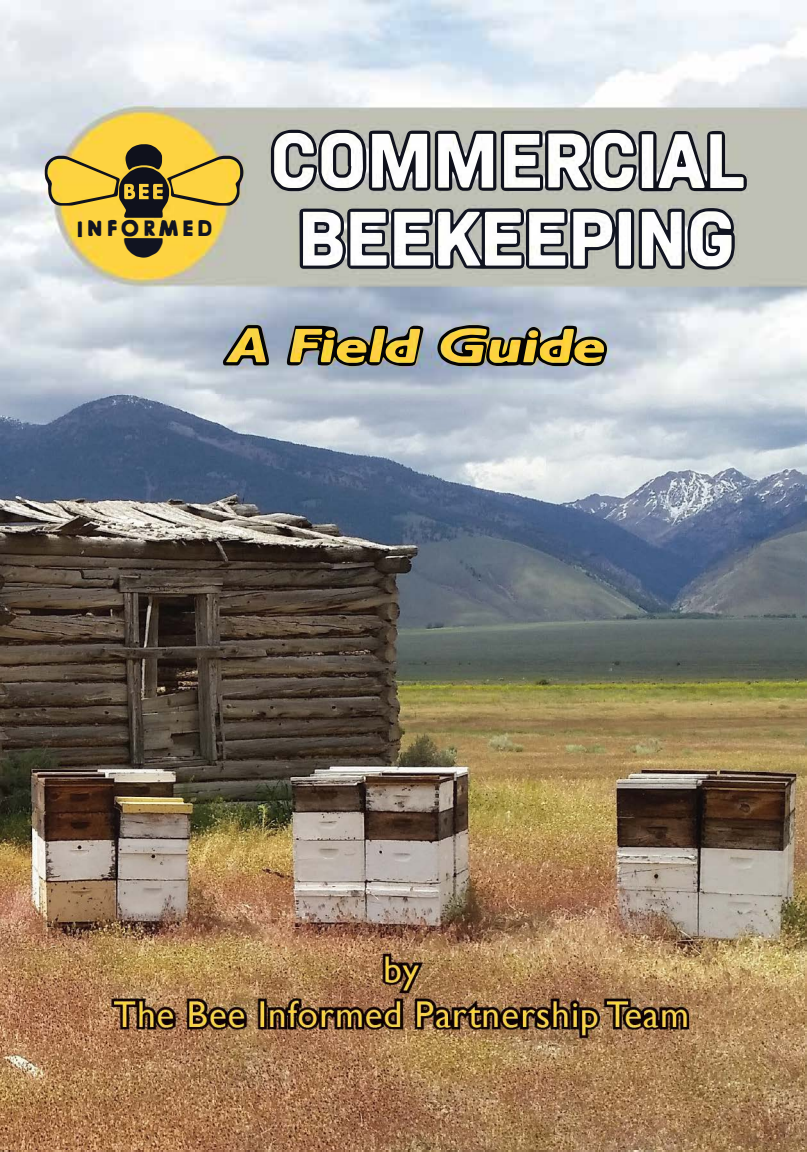
COMMERCIAL BEEKEEPING

A Field Guide



by
The Bee Informed Partnership Team

Commercial Beekeeping: A Field Guide

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The Bee Informed Partnership
www.beeinformed.org

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Introduction

The Bee Informed Partnership

The core mission of the Bee Informed Partnership, Inc. (BIP) is to reduce honey bee colony losses. BIP achieves this goal by collaborating with many of our nation's leading research laboratories and universities to provide timely colony health data to beekeepers. Such data allows beekeepers to make informed, proactive management decisions. Our collaborative, cross-sector efforts have improved our understanding of honey bee declines and identified ways to increase colony survival. BIP also produces educational resources freely available to the general public that impart the importance of honey bees for our food supply. Through our research, education, and outreach efforts we explain the critical issues affecting honey bee health to the public and to beekeepers. We remain hopeful that reducing colony losses is a goal that all beekeepers can achieve, and we are passionate about making that happen.

Over the long term, we seek to support all beekeepers in implementing data-driven best management practices for ensuring the health of their colonies. We aim to develop more robust and actionable data to guide researchers and policymakers, who seek to protect and grow the honey bee populations that are critical to the U.S. ecosystems and food security.

In 2011, we began as a multi-institutional effort supported by a USDA-NIFA grant. In 2014 we became a non-profit organization to continue our valuable work assisting commercial beekeepers through our Technical Transfer (TT) Teams. We also provide diagnostic and outreach services to all beekeepers through our diagnostic laboratory and other programs.

