

Colony Collapse Disorder And An Analysis Of Honey Bee

The United States Government Printing Office (GPO) was created in June 1860, and is an agency of the U.S. federal government based in Washington D.C. The office prints documents produced by and for the federal government, including Congress, the Supreme Court, the Executive Office of the President and other executive departments, and independent agencies. A hearing is a meeting of the Senate, House, joint or certain Government committee that is open to the public so that they can listen in on the opinions of the legislation. Hearings can also be held to explore certain topics or a current issue. It typically takes between two months up to two years to be published. This is one of those hearings.

Colony Collapse Disorder (CCD) was a condition first noticed in 2006 when higher than normal losses of managed honey bee colonies were reported from all over the United States and other locations across the world. Due to the unusual symptoms and lack of known cause, scientists and beekeepers began studying CCD to determine potential causes. Consensus is that CCD is the result of multiple factors working together to weaken honey bee colonies. Although CCD has not been the cause of honey bee losses in the last few years, honey bees are still dying at rates that cannot meet the demand for honey bee pollination. The goal of the Care for the Colonies Campaign was to raise awareness about CCD and the factors affecting honey bees and to empower the audience to make decisions that promote honey bee health. The audience was reached through presentations, print materials, a campaign website, social media, and a podcast episode. The thesis includes a project description, background research on CCD and the impacts, an experiential journal detailing campaign activities, and appendices of all campaign materials.

In 2006, commercial migratory beekeepers along the East Coast of the United States began reporting sharp declines in their honey bee colonies. Because of the severity and unusual circumstances of these colony declines, scientists have named this phenomenon Colony Collapse Disorder (CCD). Reports indicate that beekeepers in 35 states have been affected. Overall, bee colony losses averaged about 30% in 2007. Reports for 2008 show continued declines with estimated average annual losses nationwide approaching 35%. Honey bees are the most economically valuable pollinators of agricultural crops world-wide. Many scientists at universities and the U.S. Department of Agriculture (USDA) frequently assert that bee pollination is involved in about one-third of the U.S. diet, and contributes to the production of a wide range of fruits, vegetables, tree nuts, forage crops, some field crops, and other specialty crops. The monetary value of honey bees as commercial pollinators in the United States is estimated at about \$15 billion annually. Honey bee colony losses are not uncommon. However, current losses seem to differ from past situations in that colony losses are occurring mostly because bees are failing to return to the hive (which is largely uncharacteristic of bee behaviour); bee colony losses have been rapid; colony losses are occurring in large numbers; and the reason(s) for these losses remains largely unknown. The potential causes of CCD, as reported by the scientists who are researching this phenomenon, include but may not be limited to parasites, mites, and disease loads in the bees and brood; emergence of new or newly more virulent pathogens; poor nutrition among adult bees; lack of genetic diversity and lineage of bees; level of stress in adult bees (e.g., transportation and confinement of bees, overcrowding, or other environmental or biological stressors); chemical residue/contamination in the wax, food stores, and/or bees; a combination of these and/or other factors. In 2007, the House held two subcommittee hearings to review the recent honey bee colony declines and to address concerns about pollinator health. In 2008, the Senate hosted a briefing on pollinators and their role in agricultural security. Various policy options were discussed at these hearings and briefings, including increasing federal funding for research and monitoring, providing technical support and assistance for beekeepers, and emphasising the importance of pollinator diversity and sustaining wild and native pollinator species.

Adaptations to Environmental Change

Fruitless Fall

Action Plan

An Inquiry Into the Deep Symbolic Nature of the Vanishing Honeybee

Review the Colony Collapse Disorder in Honey Bee Colonies Across the United States

This book was written by undergraduate students at The Ohio State University (OSU) who were enrolled in the class Introduction to Environmental Science. The chapters describe some of Earth's major environmental challenges and discuss ways that humans are using cutting-edge science and engineering to provide sustainable solutions to these problems. Topics are as diverse as the students, who represent virtually every department, school and college at OSU. The environmental issue that is described in each chapter is particularly important to the author, who hopes that their story will serve as inspiration to protect Earth for all life.

