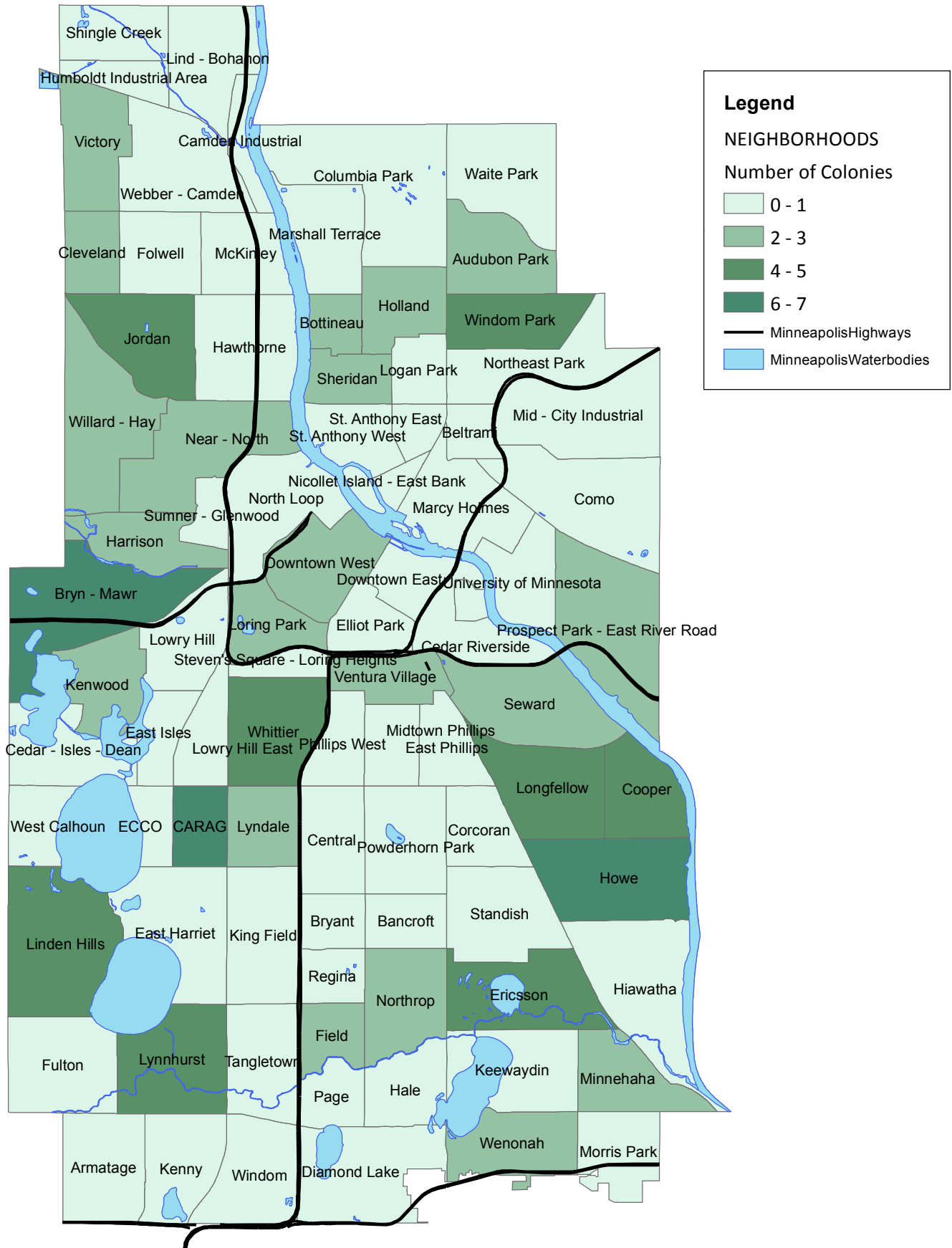


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Bee Colonies by Neighborhood in the City of Minneapolis (2016)



Source: As of April 26, 2016 there were 69 bee permit locations in Minneapolis, according to Animal Care and Control. This map was created using self-reported information about colonies from 57 of the permit holders. Also, this map illustrates the assumption that the additional 12 permit holders who did not respond to the survey will manage 1 colony each in 2016 in the following neighborhoods: Diamond-Lake, Folwell, Hale, Howe, King Field, Linden Hills, Lynnhurst, Minnehaha, Near North, and Northrup.