We are a 501(c)(3) non-profit organization governed by a board that includes commercial beekeepers, top beekeeping scientists, epidemiologists, and leaders in other honey bee organizations.

Our Technical Transfer (TT) Teams

Based in key beekeeping regions across the U.S., our TT teams are highly trained and experienced. As an integral part of their inspection work, these teams interact with important stakeholder groups including commercial queen breeders, nuc and package producers, large honey producers and commercial operations specializing in pollination services. All TT teams make regular apiary visits and work directly with beekeepers in the field to quickly inspect honey bee colony health and collect samples for disease and parasite testing. TT Teams work with beekeepers to analyze colony disease and parasite levels, comparing their results with regional and national averages in order to translate them into well-informed colony treatment and management plans.

Some of the benefits that TT teams provide to commercial beekeepers include:

- Frequent monitoring of colony health metrics
- Offering methods for sampling colony health that best fit the beekeeper's schedule
- Sampling when an operator does not have time but knows it needs to be done
- Testing feed or colony additives and monitoring colony health during operational experiments
- Conducting emergency sampling and diagnostics
- Testing colonies for hygienic behavior, queen quality, viral, Nosema and pesticide levels
- Acting as an early alert system with eyes in the field and ears in the industry
- Monitoring *Varroa* levels pre- and post- miticide treatment to determine treatment product efficacy
- Communicating comparative knowledge: TT teams see a lot of operations and experience considerable variety in how they are run. They know what makes a top tier operation and can offer suggestions for improvement based on an operation's strengths and weaknesses

"The BIP teams are reliable eyes inside our hives that have taken our mite control from slapstick to real science. Their recommendations and reliable data have transformed both when and how we treat our hives for Varroa. *BIP's scientific approach has allowed us to perform many hive health experiments with reliable data and valuable reports."*

Jason Miller
Miller Honey Farms

Purpose of this Field Guide - PLEASE READ!

This book is intended to be a quick reference commercial beekeeping field guide designed for field crew members. It covers actions like evaluating colony strength, diagnosing diseases, and preparing for pollination contracts.

What you WILL find:

- Basic guidelines for the main topics in commercial beekeeping:
  - Pollination
  - Honey production
- Practical advice on colony management
- Guidance regarding timing and dosage of treatments
- Plenty of full-color photos
- BIP TIPS: quick snippets of advice that can improve beekeeping operations
- BIP SLIPS: bee management actions that we do NOT recommend
- An in-depth guide that serves as a useful supplement to operation-specific training

What you WON'T find:

- Advanced topics beyond the scope of everyday management, such as detailed information on queen-rearing systems
- Specific management recommendations that suit every type of operation

How to use this guide/overall philosophy:

- For many experienced commercial beekeepers, we hope you recognize some areas where your operation could improve. This guide may help train new team members or retrain older ones. The guide may provide you with the confidence needed to tackle critical management strategies or organizational issues that you may have previously thought to be unimportant

- For sideliner beekeepers, this guide will provide insight into what it takes to begin that next step to become a commercial beekeeper, and how to prepare and get organized when you are ready to begin
- For backyard beekeepers, this guide will be a glimpse into a world radically different in many ways from how you manage your colonies but will be informative and provide insight into how larger operations function and succeed
- For the armchair beekeeper, welcome! We hope this increases your understanding and respect not only for these incredibly important pollinators but also for the crewmembers and families who do this vital work day in and day out
- If none of the above describes you, well then, you can use this as a doorstop or as an unusual coffee table book that gives you the appearance of eccentricity
- For everyone, many points in this book will no doubt raise vigorous discussion. We welcome that discussion; healthy debate that challenges the status quo is often what brings about important - or sometimes even revolutionary – change for the better

We hope to hear back from all of you readers. This is the first edition of this manual, so there will undoubtedly be errors that will need correcting. However, also remember that first editions are also usually highly valuable. So, sit back and enjoy.

— The Bee Informed Partnership Team

Online BIP Resources:

www.beeinformed.org

www.bip2.beeinformed.org

www.bipinc.org

To all the beekeepers who have yet to be born.
We hope that beekeeping gets easier and that the
world becomes a kinder and gentler place for bees.

ACKNOWLEDGEMENTS

This book is dedicated to the soulless conference rooms that we endured for days and weeks at a time writing this guide under considerable duress. If we had a single window to peer out from those rooms this would never have been completed.