Honey Bee Colony Collapse DisorderDIANE Publishing

Hearing to review the status of pollinator health including colony collapse disorder : hearing before the Subcommittee on Horticulture and Organic Agriculture of the Committee on Agriculture, House of Representatives, One Hundred Tenth Congress, second session, June 26, 2008.

Raising Awareness about Colony Collapse Disorder in Honey Bees

2008 Cyber Guide to Honeybee Colony Collapse Disorder (CCD)

The Collapse of the Honey Bee and the Coming Agricultural Crisis

The Care for the Colonies Campaign

Latest Official Information on the Role of the Varroa Mite, Neonicotinoid Pesticides, Bee Management Stress, Genetics & Breeding

Over the past few decades there has been heightened concern about the plight of honey bees as well as other bee species. Given the importance of honey bees and other bee species to food production, many have expressed concern about whether a “pollinator crisis” has been occurring in recent decades. Although honey bee colony losses due to bee pests, parasites, pathogens, and disease are not uncommon, there is the perception that bee health has been declining more rapidly than in prior years, both in the United States and globally. This situation gained increased attention in 2006 as some commercial beekeepers began reporting sharp declines in their honey bee colonies. Because of the severity and unusual circumstances of these colony declines, scientists named this phenomenon colony collapse disorder (CCD). Since then, honey bee colonies have continued to dwindle each year, for reasons not solely attributable to CCD. The U.S. Department of Agriculture (USDA) reports that CCD may not be the only or even the major cause of bee colony losses in recent years. In the United States, USDA estimates of overwinter colony losses from all causes have averaged nearly 30% annually since 2006. The precise reasons for honey bee losses are not yet known. USDA and most scientists working on the subject seem to agree that no research conclusively points to one single cause for the large number of honey bee deaths. This general conclusion was reaffirmed in a 2013 joint report by USDA and the U.S. Environmental Protection Agency (EPA). Reasons cited for bee declines include a wide range of possible factors thought to be negatively affecting pollinator species. However, one issue widely noted is the role that pesticides—in particular, neonicotinoid pesticides—might play in overall bee health. Pesticides are the focus of this report. Pesticides are among many identified factors known to affect bee health, including pests and diseases, diet and nutrition, genetics, habitat loss and other environmental stressors, and beekeeping management issues, as well as the possibility that bees are being negatively affected by cumulative, multiple exposures and/or the interactive effects of several of these factors. The focus of this report on bee exposure to pesticides is not intended to imply that pesticides are any more important in influencing the health and wellness of bees than other identified factors influencing bee health. Pesticides are one of many influences on bee health. The current state of knowledge on pesticides and bee health is summarized in the USDA-EPA report: it is not clear, based on current research, whether pesticide exposure is a major factor associated with U.S. honey bee health declines in general, or specifically affects production of honey or delivery of pollination services. It is clear, however, that in some instances honey bee colonies can be severely harmed by exposure to high doses of insecticides when these compounds are used on crops, or via drift onto flowers in areas adjacent to crops that are attractive to bees.

Everything you need to 'bee' a successful backyard beekeeper If you've ever thought about becoming a backyard beekeeper—or have already tried a hand at it and want to be better one—then this is the book for you! In Beekeeping for Dummies, 4th Edition you'll find everything you need to know in order to start your own colony, including how to assemble and maintain beehives, handle every phase of honey production, purchase and use all the latest tools, and what to do beyond your first season. This hands-on guide provides all the tools, tips, tricks, and techniques needed to become a real backyard beekeeper. You'll learn to identify the queen from her workers and drones, properly open and close the hive, distinguish one type of honey from another, and preserve your colony if disaster should strike. Keep bees on a small urban rooftop or in a large country yard Assemble your own hive and sustain it for years to come Safely inspect and manage your colony Harvest and sell your own honey Becoming a backyard beekeeper isn't as hard as people think—and with this hands-on guide, you'll be able to create one honey of a colony that will have the neighbors buzzing.

Review colony collapse disorder in honey bee colonies across the United States : hearing before the Subcommittee on Horticulture and Organic Agriculture of the Committee on Agriculture, House of Representatives, One Hundred Tenth Congress, first session, March 29, 2007.

How One Man and Half a Billion Honey Bees Help Feed America

Colony Collapse and the Economic Consequences of Bee Disease

Colony Collapse Disorder Strategy Meeting

Review Colony Collapse Disorder in Honey Bee Colonies Across the United States - Scholar's Choice Edition

Colony Collapse Disorder Progress Report

Over the last several decades declines in pollinator populations, especially those of wild bees and other insects, have raised awareness of the economic impact pollination services have for crop production. This awareness and concern was heightened by an ongoing loss of millions of managed honey bee colonies since the early 1950s. Colonies are used predominantly for pollination services in fruit and vegetable crops. During 2007, an unusually large overwintering loss in colonies that was not characterized by the presence of dead bees was termed colony collapse disorder (CCD), a syndrome in which hives lacked sufficient worker caste bees to maintain the queen and brood. Potential factors hypothesized to be associated with CCD include parasite infestations (e.g., Varroa mite) and pathogen infections (Nosema spp. fungus and viruses), insecticide exposure (especially to the neonicotinoid class), and poor nutrition owing to a reduction in landscape areas containing high quality floral resources. Although no one stressor has been definitively associated with CCD, possible interactions among them have only recently been studied. Of particular interest are possible interactions of Nosema spp. with neonicotinoid insecticide exposure. The main objective of this dissertation was an examination of these potential interactions using a combination of literature analysis, empirical study of Nosema infection prevalence in adult bees, and simulation modeling of the combined effects of several stressors on worker population abundance. After the introduction, the dissertation is divided into four chapters addressing the following objectives: (1) Comparison of regulatory procedures for risk assessment of insecticides potentially impacting honey bees in the United States and in the European Union; (2) Analysis of published literature that document potential interactions between bee pathogens, parasites, and neonicotinoid insecticide residues; (3) Analysis of field-collected apiary bees for prevalence of Nosema spores in association with land uses and the presence of neonicotinoid residues; (4) Use of the honey bee colony model BEEHAVE to predict colony collapse in the presence of pathogens and insecticide-induced mortality. Results of the various analyses suggest a need for modifying risk assessment procedures to include the interaction of pesticide residues with parasite/pathogen stressors.

“You'llnever think of bees, their keepers, or the fruits (and nuts) of their laborsthe same way again.” —Trevor Corson, author of The Secret Life of Lobsters Award-winning journalist Hannah Nordhaus tells the remarkable story of John Miller, one of America's foremost migratory beekeepers, and the myriad and mysterious epidemics threatening American honeybee populations. In luminous, razor-sharp prose, Nordhaus explores the vital role that honeybees play in American agribusiness, the maintenance of our food chain, and the very future of the nation. With an intimate focus and incisive reporting, in a book perfect for fans of Eric Schlosser's Fast Food Nation, Michael Pollan's The Botany of Desireand John McPhee's Oranges, Nordhaus's stunning exposé illuminates one the most critical issues facing the world today,offering insight, information, and, ultimately, hope.

Many people will remember that Rachel Carson predicted a silent spring, but she also warned of a fruitless fall, a time with no pollination and no fruit. The fruitless fall nearly became a reality when, in 2007, beekeepers watched thirty billion bees mysteriously die. And they continue to disappear. The remaining pollinators, essential to the cultivation of a third of American crops, are now trucked across the country and flown around the world, pushing them ever closer to collapse. Fruitless Fall does more than just highlight this growing agricultural catastrophe. It emphasizes the miracle of flowering plants and their pollination partners, and urges readers not to take the abundance of our Earth for granted. A new afterword by the author tracks the most recent developments in this ongoing crisis.