As usual, there are many to thank in such an undertaking. We will attempt (and likely fail) to list them all below:
Zac Browning who suggested the idea of this book years ago.

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PART 1

Chapter 1: *The Essentials*

TOP 10 TRAITS OF A SUCCESSFUL COMMERCIAL BEEKEEPING OPERATION

1. Act proactively
   - Do not wait until there is a problem
   - Know what is going on in the colonies and with the crew. Both are equally important!

Midwest Tech Team assessing colonies

2. Visit all colonies frequently – ideally every 10-14 days, but **no less than once a month**
   - Monitor for *Varroa* and apply timely *Varroa* miticide treatments when appropriate
   - Identify problems early
3. Train and treat the crew well
   - Hire employees who are interested in bees and the success of your operation
   - Take time to train the crew on inspection and colony assessment
   - Ensure crews look into every colony when visiting a yard and take corrective measures right away when issues arise
   - Keep staff happy: happy staff = happy bees
   - Reduce employee turnover: their growing experience is a good return on investment
4. Invest in inputs
   - **Feed** generously in times of dearth (or in anticipation of a dearth, again stay ahead of the game)
   - Apply **treatments** for diseases and parasites

- Use proper **equipment** to maximize crew efficiency and minimize effort
- Keep well-maintained **yards**

5. Keep yourself and your crew informed
   - Stay on top of the latest bee research by subscribing to blogs and reading bee-related journals
   - Attend beekeeping conferences and meetings
   - Maintain accurate and up-to-date records

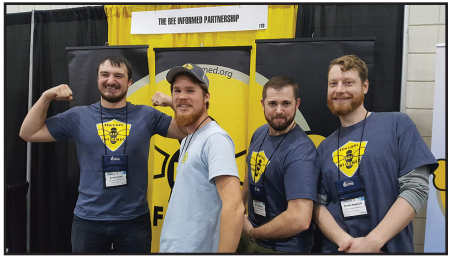
6. Keep an open mind
   - Be willing to adapt to change
   - Listen to others, even if you disagree

7. Know how to identify a healthy colony
   - Recognize what a healthy colony looks like both before and after specific operational activities take place (e.g., returning from pollination, after splitting)
   - Know the tipping points in your operation at different times of the year: When is a colony worth saving? When is it better to combine with another colony?
   - Understand bee biology

8. Communicate effectively
   - Give clear instructions on when and how to feed, treat, split, combine, and re-queen colonies

9. Have a genuine understanding of, and respect for bees

10. Join a BIP Tech Transfer Team (shameless plug)



BIP team members shamelessly plugging BIP at ABF Conference

Chapter 2: *The Home Base*

A well-designed and organized base of operations, or honey house, is essential for things to run smoothly. Many migratory operations set up facilities in multiple regions where they spend significant portions of the year. Ideally, a base of operations should be centrally located to apiaries for efficient travel among yards, including outlying locations.

Factors to consider when selecting a site:

- All-weather road access
- Infrastructure availability (water, power, etc.)
- Property zoning
- Separation from dwellings and potential sources of environmental contamination (waste disposal sites, chemical manufacturing facilities, sources of excessive dust, etc.)
- Respect for other beekeeper locations is also a must!

Commercial beekeeper John Miller's base of operation

This guide is born out of working with some of the most successful beekeeping operations throughout the US. We've packed that experience into a pocke-sized commercial beekeeping field guide, a valuable addition to any beekeeper's library. Join the BIP Technical Transfer Teams as they share what it takes to keep bees on a commercial scale. "BIP Tips" highlight best practices for success. Learn how to gear up for honey production and pollination services. Our tech team members share key *Varroa* management, how to keep a happy crew, and many other essentials of commercial beekeeping.

"As a founding member of the Bee Informed Partnership, and as a research scientist who created the first Technical Transfer Team in the US, I am proud to see the completion of this beekeeping guide from BIP. The results are impressive and comprehensive. The guide is a great tool to help train commercial crews, and essential for those venturing into commercial beekeeping - or for anyone who wants a peek into that rarefied world of large-scale beekeeping."

- **Dr. Marla Spivak**

MacArthur Fellow, Distinguished McKnight Professor,
Extension Entomologist

"The Bee Informed Partnership has worked with California queen breeders for 10 years and understand what makes a successful commercial operation. We use the information that the tech teams provide us to make management decisions about treatment timing and the most cost effective plan. Their knowledge is captured in this guide, ideal for new and experienced beekeepers alike!"

-Jackie Park-Burris

Owner Jackie Park-Burris
Queens Inc.