Complete Coverage of Threat to Bee Colonies and Food Supply

Colony Collapse Disorder and Pollinator Role in Ecosystems

Hearing Before the Subcommittee on Horticulture and Organic Agriculture of the Committee on Agriculture, House of Representatives, One Hundred Tenth Congress, Second Session, June 26, 2008

Frequently-asked Questions about Honeybees and Colony Collapse Disorder

Environmental ScienceBites

Starting in late 2006, commercial migratory bee-keepers along the East Coast of the United States began reporting sharp declines in their honey bee colonies. Because of the severity and unusual circumstances of these colony declines, scientists named this phenomenon colony collapse disorder (CCD). Reports indicate that bee-keepers in most states have been affected. Overall, the number of managed honey bee colonies dropped an estimated 35.8% and 31.8% in the winters of 2006/2008, and 28.6% in 2009. To date, the precise reasons for colony losses are not yet known. Honey bees are the most economically valuable pollinators of agricultural crops world-wide. Scientists at universities and the USDA frequently assert that bee pollination is involved in about one-third of the U.S. diet, and contributes to the production of a wide range of fruits, vegetables, tree nuts, forage crops, some field crops, and other specialty crops. The monetary value of honey bees as commercial pollinators in the U.S. is estimated at \$1520 billion annually. This book provides an overview of the importance of honey bee pollination to U.S. agricultural production and the extent and symptoms of CCD and how it differs from previous honey bee colony losses. Also discussed are the policy options and actions that Congress has taken to address this issue.

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This comprehensive compilation of official government documents provides complete details about Colony Collapse Disorder affecting honey bees, with the latest 2013 report on the suspected causes of the devastating problem, and earlier reports thoroughly tracing the history of CCD to it origin.During the winter of 2006-2007, some beekeepers began to report unusually high losses of 30-90 percent of their hives. As many as 50 percent of all affected colonies demonstrated symptoms inconsistent with any known causes of honeybee death: sudden loss of a colony's worker bee population with very few dead bees found near the colony. The queen and brood (young) remained, and the colonies had relatively abundant honey and pollen reserves. But hives cannot sustain themselves without worker bees and would eventually die. This combination of events resulting in the loss of a bee colony has been called Colony Collapse Disorder (CCD). Although agricultural records from more than a century ago note occasional bee "disappearances" and "dwindling" colonies in some years, it is uncertain whether the colonies had the same combination of factors associated with CCD. What we do know from the data from beekeepers for 2010/2011 is that CCD is still a concern.The new report notes the following:Consensus is building that a complex set of stressors and pathogens is associated with CCD, and researchers are increasingly using multi-factorial approaches to studying causes of colony losses.The parasitic mite Varroa destructor remains the single most detrimental pest of honey bees, and is closely associated with overwintering colony declines. Multiple virus species have been associated with CCD. Varroa is known to cause amplified levels of viruses. The bacterial disease European foulbrood is being detected more often in the U.S. and may be linked to colony loss. Nutrition has a major impact on individual bee and colony longevity. Research indicates that gut microbes associated with honey bees play key roles in enhancement of nutrition, detoxification of chemicals, and protection against diseases. Acute and sublethal effects of pesticides on honey bees have been increasingly documented, and are a primary concern. Further tier 2 (semi-field conditions) and tier 3 (field conditions) research is required to establish the risks associated with pesticide exposure to U.S. honey bee declines in general. The most pressing pesticide research questions lie in determining the actual field-relevant pesticide exposure bees receive and the effects of pervasive exposure to multiple pesticides on bee health and productivity of whole honey bee colonies. Long-term cryopreservation of honey bee semen has been successfully developed and provides the means for long-term preservation of "top-tier" domestic honey bee germplasm for breeding. Genetic variation improves bee thermoregulation, disease resistance and worker productivity. Genomic insights from sequencing the honey bee genome are now widely used to understand and address major questions of breeding, parasite interactions, novel controls (e.g., RNAi), and management to make bees less stressed and more productive.

The Economic Consequences of Bee Disease

The Role of Pesticides

Honey Bees and Colony Collapse Disorder

Colony Collapse Disorder (CCD) In Honey Bees

Bees in Peril

Hearing to review the status of pollinator health including colony collapse disorder : hearing before the Subcommittee on Horticulture and Organic Agriculture of the Committee on Agriculture, House of Representatives, One Hundred Tenth Congress, second session, June 26, 2008.

Collection of US Dept. of Agriculture, Agricultural Research Service websites related to issues concerning threats to honeybee colonies.

This is a print on demand edition of a hard to find publication. Starting in late 2006, commercial migratory beekeepers along the East Coast of the U.S. began reporting sharp declines in their honey bee colonies. Scientists named this phenomenon Colony Collapse Disorder (CCD). Overall, the number of managed honey bee colonies dropped an estimated 35.8% in the winter of 2007/2008. The reasons for colony losses are not yet known. Contents of this report: (1) Importance of Honey Bee Pollination; (2) Extent and Symptoms of CCD; Past Honey Bee Population Losses; How CCD Differs from Past Bee Colony Losses; Symptoms of CCD; Possible Causes of CCD; Other Related Events; (3) Issues for Congress; 2008 Farm Bill: Conservation; Research; Insurance and Disaster Provisions. Charts and tables.

Honey Bees and Colony Collapse Disorder (CCD)

Honey Bee Colony Collapse Disorder

A Scientific Mystery

A Spring Without Bees

Bee Health

An environmental horror comic about the interaction between humans and honeybees.

Expansive and innovative, this is the fifth collection from award-winning poet Keith Flynn.A place-based abecedarium, this compilation features two poems representing each letter of thealphabet.Recalling a specific place, city, country, or region, these poems vary in form and texture and are linked to the adjacent poemsby a theme, an image, or a single word. The result is a collection filled with historical vignettes and an unerring grasp of contemporary culture. An almanac with inspiring insights into the human condition, this book utilizes amusical language and illustrates the planet's new global challenges."

From the Publisher: A century after the birth of Rachel Carson, the world faces a new environmental disaster, from a chemical similar to DDT. This time the culprit appears to be IMD, or imidacloprid, a relatively new but widely used insecticide in the United States. Many beekeepers and researchers blame IMD for Colony Collapse Disorder, which has wiped out 23% of America's beehives. Even trace amounts make bees unable to fly back to their hive. Since honeybees are essential to the production of most major food crops, their demise could spell catastrophe. In a riveting, scientific/political detective story, Michael Schacker examines the evidence and offers a plan to save the bees. Like An Inconvenient Truth and Silent Spring, A Spring without Bees is both a powerful cautionary tale and a call to action.

The Case of the Vanishing Honeybees

The Beekeeper's Lament

Honey Bee Colony Health

Colony Collapse Disorder of Honey Bees

Beekeeping For Dummies

This comprehensive compilation of official government documents provides complete details about Colony Collapse Disorder affecting honey bees, with the 2013 report on the suspected causes of the devastating problem, and earlier reports thoroughly tracing the history of CCD to it origin. During the winter of 2006-2007, some beekeepers began to report unusually high losses of 30-90 percent of their hives. As many as 50 percent of all affected colonies demonstrated symptoms inconsistent with any known causes of honeybee death: sudden loss of a colony's worker bee population with very few dead bees found near the colony. The queen and brood (young) remained, and the colonies had relatively abundant honey and pollen reserves. But hives cannot sustain themselves without worker bees and would eventually die. This combination of events resulting in the loss of a bee colony has been called Colony Collapse Disorder (CCD). Although agricultural records from more than a century ago note occasional bee "disappearances" and "dwindling" colonies in some years, it is uncertain whether the colonies had the same combination of factors associated with CCD. What we do know from the data from beekeepers for 2010/2011 is that CCD is still a concern. The new report notes the following: Consensus is building that a complex set of stressors and pathogens is associated with CCD, and researchers are increasingly using multi-factorial approaches to studying causes of colony losses. The parasitic mite Varroa destructor remains the single most detrimental pest of honey bees, and is closely associated with overwintering colony declines. Multiple virus species have been associated with CCD. Varroa is known to cause amplified levels of viruses. The bacterial disease European foulbrood is being detected more often in the U.S. and may be linked to colony loss. Nutrition has a major impact on individual bee and colony longevity. Research indicates that gut microbes associated with honey bees play key roles in enhancement of nutrition, detoxification of chemicals, and protection against diseases. Acute and sublethal effects of pesticides on honey bees have been increasingly documented, and are a primary concern. Further tier 2 (semi-field conditions) and tier 3 (field conditions) research is required to establish the risks associated with pesticide exposure to U.S. honey bee declines in general. The most pressing pesticide research questions lie in determining the actual field-relevant pesticide exposure bees receive and the effects of pervasive exposure to multiple pesticides on bee health and productivity of whole honey bee colonies. Long-term cryopreservation of honey bee semen has been successfully developed and provides the means for long-term preservation of "top-tier" domestic honey bee germplasm for breeding. Genetic variation improves bee thermoregulation, disease resistance and worker productivity. Genomic insights from sequencing the honey bee genome are now widely used to understand and address major questions of breeding, parasite interactions, novel controls (e.g., RNAi), and management to make bees less stressed and more productive.

Audisee® eBooks with Audio combine professional narration and sentence highlighting for an engaging read aloud experience! Honeybees are a crucial part of our food chain. As they gather nectar from flowers to make sweet honey, these bees also play an important role in pollination, helping some plants produce fruit. But large numbers of honeybees are disappearing every year . . . and no one knows why. Is a fungus killing them? Could a poor diet be the cause? What about changes to bees' natural habitat? In this real-life science mystery, scientists and beekeepers are working to answer these questions . . . and save the world's honeybees before it's too late.

This book summarizes the current progress of bee researchers investigating the status of honey bees and possible reasons for their decline, providing a basis for establishing management methods that maintain colony health. Integrating discussion of Colony Collapse Disorder, the chapters provide information on the new microsporidian Nosema ceranae pathogens, the current status of the parasitic bee mites, updates on bee viruses, and the effects these problems are having on our important bee pollinators. The text also presents methods for diagnosing diseases and includes color illustrations and tables.

House Hearing, 110th Congress

Environmental and Biological Stressors in Relation to Honey Bee Colony Collapse

Hearing to Review the Status of Pollinator Health Including Colony Collapse Disorder

Challenges and Sustainable Solutions

Colony Collapse Disorder

An essential guide to the health care of honey bees Honey Bee Medicine for the Veterinary Practitioner offers an authoritative guide to honey bee health and hive management. Designed for veterinarians and other professionals, the book presents information useful for answering commonly asked questions and for facilitating hive examinations. The book covers a wide range of topics including basic husbandry, equipment and safety, anatomy, genetics, the diagnosis and management of disease. It also includes up to date information on Varroa and other bee pests, introduces honey bee pharmacology and toxicology, and addresses native bee ecology. This new resource. Offers a guide to veterinary care of honey bees Provides information on basic husbandry, examination techniques, nutrition, and more Discusses how to successfully handle questions and 'hive calls' Includes helpful photographs, line drawings, tables, and graphs Written for veterinary practitioners, veterinary students, veterinary technicians, scientists, and apiarists, Honey Bee Medicine for the Veterinary Practitioner is a comprehensive and practical book on honey bee health.

Honey Bee Medicine for the Veterinary Practitioner

Review Colony Collapse Disorder in Honey Bee Colonies Across the United States

Honey Bees

The Market Response to Bee Disease